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FOREST SOCIOLOGY:

LECTURES FOR M. SC. FORESTRY STUDENTS

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FOREWORD

It is now being realized throughout the world, and particularly in the developing countries that technical matters are not just technical matters; technical problems do not require only technical solutions. In other words, the construction of a canal or a road is not simply an engineering matter; agriculture is not only the subject matter of agronomy; and forestry is not only that which is covered by the forestry science and technology. Rather, they are as much social and economic matters, since in every technical aspect there are human beings involved; humans who are living and have their own minds. They think, make decisions and act according to their respective conditions (abilities, resources and willingness) individually as well as in groups. Thus, all of these and other technical endeavors are as much social and socio-economic matters, if not greater.

This course in Forest Sociology has been designed to understand and deal with social matters related to forestry management: afforestation, reforestation, protection, maintenance, consumption, marketing, etc. Initially, it was planned to entitle the course as Rural Sociology, constructed out of a collection of a number of forestry related case studies. Dr. Michael R. Dove made a painstaking search and came up with a good collection of such case studies. Later, a team of expatriate consultants reviewed the same and recommended for approval and adoption by the Pakistan Forest Institute, Peshawar as a teaching course. When I was assigned to write these detailed lectures, there were two arguments going on. One was that what a farmer would need is to know how to 'operate' a tractor, not its hydraulics, etc.; and thus, a forester should be taught only specific social cases related to forestry management. The other was that the farmer must, at least, know the major 'parts and their functions' while learning to operate the tractor; thus, the students of forestry should also be provided a brief introduction to the related concepts and methods of sociology before moving over to its application to the forestry related matters. Both the arguments were worth consideration, and hence, I tried to bring about a 'compromise' between the two. Accordingly, I have incorporated inputs from both the sides - as far as it was possible for me - in constructing these detailed lectures in Forest Sociology.

On the whole, one-third of this course is comprised of the relevant concepts and methods of sociology, and two-thirds of it is made up of the case studies that are directly or indirectly related to forestry matters. The course contains four sections and, in all, there are 20 detailed lectures. For aiding the teacher, an outline has been drawn out of each lecture and provided along with it. Both, the teacher and the students are advised to read the corresponding detailed lecture thoroughly before going to the class; and discuss only the salient features in the class.

M. Iqbal A. Niazi
USAID/Islamabad
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FOREST SOCIOLOGY: LECTURES

C O N T E N T S

Section A: INTRODUCTION TO SOCIOLOGY.....1

Chapter 1. Sociology and Forest Sociology.....1
Lecture 1: 1 - 6

Chapter 2. Basic Concepts of Sociology.....7
Lectures 2: 7 - 12; 3: 13 - 19; 4: 20 - 27

Section B: RURAL SOCIETY AND DEVELOPMENT.....28

Chapter 3. Rural Pakistan.....28
Lecture 5: 28 - 37

Chapter 4. Rural Social Structure: Case Studies.....38
Lectures 6: 38 - 44; 7: 45 - 56; 8: 57 - 67

Chapter 5. Rural Belief System: Case Studies.....68
Lecture 9: 68 - 81

Chapter 6. Rural Economic Behavior: Case Studies.....82
Lecture 10: 82 - 97

Chapter 7. Land Tenure System: Case Studies.....98
Lecture 11: 98 - 112

Section C: SOCIAL AND FARM FORESTRY.....113

Chapter 8. Trees and Crops: Case Studies.....113
Lecture 12: 113 - 126

Chapter 9. Social Forestry Development.....127
Lecture 13: 127 - 140

Chapter 10. Farm Forestry in Pakistan.....141
Lecture 14: 141 - 148

Section D: SOCIAL RESEARCH.....149

Chapter 11. Research Methods.....149
Lectures 15: 149 - 158; 16: 59 - 171

Chapter 12. Field Work: Case Studies.....172
Lectures 17: 172 - 180; 18: 181 - 193

Chapter 13. Project Evaluation: Case Studies.....194
Lectures 19: 194 - 207; 20: 208 - 222

Appendix-A. Forest Sociology Syllabus for M. Sc. Forestry.....223

Appendix-B. Model Questions for Exercise and Examination.....228

FOREST SOCIOLOGY

Lecture 1

TEACHER'S OUTLINE

Section A : INTRODUCTION TO SOCIOLOGY

Chapter 1. SOCIOLOGY AND FOREST SOCIOLOGY

a. Sociology

(1) Definition and Scope of Sociology.
(2) Sociology as a Scientific Discipline.
(3) Sociology and Other Social Sciences.

b. Forest Sociology

(1) Rural Sociology and Forest Sociology.
(2) Definition and Scope of Forest Sociology.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th edition.
Lahore : Aziz Publishers.

Chapter 1: 'Introduction'; pp. 1-16.

NOTE: A copy of this book has been donated to the PFI library.

FOREST SOCIOLOGY

Lecture 1

Section A: INTRODUCTION TO SOCIOLOGY

Chapter 1. SOCIOLOGY AND FOREST SOCIOLOGY

a. The Discipline of Sociology

(1) Definition and Scope of Sociology

Various authors including Ibn-e-Khaldoon (1332-1406 A.D.) have defined 'Sociology' in a variety of ways. In simple and brief words it is the study of 'society'. But what is society, is a term that has long been under debate. However, we will review various definitions and their common characteristics in the next chapter to give you an idea of what do we mean by the term 'society' when speaking sociologically. Here we shall concentrate on the discipline of sociology itself.

The basic unit of study in sociology is neither an individual (man or woman), nor his body structure, organs or mental capabilities. Rather sociology focusses on interrelationships, interfunctioning and interdependence of two or more individuals. In other words, sociology studies what happens when individuals meet, talk, cooperate, compete, quarrel, love or hate in their family,neighborhood and other surroundings. Sociology is interested in studying the human interactions in their family, economic, religious, political, play and recreational activities. Thus, the unit of study, at the lowest level in sociology,is an interacting individual. The individual that is in the process of influencing or being influenced by the overt and/or covert behavior of another individual. Such an event assumes that there exists a communication between them; someone is passing on a message while the other is receiving the message; they are sharing common symbols and they perceive, define, evaluate, interpret and relate the situation in a meaningful way for getting hints for their behavior performance. When two or more individuals are in a state of interaction, they form a group. The systematic study of structure and functioning of human groups may be defined as sociology. The concept of interaction is basic and fundamental for group and societal life. The subject matter of sociology, thus,is individuals in interaction having interdependence on one another.

When the individuals are in a state of interaction and they are interdependent, they develop relationships with others. They act one way or the other in different social situations. The study of such human relationships is the field of sociology. How and why men/women act differently in the same situation and how and why

they act similarly in different circumstances are a sociologist's primary field of study. Sociology seeks to find out such uniformities and universalities in human relationships and behavior. And, such findings are predictive in nature.

Since, sociology aims at analyzing, describing, interpreting and predicting human behavior, therefore, biological characteristics, geographical environment, group life and cultural factors are given much importance while studying human behavior scientifically. Sociology studies every aspect of human behavior, irrespective of the fact that it is right or wrong, desired or undesired, normal or abnormal, good or bad. The subject matter of sociology is to study human behavior that is influenced by virtue of group participation without passing any value judgement. In sociology, every human behavior is social, as it is the outcome of an interacting individual.

The frame of reference of sociology, at the moment, is not difficult and complicated but it is nearer to common sense. Its concepts like, group, society, culture, social institutions, etc. are frequently used in every day language even by a laymen.

(2) Sociology as a Scientific Discipline

After an introductory discussion on the discipline of sociology, let us now see what makes sociology a science. Science generally means knowledge. But every knowledge cannot be science. If you know my name, your friend's address or a city/country where some of your acquaintances live, for example; that is not a scientific knowledge. Similarly, if this morning while coming to PFI, you saw some carts on the road, children going to school, a man carrying milk on his bicycle carrier and so on, you did not observe or know anything scientific. On the other hand, if you observed the traffic discipline or speeds of the carts and bicycles, buses and carts; bicycles with number of passengers or size and type of loads being carried; school children or office workers' directions of movement and their mutual behavior, you did something scientific. Because these observations can be tested, analyzed, categorized, interrelated, measured and predicted to some extent. Collection of this type of data (knowledge) with some objective can be called scientific, as we can establish cause and effect relationship for the phenomenon under study.

The sociologists have specific field of study beyond which application of scientific methods is not possible. For instance, suppose a person sitting within the four walls of his house claims to have seen a ghost. A scientist on learning such a vague statement would take the person as abnormal. Because the scientist can neither challenge such a claim nor test its reliability and validity by means of his standardized techniques and methods of measurement. Such instances are not covered by the field of science. It is not within the jurisdiction of science to make generalization

regarding super-natural objects. Such things are super-scientific. Even with the present stage of progress and development of scientific methods, we are helpless to explain and predict the events taking place in the metaphysical world.

To sum up, science is the systematic body of knowledge derived with the application of standardized and reliable instruments in a particular field. There is cause and effect relationship for the phenomenon under study. Such a knowledge is derived with the application of standardized tools and methods. Science deals with such phenomenon that can be put to test through reliable tools. In other words, we can say that science is the systematic body of the knowledge, covering both theory and fact, derived from the application of well disciplined tools. Thus, science is comprised of knowledge and methods that are scientific which can be tested, verified and measured.

The discipline of sociology does possess both concepts and methods. Concepts being the basic requirement of a science, there are numerous in sociology. Some of the most commonly used concepts in sociology are: society, community, culture, group interaction, social process, social institution, social organization, social structure, social mobility, social change, etc. All these concepts carry special meaning in sociology and, therefore, will be defined and explained sociologically in the next chapter. They are all interrelated with one another. There is rational explanation for the concepts in sociology and they help in understanding group dynamics,cultural reality, interactional processes and sociological truths. Like any other science, there is an element of 'prediction' in sociology. The sociologists predict human behavior but it is a difficult job. There are no formulae or laws about human behavior. Every effort is being made to develop this science on the pattern of other developed sciences.

Nothing can be accepted as true in sociology until and unless similar events are observed and reobserved under the same conditions. These recurring uniformities are observed and verified only by adopting scientific methods. For example, while studying the phenomenon of crime, we shall first record the possible factors contributing towards crimes and their effects on an individual, group and society. Then, the factors along with their effects, which are common in most of the cases under study, are verified and reverified again and again and the valid factors are retained. The factors which do not stand as valid are dropped. Sociology has developed its own techniques for the collection of data to analyze, measure, interpret and predict different dimensions of human relationship. For a sociologist establishing rapport, interviewing, sampling and questionnaires have the same meaning as a microscope for an astronomer or a litmus solution for a chemical analyst.

Sociology is neither pure philosophy nor a perfect science like mathematics. The sociological knowledge can be put to test and is true under certain specified conditions like other physical and social sciences. The family life, work and worship places and playground are the laboratories of a sociologist where the experiments

can be made on different aspects of human behavior. Since the human behavior is multidimensional and ever-changing with reference to space (geographically or horizontally) and time (historically or vertically), the laws and predictions in sociology are not as exact and perfect as in Mathematics. Nevertheless they do have the element of uniformity and universality as the hypotheses like that of cultural lag, social distance and so on.

(3) Sociology and other Social Sciences

Usually, application of practical skills guided by scientific knowledge is called 'art'. As regards science, we have already enumerated its postulates and have claimed sociology as a science. The sociologists basically take things as they are and not as they ought to be. The practical aspect of sociological knowledge is taken care of by Social Work. Thus, social work is an art and sociology is a science. The difference between sociology and social work or between a sociologist and a social worker is the same as between a medical practitioner and a pharmacist. The direct and fundamental aim of sociology is to find facts. For example, to find out the possible causes that hinder the progress of a community is the job of a sociologist and he may also suggest the possible ways and means to formulate the program of community development acceptable to local people. The social worker implements the findings of the sociologist to improve the conditions of the community. Thus, sociology and social work are science and art respectively.

Sociology, as a scientific discipline, pertains to the objective and scientific study of society for the knowledge and theoretical advance. Pure sociology is not interested in practical application to solve particular problems or even to bring about societal improvement. Some of the sociologists object to its lack of adequate concern towards the solution of pressing national and international problems and challenges, contending that sociology already has enough knowledge to apply to their knowledge. The term 'Pure Sociology" is not widely used today.

Applied Sociology, on the other hand, stands for the application of sociological principles and insights to the analysis and understanding of a concrete social situation or system of social relationship. Applied sociology is not to be confused with social work, social reform or social welfare. If at all a sociologist attempts to tackle the practical programs at a given time and place, it is not his primary concern. Primarily, a sociologist is a scientist and science does not teach subjectivity, partiality and morality or anything relating to the introduction of value judgement.

Sociology is a scientific study of structure and functioning of human groups, or, in other words, it is a 'behavioral science'. It seeks to explain contemporary are past behavior as we experience it directly or encounter it embodied in artifacts, monuments, laws

and books. In this sense, History, Economics or even literary criticism are also behavioral sciences. How far sociology is similar to or different from other 'social sciences' shall enhance our understanding of what sociology is. Sociology is closely related with other social sciences like Economics, Political Science, Civics, History, Geography, Social Psychology, Anthropology, etc.

Reference

Chaudry, M. Iqbal, 1984, Sociology, 7th edition; Chapter 1: 'Introduction', pp. 1-16. Lahore: Aziz Publishers

b. Forest Sociology

(1) Rural Sociology and Forest Sociology

So far, we have discussed that what sociology is, to what extent it is a scientific discipline, what are its major concerns of study and how does it fit into the complex of the so-called behavioral or social sciences. Now it is time we move towards our purpose of implying sociology in the field of Forestry. In other words, 'Sociology for Foresters', or its extent and degree of utilization by the students and practitioners of the forestry related specializations. But, so far, there is no such well-established and widely accepted field of study in sociology which can be called as Forestry/Forest Sociology. There has no direct link, so far been established between Forestry and Sociology. However, there is an indirect way of linking these two different disciplines, and, that is through a derivative of the discipline of sociology, known as 'Rural Sociology'.

Rural Sociology is one of the major fields of study in sociology which focusses its attention in studying rural societies sociologically. That is, it studies the rural social systems comprised of interrelationships, interactions, interfunctioning and interdependence of the rural people (individuals, groups, and the entire society). Their social structure, culture, ways of living, roles, statuses, categories of class and caste, occupations, etc. are the areas of major concern to a 'rural sociologist'. He may also study certain aspects of 'urban society' but only those which have at least some relationship with rural society. These relationships can be purely social, socioeconomic, socio-political, and/or any other ones that may affect rural society in one way or the other. But his focus remains at rural society and everything that is out of it, has normally to be with reference to it. Since most of the forests and forestry operations are concentrated in rural areas and related directly to rural societies, rural sociology is of more relevance to forestry planning and management than sociology per se. The use of the knowledge and methods of rural sociology are assumed to be more appropriate and hence adopted herein.

(2) Definition and Scope of Forest Sociology

Rural sociology with reference to forestry planning, operation and management is the subject matter of this course, entitled as 'Forest Sociology'. Forest Sociology, herein, stands for sociological or more specifically, rural sociological concepts and methods that have at least some relevance to Forestry education, research, extension, planning, operation and overall management. More specifically, it concentrates on farm and energy forestry, involving planting, maintaining and harvesting trees and their consumption and marketing. Whatever is social in all these aspects of forestry, is termed hereby Forest Sociology.

But the study of trees in isolation from other important factors of the whole system of the environment - the natural resources, ecology and culture - would not yield much for a fuller understanding of the subject matter and its effective use. In other words, the study of trees, in the context of and as part of the whole environment (both natural and cultural) is of vital importance for a student of forestry; because trees do influence and get influenced directly or indirectly by other factors of the environment. Particularly, soil, water, crops and animals have significant cause and effect relationships with tree growing, maintenance and consumption; and there are various human practices involved in these factors and aspects. Thus, the tree-crop-animal 'tripod', as a closely interrelated system, provides the major base and support for the structure of this course.

Therefore, this course has been designed to include, to a possible extent, all these factors and aspects in the context of human relations, practices and conditions. The sociological concepts and methods have been kept in view throughout this course. The selection and formation of the topics and discussions have been guided constantly, in order of importance, by three light-towers: Forestry, Sociology and Pakistan. That is, the subject matter of this course has been constructed out of the materials that have direct or indirect relevance, first to forestry, then to sociology and lastly to Pakistani or similar conditions. But the problem is, there is not much forestry-sociology related material available on Pakistan. Therefore, most of such material presented here is from the studies in other countries that are similar in one way or the other to Pakistani situation. Accordingly, much of this material comes from nearby countries, India, Bangladesh, Iran, etc. and some from Africa or Latin America. Latter, when such material (studies) becomes available on Pakistan, this material from other countries may be replaced. Afterall the purpose of this course in Forest Sociology is for the training and utilization of the Pakistani Foresters.

NOTE: No reference; self-written (M. Iqbal A. Niazi, USAID/Isld.).

FOREST SOCIOLOGY

TEACHER'S OUTLINE

Lecture 2

Section A : INTRODUCTION TO SOCIOLOGY

Chapter 2. BASIC CONCEPTS OF SOCIOLOGY: Definitions and Brief Explanations

(1) Society
(2) Social Structure
(3) Community
(4) Culture

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th Edition.
Lahore : Aziz Publishers.

Chapter 2: 'Society'; pp. 32-35.
Chapter 4: 'Analysis of Social Structure'; pp. 58-78.
Chapter 5: 'Culture'; pp. 86-95.

NOTE: A copy of this book has been donated to the PFI Library.

FOREST SOCIOLOGY

Lecture 2

Section A: INTRODUCTION TO SOCIOLOGY

Chapter 2: BASIC CONCEPTS OF SOCIOLOGY: Definitions and Brief Explanations

Some of the basic concepts of sociology which seem relevant to your training and work hereafter are defined and explained briefly in the following lines. The purpose here is just to make you understand these concepts sociologically; a step further from the ordinary meaning and usage of the same. We do believe that you are specializing in the field of Forestry and we have no intention of turning you to be Sociologists. Nevertheless, these concepts are expected to provide you with better understanding of the human social factors you may have to deal with in your forestry operations. After all, you are and will be dealing with people. People that are your higher ones, your own level colleagues and counterparts and the lower ones whom you will supervise or serve. This last category of people, particularly the users and the beneficiaries of the Forestry Management Operations are of vital importance. Hence,they have been made focus of this course in Forest Sociology.

(1) Society

The term society is loosely defined in sociology. Almost all the disciplines of the social sciences use this term but its standardized and precise definition is still lacking. Even sociologists do not agree on exactly what constitutes 'society' and what is or is not functional for it. They are not sure yet as to who or what are the exact attributes of 'society' but hardly a few of them have all the characteristics of a good definition. However, some of the definitions are given below:

i. Society is the largest group in which individuals have 'relationships'.

ii. It refers to a large grouping of people who 'share a common set of habits, ideas, attitudes and consider themselves a social unit'.

iii. It is 'a system of usages and procedures of authority and mutual aid of many groupings and divisions of control of human behavior'.

iv. It is a group of people 'associated together for some common interest or purpose'.

v. It is the 'sum total of human relationships'.

vi. It is a 'relatively large group that will continue to exist satisfying basic needs of the members; such satisfaction implies a time span of at least two generations'.

vii. It is a 'type of social system, in any universe of social systems which attains the highest level of self-sufficiency as a system in relation to its environment'.

viii. It is 'a group of people with a common, at least, somewhat distinct culture who occupy a particular territorial area, have a feeling of unity and regard themselves as a distinguishable entity'.

From the above definitions one can realize that there are some important points which are common and should be considered as important features of society. Putting all these salient characteristics together, we come up with this compound definition:

> "Society is a large human group that satisfies the needs of its members who have common interests or purposes and established roles and statuses and who are conscious of their kind (identity) and interdependent on each other. It is a self-sufficient social system, larger than a community; has its own culture and means of survival and lasts for a longer period of time than groups and communities".

The concept of society is used in both narrow and broad senses. Sociologists generally do not use this term in the latter sense which refers to every kind of social relationship. In the narrow sense, society may be regarded as the people who live within a given geographical area, have a common history and some permanence in their relationships. Society deals with specific, definite and direct types of relationships of the people.

Some of the animals also have societies. But such societies differ from human societies, as social behavior of the animals is fixed by heredity. For example, division of labor and specialization in society is based on the learning processes but it is a biological specialization. Animal society is based upon interactional processes but they rest entirely on instincts. There is no cultural transmission for new members. The changes in animal societies are very rare whereas in human societies changes are the order of the day. From primitive to highly advanced societies, changes are a regular phenomenon.

Reference:

Chaudhry, M. Iqbal, 1984, Sociology, 7th edition. Lahore: Aziz Publishers. Chapter 2: 'Society'; pp.32-35.

(2) Social Structure

A structure stands for an arrangement of elements, events, facts or parts of a whole. Applying this concept to human society, a sociologist takes the societal facts or events as the elements or parts of social structure. Social structure thus, refers to the pattern of interrelated statuses and roles prevalent in a society at a given time. Social structure pertains to a relatively stable set of social relations. It is the established and organized set of rights and duties of persons and groups. Such rights and obligations are analyzed in terms of statuses, roles, norms and social institutions. The term 'social organization' is used synonimously with social structure. But social organization is different from social structure in the sense that the former is the charging and the functional aspect of the latter.

Social structure has got immense force to control the behavior of its individuals and is responsible for the socialization,personality formation and to coordinate their activities and relationships Thus, the social structure stands for those superorganic forces which maintain the balance or equilibrium of society.

Generally, interrelation and interdependence of individuals in a community are regulated through their specific roles and statuses in a social situation. When the social institutions of a community are seen interrelated, it is called social structure. The more simple and community or society, the less will be the number of social institutions. Normally, in a primitive society, there are family and religious institutions which regulate the entire activities of its individuals. As the society grows complex, economic and political institutions crop up in order to regulate the norms of property, inheritance, power, and authority among its members. With the passage of time, the existing social institutions are also unable to cope with the multifarious human activities. Then separate institutions like education, play and recreation, etc., come into existence. Thus, the social structure becomes relatively complex.

The social structure or standardized pattern of group life is usually associated with certain functions. It satisfies the needs of individuals and directs, controls and coordinates the human behavior in all walks of life. The social structure is also responsible for transmission of culture, socialization of individuals and regulates the human behavior. Socialization seen in this perspective refers to the process of learning the shared expectations (standardized values and specific forms of behavior) associated with the roles to which an individual is allocated. There are various roles. Ascribed roles refer to the dynamic aspects of one's status which are rigid, fixed and predetermined by virtue of one's birth, sex, age or any other biological characteristics.

Achieved roles, in contrast, are open and obtained by an individual through his or her efforts. Role sets consist of related role performances occupied by an individual; e.g. the teacher interacting with students, colleagues and the principal. Multiple roles refer to the occupancy of different role sets by the same individual. For example, a farmer playing the roles of the cultivator, husband, member of the village cooperative society, so on and so forth.

Reference

Chaudhry, M. iqbal, 1984, Sociology, 7th ed. Lahore: Aziz Pub. Chapter 4: 'Analysis of Social Structure'; pp.58-60.

(3) Community

Community is a larger group of individuals living together for a long time in a locality having common interests, goals, ways of life and norms, etc., and meeting out most of their needs from local social institutions. The examples of community are village and 'mohallah' in rural and urban areas, respectively.

Community is a concentrated settlement of people in a limited territory which satisfy many of their daily needs. There is a consciousness of kind, that is, people think that they belong to a particular social and territorial unit. There is a certain degree of identification and a feeling of sharing of common interests and values and mutual cooperation among its members. That is why big cities, despite common geographical area and ecological units, do not constitute communities. The essentials of community are that it is a sufficient unit in most cases, wider than neighborhood, comprised of a large number of people living together within a specified geographical limitations, a self-conscious social unit and its members have common norms, culture and social institutions. They have common social problems and they normally stand united against an outside danger.

However, it is difficult in the modern age to determine a given geographical area as a community because diffusion and acculturation are taking place and people are not restricted to their own locality. The needs of the individuals are increasing day by day. Thus, members of a community are not able to meet their needs within their community. To some extent, most of the sociological characteristics of a community center around pattern of normal distribution. A community can serve as the best and the most suitable unit of study and operation. Almost all the characteristics of community were found in a village about five decades back (1930s) in our country.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th ed. Lahore; Aziz Pub. Chapter 4: 'Analysis of Social Structure'; pp. 77-78.

(4) Culture

Culture is one of the most important concepts of sociology. Its significance is quite different from everybody's popular meaning of culture. Generally speaking, people call a person 'highly cultured' if he possesses good manners and etiquettes. In sociological sense every person is cultured. No matter this conception varies from group to group. Thus, social scientists do not take 'culture' in an evaluative form, that is, in the form of good or bad one.

Culture is a central concept in Anthropology as well as in Sociology (the studies of Mankind and Human Behavior respectively). The simplest and shortest definition of culture is that it is a 'social heritage'. It is the 'totality of way of life of a people'. 'Culture is the part of environment that is the creation of man'; or in other words, 'it is the man-made environment',. Environment includes, social, cultural and physiographic objects. The classical definition of culture, according to Tylor, is:

> "Culture or civilization taken in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law, customs and any other capabilities and habits acquired by man as a member of society".

This definition takes a very good start but ends badly. The question is, what is it that all three things have in common. 'Culture is socially shared and transmitted knowledge both existential and normative, symbolized in act and artifact'. It means culture is learned. It is socially transmitted from parents to child and from one generation to the next. Culture is a knowledge of what is and what ought to be, we emphasize its ideal nature.

Culture is a way of life. It is a total man-made environment including both material and non-material products which are transmitted to the next generation. After a critical survey of current definitions of culture, A. L. Kroeber and C. Kluckhohn concluded that the consensus of social scientists is that:

> "Culture consists of patterns explicit and implicit, of and for behavior acquired and transmitted by symbols, constituting the distinctive achievements of human groups, including their embodiments in artifacts, the essential core of culture consists of traditional ideas and especially their attached values".

Culture has been defined as 'a totality of standardized and

patterned ways of living and doings of men, inherited from the past, including both material and non-material objects'. J. F. Cuber defines culture as 'a continually changing pattern of learned behavior (including attitudes, values, knowledge and material objects), which are shared by and transmitted among the members of society'. Main features of this definition, thus, are:

i. Behavior is learned and patterned.

ii. The behavior of an individual (attitudes, values, habits, knowledge and material objects) is the product of the behaviors of other members of the society.

iii. Culture is actually shared, transmitted, ever-changing, accumulative and pervasive.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th ed. Lahore: Aziz Pub. Chapter 5: 'Culture'; pp. 86-95.

FOREST SOCIOLOGY

Lecture 3

TEACHER'S OUTLINE

Section A : INTRODUCTION TO SOCIOLOGY

Chapter 2 BASIC CONCEPTS OF SOCIOLOGY: Definitions and Brief Explanations

(5) Social Stratification.
(6) Social Group and Grouping.
(7) Social Institutions.
(8) Social Interaction.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th edition.
Lahore : Aziz Publishers.

Chapter 3 : 'Groups and Groupings'; pp. 45-57.
Section V : 'SOCIAL PROCESSES'; pp. 196-199.
Chapter 13 : 'Structure and Functions of Social Institutions'; pp. 227-235.
Chapter 25 : 'Class and Caste'; pp. 283-284.

NOTE: A copy of this book has been donated to the PFI library.

FOREST SOCIOLOGY

Lecture 3

Section A: INTRODUCTION TO SOCIOLOGY

Chapter 2. BASIC CONCEPTS OF SOCIOLOGY: Definitions and Brief Explanation (Cont'd.)

(5) Social Stratification

Social stratification is the study of a social structure in which various individuals have been assigned different roles and statuses (both ascribed and achieved) in such a way that certain persons are at the top, while the others are in the middle and bottom. These people perform their roles in such a way that the machinery of social structure and social organization continues to exist and work smoothly under normal conditions.

Different societies classify individuals differently. That is, some people are placed as higher or superiors, while the others as lower or inferior in hierarchical order. This differentiation in rank or status is usually superimposed by the traditions and norms of the society without the willingness of the individuals. In most of the cases such a differential treatment for different individuals in society becomes a cultural pattern and is accepted by the individuals. Social stratification is found in every society, no matter how democratic and open a society is. The system of differential privileges, rights, duties and responsibilities is like the layers of a rock in geological formation, the composition of various layers contributes towards its existence.

Social stratification can be defined as the system of institutionalized inequality among the individuals at a given time and place. There are different statuses for the people belonging to different sexes, occupations, age categories, income groups,castes, and similar other categories. The name given to such categories and associated behavior, differential treatment, various expectations and different rights and duties within the society is called social stratification. In other words, we can say that social stratification stands for the 'processes by which we judge how, when, where, what and how much an individual gets his or her share in different walks of life in society'. Social stratification has its four essentials:

i. A particular system of stratification is generally applicable to a particular society only at a given time.

ii. Social stratification is a process and this process is subject to change.

iii. There are always some individuals who enjoy privileges and rights at the higher level, and the individuals at the lower levels have certain obligations for and expectations from the people placed above them.

iv. It is on a continue: The highest form of social stratification is found in India and at quite a lower level in the countries where there is a single class system or socalled classless societies.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th edition. Lahore: Aziz Publishers. Chapter 25; 'Class and Caste'; pp. 283-284.

(6) Social Group and Grouping

When two or more individuals are in a state of interacting, they form a group. There are five essentials of a social group:

i. There are at least two persons to constitute a group.

ii. There must be communication between/among the individuals, the group members. There does not have to be physical contact between them. For example, when we read a newspaper or watch news on radio or television, the process of communication (though one-sided) is going on and the contents and style of expression leaves some impression on our mind.

iii. Persons who have interest with one another and make a group, they share common interest among themselves.

iv. There is a social structure, meaning standardized relationships and meaning that arise out of human experience, which regulates the activities of the group under normal conditions.

v. There is interdependence among a group members.

In a loose sense, any collectivity or even a plurality of individuals is called a group. In a narrow sense, a group is a small and face to face interaction of individuals. This latter definition is used by sociologists interested in the study of small groups. Accordingly, social groups have been classified in two ways. The first being the In-groups and Out-group categories and the later, the Primary Groups and Secondary Groups.

The in-group are those social groups that have the dominating element of 'consciousness of kind'; the members develop a feeling of oneness among themselves and they know each other by name, by face, by occupation, etc.; and they have an emotional attachment with each other. Examples of these groups are family, playmates,

class-fellows and people living in the neighborhood (e.g., a village). The out-groups, on the other hand, do not have a developed dominance of the 'consciousness of kind' and the members are not emotionally attached to one another. Out-group, then, refers to all persons who are considered excluded from an in-group. For example, the PFI students may consider the Peshawar University students or professors as out-groups. Similarly, the officials of the Forest Department may be considered as out-groups by the PFI students and vice-versa.

The primary groups are the social groups whose members have intimacy, close relations, consciousness of kind, integration and unity, prevailed cooperation and tendency towards a permanent relationships among themselves. They are, in addition, personal and emotionally attached with one another and their groups are an end in themselves; not means to certain ends. In secondary groups, on the other hand, the relationships of the individuals are less personal. There is low degree of intimacy and the contacts are casual which are not based upon permanent footings. For example, when there is interaction between an employer and his employees, teacher and students, shopkeeper and customers, officers and villagers or a lawyer and his clients, they constitute secondary groups. The individuals in such groups meet one another with some specific purpose and their interaction is temporary and short lived. In secondary groups normally, the individuals can be substituted or replaced without much disturbances created in the structure and functions of the groups. In the case of primary groups, substitution or replacement is usually difficult. It is not easy for a new comer to adjust himself into a primary group.

Social groups and social groupings are two different terms used in sociology. For instance, when the individuals categorize themselves and maintain relationships (theoretically, and not through communication) having a common interest among themselves, they are attributed to form a grouping. The individuals in categories or groupings are thought of as together but are not ordinarily in communication with one another which is necessary condition in the case of a group. For instance, the categories on the basis of age, sex, occupation, caste, education, class, etc., in the population are not groups in the true sense but groupings. Thus, people classify themselves into different categories and develop association with such divisions in society but practically having no inter-communication among themselves.

Grouping is a social category of persons having similar characteristics and statuses in a society. These individuals are not organized into a system of interaction and they may not even be conscious of such a common social category. If the members become aware of such a social category, leadership might be developed which, in turn becomes a basis for the formation of a social group or rather, a social organization. But ordinarily, most social categories or groups do not develop into social groups.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th edition. Lahore: Aziz Publishers. Chapter 3, 'Groups and Groupings'; pp.45-57.

(7) Social Institutions

When we talk of social process we take society in action, while we discuss social norms individuals are not taken into consideration, but their shared expectations are given priority. When such norms are interrelated and crystallized, pertaining to relatively limited activities of mankind at one time and a given space, it becomes a social institution. The importance of an individual in a set of norms becomes secondary. Group expectations are the foremost. The norms are to satisfy certain needs of people on standardized lines or in patterned ways.

Social institutions though simple in theory are quite complex in practice. The functions of all the social institutions with slight variations are universal. For example, every-where the family is responsible to reproduce, rear, care and to train children. The structure of an institution can be understood by understanding the force of human relationships. It is this force which keeps the functioning and the body of the social institution itself normal, stabilized and maintains an equilibrium. The structure helps the individuals in shaping their behavior reliable and predictable. The structure has not physical shape, but can only be understood. In many cases it is understood by unconscious and non-deliberate efforts of the individuals. This aspect of a social institution does not accept change easily and thus it is relatively difficult to bring new traits in it. If at all any change occurs it is usually very significant though its speed is slow. The structure is both a means (to produce functions) and an end in itself. It can be defined as the mechanism to perform functions in time and space.

It is universal that the cultural values, like what is good or bad, right or wrong and what is desired or undesired by the individuals in different social situations, are associated with social institutions. These are the implementing agencies of basic cultural values which are kept alive by them. For example, in fulfilling one's sexual need an individual is guided by a social institution, as to whom to seek and how to legalize matrimonial relations with the partner and so on and so forth.

The importance of social institutions and the degree of their hold on the individuals varies from institution to institution and from time to time. For example, there are choices, liberties and compulsions in institutions. In play and recreational institutions there are some choices for the individuals, but such choices are very limited in the family and marriage institution. At the time

of war or natural calamities (flood, storm, famine,epidemics, etc.) political and economic institutions get tremendous importance and power over the rest of the institutions in a society. These claims or obligations to the institutions upon the individuals can be attributed to loyalties to social institutions. Such loyalties of institutions may create conflict among individuals and hinder the social changes. This may further hinder the functional integration of society.

Under normal conditions political and economic institutions have symptoms of conflict with religious institutions. During war, an individual becomes confused between one's loyalties to the family and political institutions. Often there is confusion in the integration of social institution at an individual level. In spite of all this, there is definite functional integration of high level among the various social institutions both at individual and group levels. There is a close interrelationship and interplay among different social institutions. Change in one of the institutions brings change in the rest of the institutions. Every institution individually carries its functions in an orderly and systematized way both for individuals and group levels.

To sum up, we can say that the more patterned the behavior, the more stabilized will be a social institution in its structure as well as functions. A primitive society will have less number of social institutions while complex society will have more. For example, in primitive societies, the family and political institutions cover the entire range of human activities, while in highly advanced societies, there are, in addition, economic, religious, educational and recreational institutions to meet the same needs of the people. The combination of all the social institutions is called 'social structure'.

There is malfunctioning in a social institution when it does not fulfill the needs and requirements of the individuals or it does not adjust its structure and functioning with the changes in itself or with any other social institution. This brings inconsistency in one or more of the social institutions. As we observed earlier, institutions appear to be simple in theory, but are difficult to understand in practice. Derived from the term institution, is a commonly used term 'institutionalization'. Institutionalization refers to the process by which normative order and action patterns are established in community. If there is a planning (rational process of preparing a set of decisions for action in the future) for institutional changes, this can lead to more effective utilization of the community's resources.

Another term oftenly used in the development programs is, 'institution building'. It refers to the planning, structuring and guidance of new or reconstructed organizations. These organizations are aimed at incorporation, fostering, encouragement and protection of normative (shared expectations) relationships and action

patterns; performing the functions and services that are valued in the environment (physical, biological, social and cultural); and, facilitating the accommodation of new physical and social technologies. Institution building is considered as an instrumentality for the introduction of socio-cultural changes of any kind. Once the process of institutionalization is finalized in any of the areas of human activities, the element of automation comes in for human behavior. Human behavior become more or less predictable and standardized than before.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th edition. Lahore: Aziz Publishers. Chapter 18: 'Structure and functions of Social Institution'; pp. 227-235.

(8) Social Interaction and Processes

Sociology is the study of social relations which are the out come of social interaction. Interaction is the key factor to every sphere of social life,through which the individuals and groups come into contacts and social life is initiated. The market, banking system, factory, family and community life are the outcomes of different types of behavior, or roles of individuals. The individuals compete and cooperate with one another for certain objectives through which different forms of organization are set up. There are basic social processes, like competition, cooperation, conflict, accommodation, assimilation and acculturation. Interaction is the basis of all social processes, as it initiates the social relationships among the individuals and groups.

The social processes or the forms or modes of interaction are universal, as one or the other form of social process is always present in the human relationships. For instance, interaction is the major process for the socialization of an individual from birth to death, which exists in every culture.

Interaction is made possible by communication. The social life cannot exist until and unless there is communication. When social interaction takes place, it conveys ideas, meanings, expressions, etc. from one individual to another. The presence of language (written or spoken) in all societies indicates that social interaction on symbolic basis is a universal pattern. Interaction among the animals also exists but there is no developed form of symbols capable of representing the meaning improved through experience in a span of long time. The mean of communication through languages, written material, radio, television, telephone, movies and means of transportation has progressed a lot. The media of communication directly and indirectly enhances social interaction.

Social interaction is the basic social process represented in communication and a mutual relationship between two or more individuals or groups. The social or inactional processes are never static or fixed. These processes refer to a set of ongoing activities, which are facilitated through language, symbols,and gestures.

Interaction between individuals is social behavior. In a way, the study of social institutions, social structure and social change is the study of social processes.

So to speak, social processes pertain to a series of events forming a recognized pattern that reoccurs often in human behavior, so that one can observe the pattern again and again. There are elements of regularity and similarity in the social processes in different cultures and societies. The nature of social processes remains the same, though its forms may vary from one society to another. The very basic forms of interaction are cooperation Opposition. Cooperation can be sub-dividual into accommodation and assimilation to stand for association and unity in human relationship. Opposition, on the other hand, can be sub-divided into competition and conflict to mean for disassociation and disunity in human relationships.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th edition. Lahore: Aziz Publishers. Section V: Social Processes; pp.196-199.

FOREST SOCIOLOGY

Lecture 4

TEACHER'S OUTLINE

Section A : INTRODUCTION TO SOCIOLOGY

Chapter 2 BASIC CONCEPTS OF SOCIOLOGY: Definitions and Brief Explanations

(9) Social Mobility.
(10) Social Change.
(11) Social Organization.
(12) Voluntary Associations.
(13) Collective Behavior.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th edition.
Lahore : Aziz Publishers.

Chapter 4: 'Analysis of Social Structure'; pp. 60, 78-84.
Chapter 26: 'Social Mobility'; pp. 298-300.
Chapter 28: 'Collective Behaviour'; pp. 310-313.
Chapter 30: 'Social Change'; pp. 335-337.

NOTE: A copy of this book has been donated to the PFI library.

FOREST SOCIOLOGY

Lecture 4

Section A: INTRODUCTION TO SOCIOLOGY

Chapter 2. BASIC CONCEPTS OF SOCIOLOGY: Definitions and Brief Explanations (Cont'd.)

(9) Social Mobility

Mobility means movement or change in relative position of an individual. The term social mobility refers to 'the movements of the individuals within social structure'. These movements may be horizontal, vertical or geographical but resulting ultimately in the socio-economic change of an individual or group. For example, movements can be in occupation, income, status, education or any other field pertaining to the basic sociological characteristics of an individual. Social mobility in simple words pertains to upward or downward movement of persons or groups. The occupational change from one generation to another is the main criterion to measure social mobility. There are three forms of social mobility, namely, the horizontal, vertical and geographical:

(a) Horizontal Mobility: Horizontal mobility refers to the change of one's residence, job, etc. without any change in the status of an individual. For example, if a lecturer is transferred from one government college to another government college with the same grade of pay and responsibilities of teaching; it is called non-material gains for an individual, as his status, more or less, remains unchanged. In a caste-ridden society even such mobilities are rarely frequent. Thus, horizontal social mobility is defined as 'the movement of an individual's social position without a corresponding change in his general position in a prestige hierarchy or social class level'.

(b) Vertical Mobility: Vertical mobility refers to the movement of an individual upward or downward in the social structure, with a consequent gain or loss in his/her status. For example, if a Divisional Forest Officer (DFO) gets promoted to the post of a Conservator of Forests (CF), an office clerk resigns from his job and gets selected as a lecturer, a tenant farmer buys a large piece of land and becomes a landlord or owner-farmer and so on; it will be called upward mobility. In contrast, if the DFO gets demoted to the post of a Range Forest Officer (RFO), the clerk gets terminated (or resigns) from his job and begins to work as a peon or laborer, the tenant-farmer even loses the leased or share-cropped land and has to make his living by hard construction labor or begging and so on; it will be called downward mobility. But in each case, upward or downward, it will be a vertical social

mobility, because each of these changes are expected to bring about a change in the income and thus status of the individual in question and his behavior accordingly. The number and rate of such achieved statuses are enhanced where there is higher rate of vertical mobility. Democratic and open societies have the prominent characteristics of social mobility. It is a movement between different social classes or status levels of a given society or social system, that is, upward or downward change involving a gain or loss of class status or prestige.

(c) Geographical Mobility: Geographical mobility refers to the movement of an individual from one area to another. It can be both horizontal or vertical, too. In geographical mobility one has to transfer, move or migrate to another area and resettle there. Migration/resettlement can be voluntary or forced and may involve individuals, families and groups. For example, the migrations of people from rainfed (barani) areas to irrigated area colonies in the Punjab and Sind provinces and of Indian Muslims to Pakistan were mainly voluntary geographical mobilities. But the evacuations of people from the Islamabad, Mangla and Tarbela areas and their resettlements in other areas in the country are considered mainly forced geographcal mobilities. The geographical mobility often brings about change in occupation, income and even class and caste to influence the status of the individual, family or group accordingly. Thus, it can cause horizontal and/or vertical mobility, too.

Social status is a relative process which may vary from place to place and from time to time. For instance, in interior Sind province large land owners ('waderas'), but in the city of Karachi industrialists and big businessmen possess highest status. And, time-wise, until early this century the order of occupational categories with respect to status was farming, business and employment, but now it seems to be changing to the new order of business, employment and farming. Social status is measured from its indicators in social life. The major indicators are occupation and income level of an individual or family.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th edition. Lahore: Aziz Publishers. Chapter 26: 'Social Mobility'; pp. 298-300.

(10) Social Change

The phenomenon of social change is as old as civilization itself. No society in the world is completely static or completely changed. Social change is at work in all societies, whether they are highly complex or primitive. The structure and functioning of social institutions, for instance, would be different even in our own society after fifty or sixty years from now. The process of social change is universal and is working and will continue to work

in spite of the rigidity of normative order. A sociologist is interested in the study of social change by observing its forms, speed, cause, direction, control, source, processes, resistance and the previous theories on the subject. But what is social change in itself?

Social change refers to 'the reorganization of society in terms of time and place'. Different individuals are assigned different roles and statuses in the structure of one or more social institutions. They start doing different jobs or the same job through different approaches and methods. As roles are closely related to the formation of one's behavior, the changed roles result in modification of the behavior of such persons. There is change, as the people have different roles, statuses and changed patterns of behavior in social institutions which are different from their previous roles, statuses and behavioral patterns. Change in one social institution brings changes in other social institutions positively or negatively, as the social institutions are interrelated with one another in a number of different ways. These changes would naturally bring change in the existing social structure. Thus, whenever and wherever changes occur in one or more of the social institutions, these ultimately effect the existing social structure and bring social disorganization. In this way the process of organization, disorganization and reorganization remains constantly present in the society at a given time, and is called social change.

One of the indicators of measuring social change in a society can be that when the activities of a large number of persons living in a community, pertaining to their ways of living and doing and patterns of thinking are different in comparison to the cultural patterns of their forefathers. These changes can be in residential areas, income,occupation, education, customs and traditions,habits, use of technology and practices of earning, rearing children and farming, etc. of the people.

Social change and cultural change, though closely interrelated, are two different phenomenon. Cultural changes include new forms of learning, new directions in science and technology, movements in civilization, new approach towards religion, governmental and economic ideologies and artistic expressions; whereas social changes deal with changes occurring in social groups. Social changes are minor with short and simple processes as compared to cultural changes,which are time-consuming, complex and complicated. Another significant point in this respect is that theoretically it is possible to differentiate the social change from cultural change but it is difficult to distinguish and analyze them in practical life. For example, we can say that learning of tractor operating by an individual is a social change while introduction of the tractor itself is a cultural change. In practice it is very difficult to differentiate between social and cultural changes, as we cannot point out exactly as to where from learning of the art

of tractor-operating started and to what extent this experience was the contribution to cultural environment of an individual and vice versa.

Reference

Chaudhry, M. Qqbal, 1984, Sociology, 7th edition. Lahore: Aziz Publishers. Chapter 30: 'Social Change'; pp.335-337.

(11) Social organization

The changing and functional aspect of social structure is called social organization. It may be noted that the social structure or social order of a community remains relatively constant. Whenever any change occurs in a social institution, it affects the other units of social structure positively or negatively. Sometimes in case of disharmony, it harmonizes the existing social structure. This is called social reorganization. The processes of social reorganization are permanent features of every society.

Social organization can be defined as the sum-total of accommodation of the past and present situations that are socially transmitted. In other words, it is the social arrangement that the individuals have formed among themselves by means of which they maintain their economic, political, family and marriage,educational and religious relationships. For example, division of labor, responsibilities, privileges, rights, etc. and distribution of costs and benefits, power and authority, etc. in a group, community or at large a society.

Social organizations are created or formed to stabilize the normal activities or improve conditions of people of a given locality. It is often observed that the most effective social organization of a society or community is correlated to a great welfare,unity and prosperity with the least wastage of individual's efforts. Some of the examples are: trade unions; 'Anjumans'; child and social welfare, water users' associations; and, agricultural and forest cooperatives.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th edition. Lahore Aziz Publishers. Chapter 4: 'Analysis of Social Structure'; pp. 60 and 83-84.

(12) Voluntary Associations

An association is basically a formal group organized for a specialized and specific stated purpose. It has its rules, procedures, leadership and roles distribution for the organization with

common interests among its members, usually having impersonal or secondary relations. An association involves an enduring pattern of interaction. Associations range from local level small groups to the nation-wide organizations.

Association can be defined as a group of persons who are organized together for the realization of certain common but specialized interests. Such an organization is not usually established or run by the government. Voluntary associations are those where the individuals have freedom of choice (in most cases) to join a particular association or not. For example, a person may or may not want to become a member of the 'Pakistan Youth Hostels Association'. Such types of associations are called voluntary associations. Associations can be formed on the basis of race, caste, occupation, income, education, material status, age, class or any other common interest factor.

Several clubs, societies, unions, development and social welfare associations, federations and councils are the various forms of voluntary associations. Some of such associations in Pakistan are:

i. Caste/Biradari Associations: Associations/Anjumans of Awan, Rajput, Gujjar, Jatt, etc. biradaries.

ii. Income/class Associations: Associations of businessmen (e.g., Paracha biradari) and industrialists; and the Lions and Gymkhana clubs.

iii. Occupational Associations: Councils, Labor and Students Unions and Farmers' Organizations, including Cooperatives, Water Users' Associations (WUAs) and Village Forest Cooperatives (in Hazara).

iv. Religious/Social Welfare Societies: Masjid and Zakat Committees; Yateemkhana Anjumans, Flood and Epidemic Relief Volunteers; Health Societies; etc., etc.

There can be two types of voluntary associations, that is, informal and formal. In an informal voluntary association, there are common interests of the individuals but no set rules and regulations to be enforced by officials or members. There are no elected or nominated bosses with explicit specified functions. There are also no regular meetings or planned activities. The members of these associations have frequent and intimate face to face interaction for their functioning. The upper limit of membership for such informal voluntary associations does not go beyond the limits of a primary group.

The formal voluntary associations have clear, definite and explicit purposes, rules and regulations. There are definite terms and conditions for their membership. There are rules and regulations for the organization of ceremonies. Payments by the members

are also specified. Periodic meetings are held under the rules and regulations. The leaders or officials of such associations are mostly elected and they enjoy specialized privileges as well as duties and responsibilities. Such formal organizations have specified names, mostly registered with the government as such. They plan their programs and activities and keep record of the progress and finances. They are voluntary in the sense that there is usually no compulsion for membership. But once a person attains membership in such an organization he is supposed to abide by all the rules and regulations set by the organization itself.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th ed. Lahore Aziz Publ. Chapter 4: 'Analysis of Social Structure'; pp. 78-79.

(13) Collective Behaviour

Normally, the sociologists are more interested in studying structured human behavior than unstructured behaviors. They focus their attention on stable and structured form of social life. The stable and well-structured aspects of social life provide important responses and meanings to the functional requisites of a society. But this is not the whole truth of social life. There is another aspect of human life, which is unstable, changing, uncertain, more or less disorganized and unstructured. This type of behavior includes mob, mass, public propaganda, fashion, fad, social movements, revolutions, reforms, etc. This form of behavior is attributed as 'collective behavior'. There are elements of fear, danger, insecurity, need, desire, hate, frustration and tension. Such a behavior is not fully controlled by the prevailing socio-cultural norms and ordered social sanctions. There is a free play of emotions and tensions, which we cannot expect under normal conditions. The study of such topics is becoming very important for a sociologist due to rapid changes in society. In the recent past, efforts have been made to group the findings of these topics into a single division of sociological knowledge. The usual term used for the study, analysis and description of such knowledge is called 'collective behavior'.

Collective behavior is an 'interrelated and similar but unstructured reaction and pattern of behavior on the part of a number of persons who are responding to a common influence or stimulus'. It is nontraditional and is not subject to any clearly defined cultural norms. The cultural expectations, in case of collective behavior are very general and unspecified. These expectations might be contradictory and leaving the situation undefined. The reasons for such a vague situation are that there are not sufficient organization and interaction among the persons involved in a collective behavior. Usually, there is various number of people participation in various forms of collective behavior.

Collective behavior is not important only for 'strikes' but also prepares ground for big events and often leads to spontaneous activities which may establish new values and norms. Most of the structured changes at their early stages are characterized by unstructured forms of social action. Again most of the modern great religions had their big support from public opinion and achieved the final stages of completion through collective behavior. Collective behavior is still important as new form of social action and new groups arise in response to group pressure or 'self-need', resentments and excitements of people rather than conscious group activity. Thus, major areas of human activity are covered by collective behavior which must be of a great concern to a sociologist. It would be of great interest to a student of society because collective behavior is a part of daily life in society. It may not always take sudden, drastic and dramatic forms. There is always some degree of unstructural element in human behavior, because social situation can never be exactly alike and values and regulations cannot meet such uniqueness. In the study of collective behavior society is seen from the view-point of action, regrouping and changes.

Collective behavior can be defined as a group behavior when it is of such a nature as to give the appearance of arising from unity of attitudes, feelings and motivation. It is the behavior of individuals when they are under the influence of an impulse that is common to them.

Group activity and collective behavior are very closely related to each other. The group life is controlled and run by the social norms and their is domination of normality. In case of collective behavior the following characteristics prevail:

i. There is a large number of individuals in interaction, but not necessarily in physical contact.

ii. Such individuals can have communication through press telephone, radio, television and such other media of communication.

iii. The individuals give spontaneous response to common stimulus.

iv. There is always a specific situation with definite beginning and an end.

v. There is a common end or purpose before the individuals.

Collective behavior falls into two major categories, namely, collective 'emotional' behavior and collective 'rational' behavior. It is difficult to demarcate and draw a definite line to differentiate between the types of collective behavior, because very often the two are mixed in a given social situation. In the emotional

collective behavior, the individuals express their excitement through shouts, weeping, laughing, dancing, jeering, and such other acts. Under such conditions the participants of collective behavior come under the sway of mass impulse even though they are normally law-abiding and emotionally and intellectually stable persons. Anyhow, the mechanism and forms of collective behavior differ with the definition of the situation itself, which is understood and responded by the individuals concerned.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th edition. Lahore: Aziz Publishers. Chapter 28: 'Collective Behaviour'; pp.310-313.

FOREST SOCIOLOGY

Lecture 5

TEACHER'S OUTLINE

Section B : RURAL SOCIETY AND DEVELOPMENT

Chapter 3. RURAL PAKISTAN

a. Rural Society and Change

b. Rural Ecological Regions of Pakistan

c. Rural Social Institutions in Pakistan

(1) Family Institution.
(2) Religious Leadership and Institution.
(3) Political Institution.
(4) Economic Institution.
(5) Educational Institution.
(6) Recreational Institution.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th edition. Lahore : Aziz Publishers. Chapter 2: 'Society'; pp. 41-42.

Chaudhry, M. Iqbal, Pakistani Society: A Sociological Perspective and Method, 5th edition. Lahore : Aziz Publishers.

Summaries of:
Chapters 3&4: 'Rural Ecological Regions of Pak.';pp.131-133.
Chapter 5 : 'Family Institution'; pp. 154-156.
Chapter 6 : 'Religious Leadership and Religious Inststitution' ;pp.168-169.
Chapter 7 : 'Political Institution'; pp. 187-190.
Chapter 8 : 'Economic Institution'; pp. 202-204.
Chapter 9 : 'Educational Institution'; pp. 219-221.
Chapter 10 : 'Recreational Institution'; pp. 233-234.

NOTE: One copy of each of these two books has been donated to the PFI library.

FOREST SOCIOLOGY

Lecture 5

Section B: RURAL SOCIETY AND DEVELOPMENT

Chapter 3. RURAL PAKISTAN

a. Rural Society and Change

Rural society is an agricultural Society which is further sub-classified into rural farm and rural non-farm societies. Rural society is defined as 'that form of association maintained between the people and their institutions in a local area in which they live on dispersed farmsteads and in a village which usually forms the center of their activities'. Pakistan population census defines a rural area which is unincorporated and consists of less than 5000 population. Other countries use different arbitrary standards for distinguishing rural and urban places.

Sociologically speaking,a rural area is a place where people live immediately on agriculture. Interactional processes are simple, informal and intimate. Primary groups dominate secondary groups. Pakistani villages are the representative examples of rural communities. There is a strong hold of social institutions which provide guidance for the behavioral patterns of the villagers. The use of modern technology is lesser as compared to an urban industrial society.

The drama of change in rural societies is now being played on a world-wide stage. Its actors are the agents of change: the political innovators, both revolutionaries and reformers; the educators who bring a vision of a different life to rural children; the public health services that sponsor campaigns of age-old practices in order to lengthen the life span; the tractor dealers with their easy credit terms; the agricultural scientists who introduce improved inputs and practices to the farmers; the foresters who are trying to train villagers in tree-planting and forest management; and, the community development workers who urge barefoot villagers to raise themselves by their own boot-straps. Also, on stage are representatives of the so-called 'target population', the rural people who are being asked to change their family life, agricultural, forestry and energy techniques, religious and political traits, sense of priorities, and, in sum, their total way of life. This drama as a whole (all efforts and processes involved therein), is entitled as 'rural development'.

Reference

Chaudhry, M. Iqbal, 1984, Sociology, 7th edition. Lahore: Aziz Publishers. Chapter 2: 'Society'; pp.41-42.

b. Rural Ecological Regions of Pakistan

Human ecology is the study of man in relation with his physical environment. There is cause and effect relationship between the two. To study this relationship, the major aspects that are observed are: Physiography; climate; natural resources; soil, racial and ethnic traits; language; administrative divisions; and mode of living of the people.

Pakistan can be divided into three major ecological regions:

(a) Karakoram, Koh-e-Hindu Kush and Sulaiman mountain ranges in the North and West.

(b) Vast plains of the Indus Valley, i.e., most area of the Punjab and Sind provinces.

(c) Dry barren areas of the Baluchistan province.

The climate is neither very hot nor very cold in the coast belt. However, rest of the region varies in climate, i.e., cold in winter and hot with cool nights in summer. There are monsoons from July to September in Lahore, Rawalpindi, Hazara, Multan and Sargodha divisions, while rainfall is very low in Hyderabad, Khairpur, Quetta and Kalat divisions. Rivers are generally flooded during monsoon season.

There are similarities in different (rural) regions in Pakistan. They are:

i. People live in villages where all the social institutions come into existence and operation and they are self-sufficient.

ii. Primary relations exist in villages.

iii. If land fertility is higher the population density is also higher which effects the interactional processes.

iv. Generally speaking, people are superstitions.

v. Living standard in plain is higher.

vi. Change is happening due to rapid expansion of the means of transportation and communication.

vii. The children population is usually large in number.

viii. There are mostly cultivator-owners, owner-cum-tenants and landless tenants and workers.

ix. Forests are denser in the mountains than in the plains.

x. Forests are generally being cut more than planted, particularly in mountains.

Rural areas of Pakistan are the land of love, music, dance, and poetry. The pressure on land is increasing slowly with the time. All the three types of farming, i.e., private, state and cooperative are in practice. The price of cultivable land varies from region to region. Generally, competition among various occupations does exist.

Reference

Chaudhry, . M. Iqbal, 1984, Pakistani Society: A Sociological Perspective and Method, 5th edition. Lahore: Aziz Publishers. Summary to Chapters 3 & 4; pp. 131-133.

c. Social Institutions in Rural Pakistan

Social structure of a community includes the social institutions working in the community to provide the needs of the individuals. However, the social institution is an interrelated set of shared expected behaviour, where individual interest is a secondary thing. These shared expectations are with reference to some groups, which involve interaction of two or more persons, where their roles and statuses are defined by the community, which may be formal or informal, conscious or unconscious, and thus give rise to certain patterns of behavior. These patterns of behavior vary from region to region and from rural to urban areas due to geographical conditions and historical background. However, we shall now discuss the social institutions of a representative village in Punjab, which control social change and direct to the behavior of people living in Punjabi speaking areas of Pakistan while satisfying the basic needs of the individuals.

(1) Family Institution

Family Institution is one of the most important and oldest institutions of human society in the world. No doubt, due to industrialization and technological developments the functions of the family in an urban city have changed a lot, but its basic necessity and importance are still there. In rural areas of the whole world the significance of family institution is usually greater where social security and other welfare agencies are not so much developed in comparison to urban areas. We shall now outline the dominant features of family institution in a typical Punjabi village:

i Caring and rearing of children are done by family. The proper socialization and value orientation (knowledge of good and bad) are also given by family institution.

ii. The selection of mate for marriage is done by elder family members. Individuals are not given primary importance and courtship is discouraged.

iii. Family is an economic unit (where women and children also pool their resource. Liabilities and assets are shared by all family members.

iv. Family arranges both formal and informal education, but generally discourages female (high) education.

v. Recreation and health facilities are provided by family to its members, according to their economic conditions.

Role and status of each member in the family are well defined. Men play important role in socio-economic fields; women also work in the fields. The elders are very much respected. There is cooperation in religious and other family matters. Old parents are very much looked after. At the time of birth, marriage or death, there is a lot of cooperation. Competition can be seen in milking, ploughing and such other fields among members of a family. There are intra and inter family conflicts. Conflicts over marriages, female education and employment, shared property by siblings or cousins and between mother-in-law and daughter-in-law do exist in the families. Socialization and rearing of children are mostl defective. There is no proper diet or fixed feeding times for the children. Female child is not nicely treated in comparison to male child.

Reference

Chaudhry, M. Iqbal, 1984, Pakistan Society, 5th ed., Lahore: Aziz Publishers. Summary of Chapter 5; pp.154-156.

(2) Religious Leadership and Institution

Leadership is status of dominance and prestige acquired by ability to control and initiate people or to unite them on one platform. Influence of a leader can be both positive and negative. There are both formal leaders (Headman, members of Local Council, teachers, etc.) and informal leaders (Imam, pir, retired officials and landlords). Formal leaders have definite powers and duties while informal leaders mostly command much respect, popularity and socio-economic status. They are mostly helpful in bringing social change.

Religious leaders being informal are with no well-defined duties and powers. They have no legal authority. However, Government is appointing certain Imams with special privileges. He holds higher social position due to his religious knowledge. He is normally the final authority in religious matters in the village. Heading prayers and imparting education at Maktab or Madrassa are his main duties. Big religious conferences (Ajlas) are also arranged through him. His remuneration can be both in cash and kind.

Pirs and Syeds are also religious leaders in the villages. Their disciples are ready to do anything to obey them. They cure both diseased persons and animals. They can help a lot in bringing social change, if handled properly.

There are certain religious organizations in villages. They can be both formal and informal and may be headed by elected or nominated members. These organizations help a lot in philanthropic field or for the general welfare of the community.

Religious and normative order in Pakistani Society are corrected while mores and folkways of ruralites are also deeply rooted in religious values. Thus every change in the rural areas must be repugnant with religious values. The religious minded people are more popular in the villages. There is quite smoothness and less disorganization in socio-economic life of the ruralites due to religious teachings. There is also less crime and delinquency. Social security is provided to the orphans, widows and the disabled persons through Zakat and other charities.

Mosque in a village serves as a channel for mass-communication as people gather there for the five conventional prayers and thus also discuss their problems over there. Timings of 'Sehri' and 'Iftar" are announced through; while propagation of non-religious teachings and community related announcements are also made there.

Rigid religious control and wasteful customs and traditions retard their speed of social change. Poverty is considered as blessings. Most of the people due to their ignorance are against female education which has been even exhorted by the Holy Prophet (Peace be upon Him). However, superstitious and wasteful customs and traditions are giving way to new values suited to modern environments. The speed of change can be enhanced by the following steps:

i. Eradication of old wasteful customs and traditions.

ii. Appointment of qualified and trained Imams on handsome salaries.

iii. Control of Auqaf Department over most of the religious institutions.

iv. Grant of licenses to genuine pirs for avoiding frauds.

v. Further strengthening the religious hold through organized 'Zakat' practices.

Reference

Chaudhry, M. Iqbal, 1984, Pakistani Society, 5th edition. Lahore: Aziz Publishers. Summary to Chapter 6; pp. 168-169.

(3) Political Institutions

Political institution is an interrelated set of norms about power and authority to maintain law and order. The more complex the society,the more complex and formal are political institutions. Power is dispersed in democracy while in totalitarian system it is concentrated in the few hands.

There are both formal and informal leaders in the village. Informal leaders are quite important who generally help the formal leaders in maintaining law and order. The tehsil and district officials keep in touch with the village to help them in every matter. Political institutions try to settle minor conflicts at village level. The Headman (Numberdar) collects revenue and Patwari maintains record of rural property. Chowkidar reports births and deaths and attends the touring officials. Union Council saves villagers from unnecessary troubles to attend far off courts. Thus, this institution is a link between the communities and then the Government. Chairman and members of Union Council hold higher authority at village level and can punish the offenders but their decisions can be challenged, too. Informal leaders (religious or biradari elders), having no definite responsibilities, are more popular and helpful in maintaining law and order. They normally do not need to adopt any tedious or long procedures like formal leaders. Hence, they are oftenly more effective than formal leaders. The Panchayat (Jirga in NWFP, Wadero or Chango-Munrus in Sind and Sardars of Baluch tribes in Baluchistan and Sind) is mainly and oftenly an informal political leadership where the word of its head (Sarpanch) is normally final and he enjoys a wide range of authority and power in his respective area (or ethnic group in case of Baluchs).

The previous Local Government and Basic Democracies systems could not do very well as expected due to the following major reasons:

i. They were imposed by the officials on the rural beneficiaries.

ii. The staff lacked proper training and know-how, particularly in the techniques of obtaining active participation of the beneficiaries at the planning stage.

iii. Each of the systems, one way or the other,was exploited by the vested interest groups and landlords.

iv. Elections of the villagers' bodies were not held properly and fairly.

v. Financial plans were mostly defective which could not provide sufficient funds for the on-going and future activities of rural development.

vi. The already overburdened Deputy Commissioners were reburdened with rural development responsibilities.

The functions of Union Councils have been declared by the Government,covering the activities of public ways, streets playgrounds, lighting, plantation, sanitation, relief measures, community development, registration of marriages and divorce, dispute resolution, family planning, collection and distribution of "Zakat", control of relationship and every thing going on in or related to rural areas. The functions of Union Committees are also the same. The markaz, Tehsil and District Councils are higher level bodies, in ascending order, with their respective jurisdictions.

Villagers generally do not initiate political movements because of their conservativeness but their support is of vital importance for such movements. They would support the movement that is a good substitute for the existing political system,ensures welfare of the agriculturists and not against the religion, while backed by popular leaders and religious persons of communities.

Political consciousness is increasing but the political competition is often personal and thus dangerous. There is canvassing for each candidate. Votes are solicited mainly on caste and "biradari" basis. Landlords' pressure is still there on the tenants and landless villagers. Local Councils have provided ample chances for leaders' training.

There is already shortage of leaders due to ignorance. The britishers also discouraged leaders and provided no chances for their training. A leader should be literate, good orator, honest, religious minded, well-informed in every related field, married, coordinator, organizer, administrator and above all sincere to his subjects. He should avoid cheap and dirty politics. Traits like imagination, foresight, flexibility, versatility and inhibition are necessary for a leader (Prof. Bogardus).

Reference

Chaudhry, M. Iqbal, 1984, Pakistani Society, 5th edition, Lahore: Aziz Publishers. Summary of Chapter 7; pp. 187-190.

(4) Economic Institutions

The process involved in the production of goods and services having transferability, utility and scarcity is attributed as economic or production activity. Economic activities differ in nature from area to area. Rural occupations are simple in nature and not complicated in respect of division of labor. Major occupations center around agriculture, which are limited in number, rigid in stratification and to some extent less independent from one another in comparison to urban occupations. Rural occupations are

mostly involved in the production of raw material (primary production). Urban occupations are highly technical, have limited choice (specializations) and complex division of labor and more social mobility.

Economic organization covers both production and consumption and such other interconnected activities (e.g., marketing). Village shopkeepers import from the areas kerosine oil, toilets, agricultural implements and similar commodities of daily use. Barter system still prevails in the villages. Rural credit system is not efficient.

Village vendors and merchants at neighboring towns have filled the gap created by the departure of Hindu money-lenders (Banyas). There are no unions, no strikes and thus less disorganization. There is less social mobility due to rigid caste and joint family systems, illiteracy, less occupations, home-sickness and lack in the means of communication and transportation.

The economic organization of urban areas directly and indirectly effects rural economy. Monopoly is practiced by urbanites over ruralites. Living standard of ruralites is low in comparison to urbanites. More natural calamities appear in rural areas while chances and choices of earning additional income are comparatively limited. Main causes of low living standard of ruralites are: fatalism; ignorance, illiteracy and superstitiousness; lack of opportunities of employment, and facilities of insurance, health, communication and transportation, storage of agricultural surplus and electricity; vested interest groups of big landlords; inefficiency of extension and credit staffs; uneconomic landholdings; love for litigation; lack of cottage industries and cooperative farming; vicious circle of poverty; and, natural calamities (e.g. floods, epidemics, etc.).

Reference

Chaudhry, M. Iqbal, 1984, Pakistani Society, 5th edition, Lahore: Aziz publishers. Summary of Chapter 8; pp. 202-204.

(5) Educational Institutions

Education is 'transmission of knowledge, ideas, opinions, beliefs and/or skills which are commonly accepted in society'. Education and literacy though closely interrelated but are not the same. Villagers may be 'illiterate' but we cannot say they are 'uneducated'. They may not be able to read and write, that is what literacy usually means, but they do have, at least, indigenous knowledge; the knowledge they have inherited from their forefathers and obtained from their relatives, friends and fellow-villagers. Similarly they also possess certain ideas, options, beliefs and skills of doing things in their everyday life. Thus, ruralites do

have education whether they are literate or illiterate, their knowledge is indigenous or modern scientific and/or education is formal or informal.

In primitive societies, socialization is done through informal education by the mother and other close relatives. In highly civilized societies, on the other hand, formal general and specialized education is imparted by various educational agencies. Rural societies, which also fall at a lower level of civilized societies, adopt a mix of both informal and formal education.

There are both schools and 'maktabs' for imparting formal and informal education, respectively, in Pakistani villages. Primary education is free and compulsory, but one out of two school going age children attend school. New schools and masjid-madarssas are being opened and encouraged by the government to raise the standard and adoption of education, particularly, of the rural children.

'Maktabs' or 'madaris' are helping a lot in imparting education where 'Imam' in the mosque and his wife at her home educate the children without any fee. Majority of the 'Imams' in the rural areas are untrained themselves and therefore their education is oftenly limited to only reading ('Nazirah') of the Holy Quran. Yet, there are some Imams who have gotten higher education and training and they impart education to rural children in translation of the Holy Quran, other religious books and basic Urdu language and arithmetic, too.

Besides the government primary and even high schools for children, education for grown up children and the adults is also being spread through 'Iqra' and 'Nai-Roshni' schools in the rural areas. In addition, the social welfare and Health Departments are providing training to rural people, particularly women, in handicrafts, child rearing and family planning skills. Thus, the education level in the villages today has risen drastically since 1960s. But still we need to make a lot more effort, particularly in rural areas to attain a reasonably high level and a fairly even spread of modern education. Government of Pakistan has recently increased allocation of funds for training to teachers and education of masses in the Annual Budgets.

Reference

Chaudhry, M. Iqbal, 1984, Pakistani Society, 5th edition. Lahore: Aziz Publishers. Summary of Chapter 9; pp.219-221.

(6) Recreational Institutions

Recreation is any pleasurable activity to relieve an individual from fatigue. Recreation has become universal. Playing games and hobbies are essential for persons of all occupations, sex and

age groups to increase their efficiencies, and to decrease over all crime and delinquency. Rural and urban recreations differ due to difference in occupations, primary and secondary relations and environments.

The games like 'Kabaddi', wrestling and tent-pegging require only space and competitors are quite popular among ruralites. The rural games require mostly strength and time. There is sex segregation in games. The occasions of recreation and amusement are mostly held after the harvest of crop or during the slack months of winter when the 'rabi' sowing season is over. Mela, a saint's anniversary fair, is a special occasion in most of the rural areas in Punjab for such recreation and amusement and also mostly held in such periods or seasons but there are also some which are held in other periods/seasons depending on date of the birth or death of the saint and/or the occurring of the two 'Eids'. Kabaddi matches, folk music, acrobats, singing of Mirza-Sahiban or Heer, cock, quail and dog fighting, horse and bullock racing, chess and cards playing, chaupur, etc., etc. are different sources of recreation. Mostly there is no collection of gate-money on such occasions. The community feeling is obvious as one radio or tape recorder with a set of loudspeakers is considered source of amusement for the whole community. Cricket, hockey, football and volleyball have now-a-days become very popular.

Girls usually have less time at their disposal. They are oftenly fond of hide and seek, 'dholak' songs, shatapoo, rope swinging, doll-wedding, Jhummar, etc. in their available time. Some young girls also accompany older women to nearby 'melas'. Girls are very fond of attending wedding ceremonies, particularly at bride's home, where they sing folk love-songs with 'dholak', dance and make fun.

Recreation generally is good for mental and physical health and it relaxes fatigue from hardwork. Group playing and team games are a better way to utilizing leisure and create a spirit of healthy competition and increase integrity and cooperation among players and the community members. Gambling and conflicting nature of the people can be exploited through healthy competition and sportsmanship. Such recreational skills and outstanding performances give good name and honor to the community.

Play groups are source of varying experience, specially in urban areas as compared to rural areas. In village, they are not limited to caste, family or biradari. Hence, this mix of different castes and classes reduce the differences which can be better utilized by the change agents in the rural areas.

Reference

Chaudhry, M. Iqbal, 1984, Pakistani Society: A Sociological Perspective and Method, 5th edition. Lahore: Aziz Publishers. Summary of Chapter 10; pp.233-234.

FOREST SOCIOLOGY

Lecture 6

TEACHER'S OUTLINE

Section B : RURAL SOCIETY AND DEVELOPMENT

Chapter 4. RURAL SOCIAL STRUCTURE: Case Studies

a. Social Organization : A Case Study from Punjab, Pakistan

(1) Water Management

(a) Irrigation and organization.
(b) Pre-Irrigation 'Gondalpur'.
(c) The impact of irrigation.
(d) Social structure and the watercourse.
(e) Watercourse maintenance.
(f) Watercourse improvement.
(g) Factors hindering the rehabilitation work.
(h) The social organization.
(i) The game of 'Izzat'.
(j) Conflict and cooperation.
(k) The sense of community.
(l) The use of 'social sciences' in the water management programs/projects.

Reference

Merrey, Douglas J., 1982, 'Reorganizing Irrigation: Local Level Management in the Punjab (Pakistan)'; in: Desertification and Development, H. Mann and B. Spooner edited, pp.83-109. London : Academic Press.

NOTE: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library, Peshawar.

FOREST SOCIOLOGY

Lecture 6

Section B: RURAL SOCIETY AND DEVELOPMENT

Chapter 4: RURAL SOCIAL STRUCTURE: Case Studies

a. SOCIAL ORGANIZATION: Water Management (Punjab, Pakistan)

(1) Water Management

Discussions of the problems facing irrigated agriculture in Pakistan usually begin with irony. Despite the favorable climate, fertile land, hard working farmers and possession of the largest integrated irrigation system in the world, agricultural production is very low. It is low by any standard in relation to similar situations in other countries, to the potential demonstrated year after year on demonstration plots and even more so to the needs of Pakistan's rapidly growing population.

Recently (1970s), for the first time in Pakistan's history, research has begun to focus on local level water management. This research has identified local level waste and mismanagement of irrigation water as a key constraint on improving agricultural production as well as a cause of waterlogging and salinity. Research on a similar irrigation system in India suggests that certain characteristics of the administration of the system itself result in farmers' uncertainty about their water supply and this is a major constraint on productivity. All of this research has resulted in a recognition of the importance of local organizational factors and recommendations for farming local farmer organizations.

Policy based on faulty assumptions about the goals, values, ability to cooperate and behaviors of local users is bound to fail. For example, if local irrigation associations were established in Pakistan and the legal framework for the organizations were to specify Western rules and procedures such as decision-making by majority vote, these organizations would probably not work in the way envisioned by the planners. Such procedures are inconsistent with local users' decision-making patterns as well as with the prevailing stratified socio-economic structure of rural society. Following is an illustration of the potential of an approach from social science towards the problems of designing and evaluating programmes to involve farmers in local irrigation improvement projects, based mainly on data from a village in the Punjab province.

A village in Central Punjab, say Gondalpur, had no canal or inundation irrigation before 1904. The vegetation of this semi-arid area consisted of various small or deep rooted trees which

provided fuel, fruit and fodder; and, a variety of grasses on which ancestors of the present inhabitants raised large herds of cattle. Villagers claim that animals, not land, were wealth, as a man's standing in his community depended mainly on the size and quality of his herd. Agriculture was meant to supplement a diet which was based on dairy products and meat, both coming from animals. In Raja Ranjit Singh's time tax was imposed on animals' heads not the land. The British discontinued this policy and imposed a land revenue instead. This meant that land had to be registered on individual's names - an innovation. The village ancestors regarded this as an unfair burden and some sold or gave their land rights to others for almost nothing. Stories are told of how people in nearby villages punished their enemies and servants by having land registered in their names, which at that time meant a burden of revenue, not a source of status and prosperity.

However, between the first British land settlement in 1857 and the arrival of the canal water in 1904-05 in Gondalpur, there was a substantial rise in population and a gradual extension and intensification of agriculture. Population grew far more rapidly than did the extent of cultivable land, mostly as a result of immigration. There was a fairly large-scale transfer of control over land to outsiders and a concomitant increase in tenancy. The Lower Jhelum canal was officially opened in 1901, but its water arrived in Gondalpur by the end of 1904, ('rabi' 1904-05). Its impact was immediate: Scores of hectares (1 hectare=2.41 acres) of land came under cultivation during both the summer (Kharif) and winter (rabi) growing seasons. Former cattle keepers and part-time farmers became full-time farmers, either on their own land or as tenants on others' land. The area available for grazing animal declined while the number of animals increased, so that even a few years before the canal water arrived most farmers had begun devoting a substantial percentage of their land to growing fodder for their animals. Other changes since the introduction of canal irrigation include: a further rise in population; increasing fragmentation of land holdings; major changes in diet; increasingly intensive agriculture; and, a rise in water table of 12 to 20 meters, so that today everywhere it is less than 6 meters below the surface, and in some places it is less than a meter and a half. A large low-lying tract in Gondalpur has become waterlogged and an adjacent previously productive area is now saline and unproductive. The major crops today are wheat and rice, sugarcane, fodder crops and some melons and cotton in summer. Most of the land is double-cropped every year.

The dominant landowners in Gondalpur, the Gondals, are divided into four-named 'biradari', brotherhood which are local coresident groups based on a combination of patrilineal descent and marriage. The biradari are concentrated on different water course branches. At the head of branch A, where it passes through Chak Aziz, are four related households of Kharal 'zat'. One is a very large landowner (122 hectares), having bought much land in a nearby village. His brother has 20 hectares on branch A and their half-brother's two sons have 20 hectares between them. Though these two brothers

often quarrel with each other, they did not during the watercourse improvement project. They shall be, from now on called as 'step-brothers'. Following the Kharal, on Gondalpur land, branch A irrigates the land of several very small farmers (0.5-9.0 hectares) of Langah zat. The members of this zat, though poor, have marriage relations with the Khudaya, Muradke, Kharal and a large landlord of village Pindi. Some of the land belonging to the Miane is irrigated after the Langahs by branch A, and finally, at the tail, branch A irrigates small portions of the relatively large holdings of several Pindi families.

At the time of the study (1976-77), the level of maintenance of all the branches on the watercourse was extremely poor. A SCARP tubewell had been installed at the head of the watercourse in the mid-1960s, doubling the amount of water flowing through it. As is generally the case in the SCARP areas, the intensity of cultivation increased substantially as a result of the increased water supply. Most land is now double-cropped each year on this watercourse. However, the capacity of the watercourse was not increased. Furthermore, for some years after the installation of the tubewell, there was no perceived shortage of water. The villagers say that this led to a decrease in maintenance efforts, atrophying the already weak sanctions enforcing participation in watercourse cleaning. Further, fragmentation of plots has led to increased numbers of illegal cuts in the main water channels. The watercourse on all branches was choked with grass, bushes and trees; leaked through rat holes, thin banks and at junctions; and, water remained standing in many low sections after irrigation. On branch A, since Chak Aziz land is relatively high,the Kharal owners actively sabotaged efforts to clean the head of the watercourse. Sitting raised the water level, and thus their ability to irrigate their high land, but it blocked a large percentage of the water from reaching the middle and tail farmers.

The lack of watercourse maintenance, combined with increasing pressure to raise production, had created considerable dissatisfaction with condition of watercourse by 1976. In response to this dissatisfaction, the social scientist studying the village was instrumental in arranging for the Mona Reclamation Experimental Project to choose this watercourse for an experimental improvement programme. In this programme, the Government supplies technical advice, supervision and materials (pre-cast outlets, 'nakkas', bricks, cement and sand). The farmers are responsible for supplying all labor for the earthen (katcha) improvements; masons for installing 'nakkas' and constructing concrete (pakka) sections and culverts; and, for subsequent maintenance. Some Gondalpur farmers had heard about the success of the improvement programme in other villages: according to a survey they were aware that the losses from their watercourse were high and thus they were eager to improve it.

Two work committees were set up in June, 1977 and the work was begun immediately on the watercourse. There were certain changes in the original design and route of the watercourse. The work

itself and the new changes gave rise to several conflicts among the farmers of different zats, positions on the watercourse, vested interests and their relative statuses. So much so, that an activity which was expected to be completed in less than 2 months was not finished until December, 1977, the sixth month. Even in October, 1978, it was still almost the same and cleaning of the watercourse for the upcoming rabi season was done only haphazardly.

There is no doubt that one source of the problems faced by this project is the relationship that developed between the farmers and the government. Although some of these engineers and extension workers have rural backgrounds, their education has seemingly made them unfit for rural work. Possessing a formal degree and a respectable position in the government bureaucracy, they are 'officers'. They create barriers between themselves and their clients by wearing western clothes, speaking an urban dialect and doing all that they can to create the impression that they possess a superior knowledge and position which ought to be respected. When the clients assert themselves and refuse the officer the respect (read obeisance) he claims, conflict arises and the officer's low opinion of his client is confirmed in his mind. This kind of relationship between government officials and farmers is not confined to Pakistan.

Another factor was that the potential benefits of the program were not perceived as equally distributed. Indeed, equal distribution of benefits in a watercourse reconstruction programme is impossible to achieve because of differences in size of landholdings, between owners and tenants and most crucially, the relatively greater benefits accruing to the tail-enders than the head-farmers. Even if the benefits of reconstruction were distributed equally, one could argue that any rational individual will minimize his contribution toward such a collective good because he cannot be denied its benefits even if he does not invest in the project.

A major source is to be sought within the social organization and culture of rural society. Punjabi rural society is characterized by a set of values and structural mechanisms which, in relation to their irrigation system, encourage conflict, make it endemic and unavoidable, and thus, tend to discourage cooperation on a long term basis. These values may have been adaptive before the irrigation system but have continued to operate even though they appear maladaptive under present conditions. The ancestors of the Gondalpur farmers who were cattle herders and part-time farmers were probably not permanent residents of Gondalpur before the British settlement. This settlement awarded permanent rights that had not existed before. One characteristic of pre-British Gondal Society was relative mobility of individuals and families: larger local groups were unstable as people were free to move and they often did move with their animals. The type of situation now known as the 'tragedy of the commons', in which individual herdsmen continue to increase the size of their individual herds even after the carrying capacity of commonly owned grazing lands had been exceeded, did not arise because people were able to leave for less

crowded, if not greener,pastures. It seems that under such conditions it was not necessarily recognition of overgrazing per se that triggered dispersion but rather a high incidence of social conflict maintained the dispersion. The most fundamental concept or theme in rural Punjab culture, in terms of which much of Punjabi behavior can be understood, is 'izzat'. Izzat may be glossed as 'honor', 'esteem', 'reputation', 'status' or 'face'. It is a 'limited good' and acquires it only at others' expense. As in a zero-sum game, the success of one person is a threat to all the other players, a characteristic that generates competition and jealousy. For example, when government agreed to a very reasonable request for a double-width culvert for truck access to one of the Kharals' brick kilns, his step-nephew demanded a double-width culvert for himself. Informants said his izzat was at stake: if he got less than his step-uncle he would lose izzat. Government personnel, not accepting the rules of the local izzat game, rejected his demand, which led to further problems with the man.

All men wish to avoid losing izzat, but many men also attempt to increase their own izzat or reduce others'. One acquires and increases one's izzat by several different strategies. First, one must have the ability and, more importantly, the willingness to use force. There is a famous Punjabi saying,'whoever holds the stick owns the buffalo'. This does not necessarily mean force is resorted so frequently; it is enough to create the impression that he is willing and able to use force and, in times of tension, much calculation and speculation revolves around this issue. The Kharal step-nephews were feared because they had demonstrated their willingness to use force in previous fights. The Bhattis of Gondalpur, mostly tenants and poor,in the past also had a high izzat for the same reason. On the other hand,the Khudaya numberdar, despite land holdings, his official position and several adult brothers had less izzat than he might have had because it was known he feared violence. This was not an unreasonable fear since his father had been murdered in 1962.

A second means of acquiring izzat is possession of influence with government officials and willingness to use it for one's supporters and against one's enemies. The Kharal step-nephews, some Pindi landlords and recently deceased poor and landless Bhatti leader before his death, all had a substantial amount of izzat from this source. A third source is willingness to entertain guests lavishly, whether they are government officials or relatives at a wedding, even to the point of bankruptcy. The deceased Bhatti leader mentioned above kept himself bankrupt but high in izzat by this strategy. Success in competition, whether in organized games such as 'Kabaddi' or in a stick fight, is another source of izzat. Winning, not a valiant loss, is the key. Another source is generosity, not to the general public, but towards individuals who are obliged than to support. Finally, successful one-manship, including revenge for a previous defeat or insult is important. For example, disputes are often taken to the police; the person or group that can avoid jail or being beaten by the police, while getting the opponent punished and spending the least money doing it, 'wins'.

Such cases oftenly get very long, involved and expensive but they continue even when people are aware that after so much trouble and expense they will have nothing tangible to show.

Opposition is often expressed verbally in terms of issues, but in fact the issue is nearly always a pretext: men oppose or support decisions and programmes based on their perceptions of their competitors' position. For example, even though all farmers suffered the exactions of a corrupt tubewell operator, they did nothing because, informants explained, if one man or group proposed petitioning for his removal, others would oppose. This would be done not out of love for the tubewell operator but to prevent the others from gaining some advantage from the issue or to pursue some long-standing grudge. This can be carried further: the noncooperative behavior of the Kharal on branch A during the watercourse reconstruction was interpreted by informants as based on a desire to prevent others from benefitting, even if it means foregoing his own potential benefits. There is a famous Punjabi saying, 'If my neighborer's wall falls, it is good, even if it falls on me'. Opposition in rural Punjabi society is always personal or interpreted as personal and aimed at weakening others or strengthening one's own position.

There is strong ethic of loyalty to one's kinsmen; one ought to be prepared to make sacrifices for their benefit. Marriage within the biradari (siblings and cousins exchange children) is intended to cement their affections and relationships. Divisions within the community, in Gondalpur and other villages, are usually between biradaris. This was the case for most disputes over the watercourse reconstruction programme. There is a feeling that a biradari's izzat must be protected from others' attacks, and if a man's izzat suffers at the hands of a member of a different biradari, all of his close kinsmen may unite in opposition to the 'enemy'. Nevertheless, despite emphasis on loyalty to one's kinsmen, tensions among biradari members are always present. Patrilateral cousins ('shareek' in Punjabi and 'tarboor' in Pushto) and brothers often have tense and competitive relationships and do not completely trust each other. One's brother's or cousin's izzat is not necessarily one's own; hence a man is apt to be jealous of and feel threatened by a brother's success. Tension is also generated among biradari members by joint potential rights in land. One of the worst cases of conflict in Gondalpur history, resulting in two murders and three executions, occurred within the Khudaya biradari over land: one branch of the biradari attempted to deprive another branch of rights to some land. Tensions built up and the latter finally took action by murdering the numberdar and his brother. The amount of land involved was in fact not great; the real issue was izzat. If the second group had allowed itself to be deprived of the land, its members' izzat would have been severely damaged. During the watercourse improvement process there was much petty conflict among biradari members over work shares and the like; the Kharal are seriously divided, and the Khudaya only slightly less so. The Awan and Muradke, though separate biradaris in one sense, are closely intermarried, yet, at the time of this

project, they were involved in conflict over several issues which prevented them from cooperating on the project.

The sense of community within the village is real but also intertwined with izzat. In opposition to outsiders, villagers will act together in a stick fight or a competitive game to preserve the izzat of the village. However,cooperation within a community to achieve mutually beneficial goal is very difficult as people fear others may benefit more than they would or leaders will gain undue influence. In some villages there are leaders who are sufficiently trusted (or feared) to insure that farmers cooperate to maintain their watercourse, but this is not true of most communities and is not a permanent characteristic of any community.

This, accompanied by experience with pilot water course reconstruction project (1976-79) in some areas of Punjab, demonstrated that farmer cooperation, was the key to the success of the project. The focus on farmer cooperation, on which little research had been done, led to an increasing level of collaboration of sociologists and anthropologists with the engineers, agronomists and irrigation specialists in an attempt to develop an effective watercourse programme. The technical problems of the system cannot be solved as if they were isolated from the larger social, cultural and economic context. This point may appear obvious to a social scientist but it does not generally characterize development policies and programmes, especially of relatively conservative countries such as Pakistan. Social scientists can, it is true, often identify social and cultural impediments to seemingly useful projects, and social and cultural factors involved in process of environmental deterioration and having identified the problems, they can suggest strategies to overcome them. There are undoubtedly many situations where this narrowly conceived role is quite adequate, but Pakistan's irrigation system is not one of them. A great deal more research is needed on the organization of the system at all levels, and especially on social constraints and cultural perceptions and motivation. Such research can be used to develop a more comprehensive and realistic model of how the Indus system actually operates. Based on this model,alternative forms of organization can be suggested. Capital-intensive technological projects are unlikely to lead to any substantial development of the Indus Food Machine unless accompanied by substantial and effective social and economic reorganization.

Reference

Merrey, Douglas J., 1982, 'Reorganizing Irrigation: Local Level Management in the Punjab (Pakistan)'; in: Desertification and Development, H. Mann and B. Spooner, edited; pp. 83-109. London: Academic Press.

Note: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library.

FOREST SOCIOLOGY

Lecture 7

TEACHER'S OUTLINE

Section B: RURAL SOCIOLOGY AND DEVELOPMENT

Chapter 4. RURAL SOCIAL STRUCTURE : Case Studies

b. Political Organization: Case Studies from Bangladesh

(1) Energy Use: A Case Study of a Village

(a) Availability and use of the energy resources.
(b) Social structure of the study village.
(c) Production and consumption of food and fuel.
(d) Land tenure and distribution of the energy resources.
(e) Patron-Client relationships of the villagers.
(f) Impact of agricultural modernization on the society.
(g) Effects of occupational changes on collection of fuel.
(h) Transactions of land, employment and crop residues.
(i) Fuel use patterns and control of resources.
(j) Effects of increased cropping intensity on forest, pasture, livestock, soil and crop yields.
(k) Wealth for 'some' but more acute poverty for 'most'.

(2) Tree Cutting: A Case Study of Ten Villages

(a) Forest exploitation by officials and merchants.
(b) The tactics of cutting trees in the government forest.
(c) The timber and firewood business.
(d) The deals between village influentials and officials.
(e) The 'biri' leaf business and deals with officials.
(f) Large operations versus headloads of firewood.
(g) Harassment and exploitation of the poor landless.
(h) Use and abuse of the 'law' by the village elite.

(3) Land Occupancy: A Case Study of Ten Villages

(a) The process of land occupancy as a cause and effect of power and wealth.
(b) Political disturbance gives rise to land grabbing.
(c) Land grabbing through bribes to officials, forgery of documents and use of force.
(d) Law-suits on land disputes are often delayed by the courts which in a way help the offenders.
(e) The senior govt. officers seem almost helpless between the clever elite and the ignorant poor villagers.

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Briscoe, J., 1979, 'Energy Use and Social Structure in a Bangladesh Village'; in: Population and Development Review, Vol. 5, No. 4, pp. 615-641.

B.R.A.C., 1983, The Net: Power Structure in Ten Villages. Dhaka: Bangladesh Rural Advancement Committee (B.R.A.C.). Ch. 3: 'Land', pp.34-37 and Ch. 5:'The Forest', pp.49-60.

NOTE: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library, Peshawar.

FOREST SOCIOLOGY

Lecture 7

Section: RURAL SOCIETY AND DEVELOPMENT

Chapter 4: RURAL SOCIAL STRUCTURE: Case Studies (Continued)

b. POLITICAL ORGANIZATION: Case studies in Bangladesh

(1) Energy Use

Analyses of energy use in developing countries typically compare the aggregate availability of energy with the aggregate requirement for energy and implicitly assume that distribution takes place according to need. For an important energy resource, food, such a method is obviously flawed: at the global level because widespread chronic malnutrition coexists with an adequate supply of food to feed the world population; at the village level because it is primarily inequalities in food consumption that explain why, during famines, landless villagers die at much greater rates than their landed neighborers. Whether the context is global or local, the issue of distribution is crucially related to control of available resources and the structure of social organization that governs the distribution of these resources from owners to the users.

This case-study examines energy availability and patterns of energy use in the context of a single village in rural Bangladesh. The data confirm the observation of the older villagers that the patron-client system of old, in which the richer peasants tried to underwrite the minimal needs of their poorer clients, is being replaced by a system in which transactions between families of the same class are the norm. Since fuel for cooking food is by far the largest component of energy use in rural areas in South Asia, data on specific fuels used by different classes in the village are analyzed in light of the social and economic organization. It is shown that families of different classes use different types and sources of fuel, and, in particular, it is the socially and economically most disadvantaged villagers who are forced to purchase this increasingly scarce resource from the market. The current social structure and current mechanisms governing resource distribution in the village are contrasted with historical patterns, and future patterns of energy use in the village are estimated.

The study village, Ulipur, is situated in the deep water flooding plain of the Meghna River, in the western part of Comilla district. The village consists of an amorphous cluster of dwellings near a canal a mile west of the Dhanu, a major distributory of the Meghna River. The land is only ten feet above mean sea level and becomes covered with a sheet of water when the rivers flood their banks in June. By the end of October the waters have

receded, leaving the land covered with a soft, fertile, sand-clay silt. The 2,300 people per square mile in this densely populated rural area live in 'baris', clusters of predominately bamboo-walled and straw-roofed houses surrounded by trees and bamboo groves. The baris, which are raised above the level of the monsoon water on earthen mounds, are scattered over the flat plain. There is no road in the village, and no path remains above the monsoon water. The families of each bari are usually a patrilineal descent group, identified by a quasi-hereditary title that once indicated an occupation. The most important extra familial social grouping is the 'Somaj' (society), which usually includes between 200 and 500 people. This informal multipurpose institution is referred to by the name of its most prominent member. The Somaj is most easily identified at religious festivals, but it also functions as an economic unit, with exchanges in land, labor and fuel taking place between members of the same Somaj.

Although the energy system in Ulipur is frugal, with virtually all products and byproducts being used for some purpose, the use of energy is inefficient. Here, as in rural India, the energy input into food grain production accounts for over one-half of the energy output of the grain. Furthermore, the amount of food that has to be consumed by a person or a bullock to produce a unit output of useful work is very high. The efficiency of cooking, too, is very low, with about three calories of fuel used for each calorie of food-grain cooked. Each crop in this village produces several products, each of which can be used for several purposes.

Patterns of landownership and tenancy are an important determinant of which organic materials are produced in the village. Decisions on cropping patterns are made by those who cultivate the land, not only on the basis of soil conditions and the prices of inputs and out-puts, but also on the basis of the cultivator's need for primary and secondary products and possibly the needs of other people toward whom he feels responsibility. So far energy use in Ulipur has been discussed as though the village were a homogeneous unit. Access to different types and sources of energy, however, is far from evenly distributed in the village: it varies with class and is largely governed by the social structure that will be described and discussed in the following lines. Equilibrium in rural societies such as that of Bengal has depended historically on a balance of transfers of peasant surpluses to the rulers in return for the provision of minimal security for the cultivators. From the time of the Permanent Settlement of 1793, these patron-client relationships stemmed directly from the possession of differential rights in land. Landowners tended to become patrons for their tenants, servants and laborers, and for members of the artisan and service groups. Through these relationships landlords reduced their management problems and were ensured of a supply of labor during planting and harvesting seasons. Clients also added to a patron's power in the endemic village factionalism and were helpers on ritual occasions and in times of crisis. For a poor villager, a relationship with a patron was advantageous because the patron provided work and income; he allowed the villager to collect

fuel from his land, trees and cattle; he interceded on villager's behalf in village disputes and in contacts with government officials; and he helped with the education and employment of the poor man's children.

Evidence that changes are taking place in the forms of social organization in rural Bangladesh is widespread. Where high yielding crop varieties have been introduced, migrant workers compete with local laborers, and the traditional share system of payment has been partially replaced by the introduction of cash contracts and daily wages. Throughout Bangladesh, the market orientation of production units appears to be increasing. Concomitantly the gap between rich and poor has widened. Changes in agricultural labor market have contributed to the tilting of the balance of reciprocity in the customary relationship against the poor. The demand for agricultural labor has increased more slowly than output, while the labor supply has increased rapidly both because population has grown more rapidly than output and because the number of people dependent on agricultural wage labor has increased drastically as the proportion of landless to total rural families has increased. The interdependence between landowners and agricultural laborers has decreased as more government and private jobs have opened to Bangalis since Independence.

In Ulipur, as elsewhere, the disappearance of slack resources such as fisheries and crop residues has forced poor peasants into the insecurity of cash economy. In the 1960s Ulipur Muslims seldom fished the rivers of the area. Fishing was considered exclusively a Hindu occupation, with relationships built up during sale of the catch forming the basis for integration of the Hindus into the society. When the Hindus occupied this niche they, like the poor Muslims, were allowed to collect the then-abundant crop residues from the fields of the landed villagers. As productive employment has become more difficult to obtain, as real agricultural wages have declined, and as the poor have become more impoverished, many Muslims have come to disregard their previous aversion to fishing. They now compete with the Hindus, albeit at a lower level of cooperation and using less complex equipment, for the produce of the waterways. Consequently, the rich inland fisheries are being overfished, with yields declining markedly over the past few years. Furthermore, the Muslims of Ulipur now seldom buy fish from the neighboring Hindu fishermen of Jalepara. Since Hindus no longer fulfill any essential productive function in the Ulipur economy, and since they now find themselves in conflict with the Muslims over fishing grounds, the few rights that they previously had as members of Ulipur Society have all but disappeared. Similar forces are at work within the Muslim Society of Ulipur, too. The poorer Muslims meet their fuel requirements without being forced into the market only because there are still some surplus fuels in the village. With rising man-land ratios and static residue yield per acre, the day when the Muslim poor can no longer collect sufficient fuel within the village is not far off.

In a 'traditional' society, the process of accommodation centers around the sharing of access to land and labor. In such a society it is expected that landowners preferentially lease or sharecrop out their land to those who are poorer than they, and that the richer farmers preferentially hire laborers who are poorer and who depend most heavily on agricultural labor. As the patron-client system break down, the levelling mechanisms of a community shuffle fewer resources, with the internal process of village sharing finally involving only marginal resources and opportunities. Under these circumstances owners prefer to rent to tenants who are solvent, favor laborers from their own class when employment is scarce and distribute fewer resources to poorer villagers.

Data on transactions in land, labor and crop residues among Ulipur families are analyzed by comparing the classes of the giving and receiving families with the classes that would be expected under three social paradigms. The paradigms are:a 'vertical' paradigm in which rich peasants preferentially allocate land, employment and crop residues to those who are poorer and who are their clients; a 'horizontal' paradigm in which families preferentially allocate land, employment and crop residues to other families of the same class; and an intermediate, 'class-neutral' paradigm in which there is no systematic class preference. For transactions in sharecropped land, mortgaged land, human labor, animal labor, kher (fodder) and miscellaneous crop residues, the mechanism underlying the observed transactions in Ulipur is more akin to that expected under a regime in which class cleavages are strong than under traditional patron-client regime. In contrast to all of these commodities, the distribution of 'nara' is still dominated by the patron-client type of relationship. It is most interesting that the distribution of one crop residue, 'khar', is similar to that expected under the horizontal paradigm, while the distribution of another, 'nara', is similar to that expected under the vertical paradigm. For the Muslims, the shortage of organic materials has been manifested first as a shortage of fodder and only subsequently as a fuel shortage. Kher is primarily used for fodder and nara primarily for fuel.

Different classes in Ulipur use approximately the same number of kilo-calories to cook a kilogram of food grain. Because the richer villagers eat more food, they use more fuel, but in a relatively good year like the study year of 1977, the difference in overall fuel use was not great. Because poor people have considerable difficulty obtaining fuels, particularly at certain times of the year, and because not even careful management can greatly increase the efficiency of the challahs, the results of fuel crises are not that the poor use fuel more efficiently,but that they are forced to go to greater lengths, including stealing and buying fuel with money that would otherwise have been used for food, to acquire the fuel necessary for cooking. Thus, while the fuel needs of rich and poor are similar, the quality of fuel used and the costs, including the effort expended to obtain it, differ significantly. Crop residues provide other 70 percent of the fuel used by the study population, and therefore the cropping pattern is the primary

determinant of the seasonal variation in the fuel supply, other fuels, such as 'bhaza lakri' (trees and branches recovered from rivers in flood) are available over longer periods of time, while still other fuels, such as cow dung and firewood from the village trees and the market, are available year round.

The ownership of assets that produce fuel is highly concentrated in Ulipur. In this society rights to the products of the land lie exclusively with the owner of the land. Thus, in theory, the landowner commands all of the residues produced on his land. In practice, actual command of these resources depends on the owner or caretaker's ability to enforce his rights to the fuel from his land. The owners of the alluvial char-lands along the Dhanu River live far from their fields and would have to go to great lengths to prevent the removal of nara by others during the day. At night, protection of the nara would be virtually impossible. By contrast, since kher is carried to the bari with the harvested paddy, it would require desperation and audacity to steal it. The importance the owner attaches to control of fuel also effects its distribution. A middle peasant who owns a distant plot of land lined with 'madar' trees may be relatively unconcerned about pilfering of nara from his land; but if anyone were to chop down a tree of his or even break off a large branch, he would be most concerned because he planted the madar trees specifically so that his family could have more firewood. Because it is the landed people who assume responsibility for law and order in the village, the illegal chopping down of a tree would be considered a serious breach of village order. The vigor with which the offense would be prosecuted would depend on the social standing of both the tree owner and the pilferer. For the most marginal economic and social group in the village, the Hindu fishing people, the possibility of committing such a crime without being discovered would be slim because of their limited mobility within the village; and harsh punishment for such an infraction would be much more likely than it would be for any Muslim. If a fuel is in short supply and can be easily protected, the owner of the fuel-producing asset controls its distribution, using much of it himself. Transactions in such fuels are likely to be predominantly between families of the same class. If a fuel is highly valued but difficult to protect, its use by different classes is likely to be more similar. Abundant fuels are likely to be the most equitably distributed among different classes; however, a difference in access between the landless Muslims and Hindus is to be expected because of the marginal position of the latter group. Since the larger land-holders have an excess of nara, and since guarding of the harvested fields at night would be an onerous task, unauthorized removal of nara by poorer people of the village is common. Indeed, some degree of pilfering is socially acceptable. The larger farmers also often give poorer clients permission to clear a portion of the nara from their fields.

The increased cropping intensity (from 140 to 200 percent) has been accompanied by reduced yields and has been at the expense of forests and pastures. While those who own sufficient land produce the food needed to feed their families, the poor are largely depen-

dent on sources outside the village for the production of food they eat. Over half of the foodgrains eaten by the study population are imported. Given the inflexible requirements for cooking fuel, animals are fed less and are fed inferior fodder, and the amount of organic materials returned to the land is reduced. The consequences are that the animals are unable to plough as well, and the fertility of the soil is reduced, meaning that crop yields continue to fall. Thus, more energy-intensive agriculture is bound to bringing wealth for 'some' but more acute poverty for 'most'.

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Briscoe, J., 1979, 'Energy Use and Social Structure in a Bangladesh Village'. Population and Development Review, Vol.5, No.4; pp. 615-641.

(2) Tree Cutting

"The Forest Department is destroying everything, across the border (India) they are replacing, we are just destroying" - District level government officer. In our area (of the study) the Government Forest covers an area of about 8,000 acres, or on half the total land, of which about two thirds is still forested, but this is rapidly changing. Large timber merchants are cutting at a rapid rate, with the unofficial cooperation of the Forest Officers and the large timber trees are disappearing. This cooperation is in sharp contrast to the harassment and punishment experienced by poor and destitute people when they cut head-loads of firewood in the forest to sell for their survival, as they have always done. Possibly no other activity demonstrates so clearly the imbalance of 'power' as the way in which different groups are able or unable to exploit this common resource.

Every year for three months from February to May large numbers of trucks come to the area and carry away large 'Sal' timber trees to the towns, and small trees and branches to the local markets for firewood. The main operators are Jamal, Mizan ex-Chairman, Rafiq Daktar and many other bigger ones from outside the area.

The Adivasis have some plots of private registered land inside the government Forest, which they do not use much for agriculture due to the poor soil. The timber operators buy up these plots at TK. 300 to 500 per acre and obtain permits from the District Forest Officer (DFO) to cut down the trees on this land. The permit is officially given free in these circumstances, but in fact costs several thousand Taka in bribes. Having obtained the permit the operators then start cutting down trees in the government forest adjacent to the plot and carrying them into the plot where they place them next to old stumps. Very often the plot contained nothing but stumps to begin with, usually these stumps are recut

six or seven times, each time enabling the operator to get a different tree stamped by the Forester and Ranger. This is to get round the regulations which state that each tree has to be officially stamped with a special hammer before it can be removed. The laborers who cut the trees get different rates depending on whether they are cutting inside or outside the registered land. Inside they get TK. 10 per 'buli' (18 ft. long by 2.5 ft.diameter), TK. 25 to 30 per 'lok' (18 ft. long by 4-5 ft. diameter) and TK. 120 for a truck load of firewood. In the government Forest they get TK.20 TK.70 and TK.140 to 150 respectively. This is because of extra risk, which of course falls on them not on the contractor. Because of this difference in the rates they know exactly which timber really belonged to the government and could give us detailed information; additional information was obtained from the local clerks of the big contractors and from Forest Officers. Ninety percent (90%) of all trees cut,are cut in the government forest under this arrangement. The Police, BDR, and Forest Officers all have to be paid and the exact amounts are not known, but the Rangers have to come from his office, 15 miles away and charges TK. 20 per mile travel allowance, plus a field commission. The price of timber at the nearest town is at least TK.80 per cubic foot (cft) and the transport cost TK.1,000 per truck. One truck can carry 200 cft. and the cutting cost of 200 cft (on government land) is TK.1,400. Therefore the sale price per truck is TK.16,000 and the costs TK.2,400 excluding bribes. Firewood is sold locally with no transport cost at TK.2,000 to 2,500 per truck with a cutting cost of TK.150. The profits are, therefore, TK.13,500 per truckload of timber and TK.2,000 per truck load of firewood. The amounts of timber and firewood cut are about equal. Several of the timber contractors are also government building contractors and use the timber in their construction operations making a double profit.

In three forested unions, including our area, in the winter season of 1978-79 about 40 large contractors were operating for five months, each employing an average of 100 laborers per day. One or two month is spent at the beginning of the season negotiating with the Forest Officers and demarcating the plots, then one or two months is spent in cutting and the rest of the time in carrying away. All the trucks have to pass the same point and in that year there were at least 20 truckloads per day for at least 45 days, of which about half carried timber and half firewood.

This gives 450 truck loads of timber at a profit of TK.13,500 per truck,total TK.60,75,000 and 450 truckloads of firewood at TK.2,000 per truck, total TK.9,00,000; combined total TK.69,75,000. Divided among 40 operators this gives an average of about TK.1,75,000 each, but this figure is of course exclusive of bribes which are certainly a heavy expense and may take as much as one third or even half the total profit. Since other sources inform that the contractors make about TK. 1,00,000 net profit per year we can gross at charges totalling about TK.75,000 per contractor. It should be explained that in making these calculations we have consistently used minimum figures and generally underestimated, so the real amounts may well be higher.

There are other ways of carrying on this business, for example Lutfur ex-Member has been involved in timber contracting without a licence since 1965. In 1967 the Circle Officer Development (C.O. Dev.) sanctioned TK.11,000 to build a wooden bridge over a local river. Lutfur negotiated with the Forester to supply him with a large amount of timber for the bridge, but sold most of it unofficially. Now he is using the repairing of the Motihar Furkania Madrassa, of which he is Secretary, for the same purpose. Working closely with the Forester, he has made at least TK.40,000 by this means, over the years.

To show how these relationships and operations work in detail, let us cite an example of one tree. In 1979 Rafiq Daktar sold a Sal tree to Jamal, claiming that it grew on his land, and received TK.300. In fact it grew on 'khas' land belonging to the Forest Department, but since Jamal always maintains a good relationship with the Forester he had negotiated with him unofficially and was able to cut down the tree. He also usually maintains a good relationship with Police, frequently taking them expensive food and organizing parties for them at Anjan's house with alcohol and women available. But he had not made any arrangement with them over this tree. The landless people of the village had quite well organized and they were fed of ever being arrested for cutting small amounts of firewood in the forest. But Jamal was getting away with cutting down a timber tree in front of their eyes. They informed the O.C. Police, who, since he had not been paid anything, came to the scene accompanied by Mizan ex-Chairman. Jamal usually maintains a good relationship with him too, but had not given him anything for this tree. Nur Muhammad had a permit from the Forest Department to cut down a different tree in another village and Jamal tried to borrow that permit and use it for his tree. The Forester became frightened, however,because of the involvement of the O.C. Police and denied all knowledge of the business. Jamal was very determined to carry off the tree because his future 'prestige' and operations would be at risk if he failed. He had a good connection with the Forest Ranger whom he called to the village to solve the problem. The amount of money he paid is not known but the value of the tree in the town was TK.3,000. By understanding the details of this small-scale low-level transaction we can get a fairly good idea of how the much larger operations described above are arranged at higher levels.

Until 1975, timber business in the forest was overshadowed in size and profitability by the leaf business. From 1965 leaves were collected in large amounts from the Komvi pata trees in the forest, cured by boiling and drying in the sun, bundled and sold to the 'biri' (local cigarette) factories, mainly in Rangpur, where they were used for the outside of 'biris'. The business was controlled by the 'Patar Company' run by four big businessmen. They had a government licence making them the sole agents authorized to buy these leaves in the whole region comprising half a dozen Unions. They bought from the local people through many agents and stored them in their godowns locally and elsewhere before shipment. The main agents in the area were among the 99 people who bought a few

shares. After the first few years, 75% of the leaves were bought from across the border in India, which was of course illegal. The local Police and BDR used to receive TK.150 each from the Company and the local Forest Office TK.200 every month. In addition the Police and BDR used to regularly stop agents enroute and collect varying amounts, usually about TK.50 per stoppage. To maintain good local public relations the Company built a mosque and madrassa next to its godowns, and divided a one-sixteenth share among all the local influential people. In 1975 the new government banned the use of leaves in biri-making and clamped down on smuggling that resulted in closing the Company. The Company had been clearing several hundred Taka per mound of patar on thousands of mounds a year. The local agents realized that and decided to bypass the Company and contacted Rangpur to earn all the profits themselves. Amin for example did so with a partner whom he subsequently cheated by claiming that he had been caught by the Police and had to give up all the stock; he cleared TK.72,000 over two years. His partner lost everything and is now landless. By 1975 about half the total production was going 'black' directly to Rangpur. Kamal was the principal contact with the biri-makers of Rangpur, working under the protection of Taher Company whom he latter may have killed. Almost all the agents were involved in this way, many latter switching over to timber business.

These large and profitable operations are in stark contrast with the activities of landless and destitute families who spend all day cutting a headload of firewood,then carry it on their heads to the local market where it fetches TK.5. According to the Forest Department this work is only legal if the wood is broken and collected with bare hands (not cut with an axe) and if a peasant application signed by the U.P. Chairman is submitted and a fee of TK.1.50 paid for each headload. Because of the difficulty of conforming to these regulations no-one does so, and so poor people who have no other livelihood are often harassed by the local elite, Police and Forest Officers. Two examples are cited hereunder:

a) On the 7th December, 1979 a landless laborer cut some firewood from the forest early in the morning and was making it into bundles to carry to market. Rafiq Daktar heard about this and informed the Forester; together they went to the man's house where the Forester arrested him and took him to his office. His friends and relatives heard about the incident and went to the office asking for his release. After three hours of negotiation the man was released on payment of TK.130, which was shared between the Forester and Rafiq Daktar, and TK.10 for tea and biscuits.

b) On the 18th September, 1979 at 4.00 a.m. 23 landless laborers went from Nizpara towards the town carrying firewood they had cut the previous day. There was no work available and the condition of their families was quite serious. Some policemen returning from patrol caught them, three of them ran away and twenty were arrested. They had no money to pay a bribe and so were taken to the Police Station. Mizan ex-Chairman who

spends most of his time around the 'Thana' headquarters became involved and negotiated a rate of TK.5 per head. Soon their friends, relatives and other members of the landless organization arrived and with them came Amin. He was allowed entry into the Police Station,though they were refused, so he went in and negotiated together with Mizan. On his return he told them that by then the Forest Department had become involved and so the price had gone up to TK.10 per head. They refused to pay and said they were prepared to take the case to higher levels if the prisoners were not released. By this stage the prisoners were very hungry and the Sentry who had given permission for food to be sent in now refused. Mizan and Amin interceded with the police and got permission. After showing their sympathy in this way they gave the news that the BDR had been informed by telephone and the rate had then gone upto TK.15 per head. The friends still refused to pay, however, and the police sent a man over to the Forest office for coordination. Then Mizan,Amin and the police began discussions with the prisoners inside and friends out-side simultaneously. They hinted that the prisoners might be beaten, kept without food and latter sent to jail. Amin reminded the prisoners that their friends would find it very difficult to go to higher levels and offered to sign a bond for their release. Eventually they agreed and each had to sign two bonds, one admitting guilt and another promising to pay TK.20 each. By noon they were released and paid latter on. Out of the TK.400 the Police, BDR and Forest Department each got TK.100 and Mizan and Amin got TK.50 each. Although this was paid on the understanding that the case would be dropped, it has not been.

To conclude, thus, is that the elite are not only able to defy the laws protecting forest with impunity and make a lot of money out of it, they are also able to use the same laws to exploit and harass the poor. When extending their wealth and power by exploiting a local resource like the public forest, good connections with the government officers are of primary importance.

Reference

B.R.A.C., 1983, Chapter 5: 'The Forest', pp. 49-60, in: The Net: Power Structure in Ten Villages. Dhaka: Bangladesh Rural Advancement Committee (BRAC).

(3) Land Occupancy

Land occupancy grabbing is another area of socio-political set up in the area (under study). The history of this area during the past two decades has been a continuous process of land occupation by Muslim refugees or self-proclaimed refugees. This process is still going on and every year at transplanting (rice) and harvest times new disputes arise. Whether it will be completed in the future by the departure of the remaining Adivasis or whether

it will cease before this happens, is still uncertain. It would be completely wrong however to imagine that a large number of settlers simply arrived over the years, each occupying some land for himself; this can be seen to an unlikely explanation simply by the large number of landless settlers in the area. In fact the process has been much more complex and has been initiated and carried out by quite a small number of active and ruthless men, who have greatly expanded their power and wealth as a result. While some of them have kept hold of the land they occupied and managed to get it registered, others have sold off large amounts to more recent arrivals to finance other operations and their vices. Their methods vary from outright violence, through trickery and deceit, to bribery and forgery of official documents, the method depending on individual capacities of the entrepreneur. Some sophisticated operators use a mixture of all three or work closely with others who have talents which are complementary to their own methods/ tactics.

Land grabbing reached its peaks in 1964-65 and 1971, when communal riots and wars forced many Adivasis to flee temporarily to India. At the present time a new wave which started in 1976-77 with a rebellion is still going on; for the most part these men now play a more 'respectable' role, providing protection, encouragement and finance to a younger and more active generation.

Recently Hafiz and his nephew Latif have been the most active in this village. In 1967 they forcibly occupied 8 acres belonging to a Koch, who over two years filed 9 cases against them and others in the Sub-Divisional Magistrate's Court (SDM). They were all arrested but released after seven days on bail while the case continued. When their conviction became imminent they approached the Chairman, who threatened and pressurized the Koch to come to a compromise. As a result he kept 4.25 acres and Hafiz got 3.75 acres; the Chairman influenced the Court at this stage by reporting that Hafiz had never occupied any land, he received TK.1,000. At the same time Hafiz occupied 4.40 acres from two more Koch and has been able to obtain documents from the Revenue Department.

In 1971 a coalition of Selim Commander and Hafiz with support from Kamal member, Lutfur ex-Member together with others from outside occupied 100-200 acres of land belonging to Adivasis who had temporarily fled to India. In many cases the land had been registered in the names of relatives who had since died, but since no proper birth and death register is maintained in this area, the occupiers could claim that they were not dead but still in India and the land was therefore 'enemy property'. If the owners complained to the Court it was referred to the O.C. Police, who never came to the village because he had been bribed. Much of this land was sold to new arrivals, some was recovered by its owners and Hafiz kept 3 acres of temple land and 1 acre of private land he got in this way, and Latif 3 acres.

Selim Commander also with a group of supporters tried to occupy 2.44 acres belonging to a Koch, at (rice) transplanting time

in 1979. He failed, however, because the owner made a case and the O.C. Police came. A case was also made in the Sub-Divisional Court to prevent him from trying again, but, on the 20 November he came and harvested the 0.50 acre that were ready.

In Motihar a well-organized gang has been operating in 1978 and 1979 apparently led by Anwar and Kashem, but actually run from behind by Lutfur ex-Member. They obtained false documents from the Revenue Department for 9.32 acres of land owned by nine Koch and transplanted and harvested it by force.

In addition to this gang, Manju is operating more on his own in Motihar though without support from all others. In July, 1979 he forcibly occupied 1.20 acres of two Koch brothers and obtained false documents that were verified in court. However, the U.P. Chairman rejected his documents and the village people supported the Koch brothers, who were able to destroy the aman paddy he had transplanted, transplant themselves and harvest successfully. Like Motihar, land grabbing in Osmanpur is quite well organized and is carried on by the 'gang' of six led by Aziz, Rob and Suruj and supported by Mizan ex-Chairman, U.P. Chairman and some others and a similar gang is operating fairly successfully in Basantipur village.

As can be seen much of this activity is outside the law, and yet both the owners and occupiers are trying to use the law to support their claims whenever possible. The law suits regarding land, particularly, get delayed at the courts. The result of this ingenious delaying tactic is often to confuse the owners and so help the occupiers, it also penalizes the Adivasis, who are mostly Awami League supporters.

These few examples show the mechanics of how the local elite are able to extend their control over private and public land, making many prosperous peasants landless in the process. Some idea is given about size and scope of the process, the nature of the different types of people involved and their connections and of the way they are able to use a combination of force, manipulation and corruption to achieve their ends. In the face of this sophisticated system the ignorant and unorganized people on one side of it and the senior government officers on the other side seem almost helpless.

Reference

B.R.A.C., 1983, Chapter 3: 'Land' (pp.34-43), in: The Net: Power Structure in Ten Villages. Dhaka: Bangladesh Rural Advancement Committee (BRAC).

Note: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library.

FOREST SOCIOLOGY

Lecture 8

TEACHER'S OUTLINE

Section B: RURAL SOCIETY AND DEVELOPMENT

Chapter 4. RURAL SOCIAL STRUCTURE: Case Studies (continued)

c. Role of Women in Resource Management: Myths and Case Studies

(1) The Myths and Facts

Myth 1: Women are housewives and not farmers.
Fact 1: Women also participate in agriculture and, in fact, in many societies they are part- or full-time farmers.

Myth 2: Women have little involvement in tree production and use.
Fact 2: Women, traditionally collect and use forest products.

Myth 3: Woman is inferior in command to man in the household.
Fact 3: Women as heads of households are assuming roles in agriculture, sometimes by choice, sometimes forced by circumstances, e.g., death or long-sickness of husband, divorce, outmigration of men, etc.

Myth 4: Women are not influential or active in public affairs.
Fact 4: Women have private influence over men's public actions and they undertake public actions themselves, too.

(2) The Plan Sierra Development Project, Dominican Republic (LA)

(a) Innovative approaches to agroforestry, soil conservation and forestry training and extension were introduced.
(b) Women were consciously included in the program but their interests were overlooked.
(c) Participation of women was limited to health services, home hygiene and home economics.
(d) Women are now actively sought as volunteer laborers and promoters of community reforestation activities.
(e) Women should be offered employment and training in forest nursery and horticultural techniques.
(f) Women should also be consulted as equal clients with men when planning and implementing an agroforestry project.

(3) The 'Chipko' Movement in India

(a) An active role of women in mobilizing for forest protection and reforestation.

(b) Women are more concerned with subsistence production, while men with cash crops and/or wage labor.
(c) The 'Chipko' Movement began with confrontations between hill people and outsiders over rights to develop or harvest forests.
(d) 'Chipko' has developed gradually from a movement for forest protection to a broad movement for ecological conservation.
(e) They now conduct 'eco-development' camps for massive tree planting campaigns.
(f) The success of 'Chipko' has been largely due to the continued initiative and support of the hill women.

(4) Tree Planting and Agroforestry Workshops in Kenya

(a) Kisii (a tribe) women head households, make decisions and perform or manage most of the farm work.
(b) Women are included in the (training) workshops, meetings and discussions on agroforestry program.
(c) Women usually remained silent in the mixed group discussions but later they had valuable comments.
(d) In separate women's discussions, they offered some effective solutions to their agroforestry problems.
(e) Women should be given equal importance as beneficiaries of and participants in the agroforestry projects.
(f) Women should be considered as a separate group with their own priorities for resource management.

Reference

Fortmann, Louise and Dianne Rochelean, Dianne; 1985, 'Women and Agroforestry': Four Myths and Three Case Studies'; in: Agroforestry Systems, Volume 2, pp. 253-272. The Hague: Martinus Nijholf/ Dr.W. Junk Publishers.

NOTE: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library, Peshawar.

FOREST SOCIOLOGY

Lecture 8

Section B: RURAL SOCIETY AND DEVELOPMENT

Chapter 4: RURAL SOCIAL STRUCTURE: Case Studies (Cont'd.)

c. Role of Women in Resource Management: Myths and Case studies)

Women are traditionally important participants in both the agricultural and forestry components of agroforestry production. But they are frequently ignored in the design of agroforestry projects because of commonly held myths about their participation in both production activities and in public life. The involvement of women in agroforestry projects and activities are examined in case studies from the Dominican Republic, India and Kenya.

About two decades ago (1970), Boserup documented the role of women in development. Nevertheless, many development projects still continue to be designed without consideration of their effect on women or of the role of women in their implementation. Forestry and agroforestry projects are no exception. A study of 43 World Bank forestry projects found that only eight (8) made specific reference to women. In part this state of affairs in due to the masculine images conjured up by the word 'forestry'. The reality is, in fact, often the opposite of the image.

(1) The Myths and the Facts

Women have traditionally played important roles in agricultural production and in the use and management of trees. The importance of these roles is, however, often obscured by the prevailing myths held both by donors and the local officials about the role of women. The most common myths are:

Myth 1: Women are housewives and are not heavily involved in agricultural production.

Myth 2: Women are not significantly involved in tree production and use.

Myth 3: Every woman has a husband or is a part of a male-headed household.

Myth 4: Women are not influential or active in public affairs.

But while looking for empirical evidence for these myths in the real world, particularly in the developing countries, several studies have demonstrated the following facts:

Fact 1: Agricultural production is a traditional role of women. They are not just housewives in many societies they are, in fact, farmers often bearing the major or sole responsibility for food production.

Fact 2: The gathering and use of forest products is a traditional role of women. They are often the prime users of forestry products such as fuelwood, wild foods and fodder.

Fact 3: Women as heads of households are assuming non-traditional roles in agriculture and forestry. Increasing numbers of women head their own households, sometimes by choice, sometimes as a result of personal events such as death of husband or father, divorce, separation, abandonment or of social trends such as male outmigration.

Fact 4: Women and women's groups are important in community organization and mobilization. Within the domestic sphere women exercise influence on public events through their information links based on lineage ties and through ability to withhold goods necessary for men's public participation. Their informal associations may influence both private and public spheres of life significantly. Women's solidarity groups may take a very active stance in defending their own interests. For example, the 'Women's War' of 1929 in Nigeria and the recent 'Chipko Movement' in India.

Women, then, both individually and in groups have private influence on men's public actions and undertake public actions themselves, too. The potential for women's public action in acres such as reforestation, soil and water conservation and the like is especially high because they are the principal sufferers from environmental degradation. It is they who must walk farther for water, fuelwood and fodder. It is they who must produce subsistence on increasingly degraded soils. It is they who often are both able and likely to organize the community for action.

(2) The Case Studies

The following three case studies examine women's involvement in different aspects of agroforesty. The first is a study of women's involvement in the implementation and benefits of an agroforestry project. The second examines women's importance in mobilizing a community. The third looks at some of the techniques necessary to involve women in agroforestry projects.

(a) Plan Sierra Development Project, Dominican Republic

Plan Sierra is an integrated rural development project with strong agroforestry and reforestation programs. During its first three years (1979-81) Plan Sierra developed innovative approaches to agroforestry, soil conservation and forestry training and extension. While women were consciously included in some aspects of these programs, nonetheless, their interests in 'invisible' subsistence activities were overlooked. Securing women's participation and serving women's participation and serving women's interests were sometimes confounded. Both the successes and failures of Plan Sierra's early years exemplify many of the key issues for women in agroforestry development projects.

The Sierra is a rugged, relatively isolated region in the central mountains of the Dominican Republic. Household income, health status and educational level of residents are well below national averages. The economy has suffered from boom-bust cycles in mining and lumbering. Outmigration has been high, particularly among men 20-40 years of age. The area has been largely deforested through commercial timber exploitation and the practice of shifting cultivation which continues on the forest fringes. Soil erosion and degradation are widespread and the region's hydrologic balance has been severely disrupted.

Most agricultural production takes place within agro-forestry systems based on mixture of crops, coffee, pasture and forest. These are combined in simultaneous intercropping mixtures as well as in rotations over time. Most farm families manage such commercial ends. Coffee and cattle are the major commercial enterprises among large landowners, while smallholders sell coffee or annual crops for cash. Most small-holder households are also heavily dependent on off-farm employment. Subsistence and cash crops are intercropped. Pastures are usually studded with multipurpose palm trees. Local cottage industries include furniture making, food processing and production of palm fibre containers for sale to the tobacco industry and for local use with pack animals.

Women share with men the harvesting of annual crops and the coffee harvest (as owners and/or hired farmworkers). Women raise small animals (hogs and chickens) for meat and egg production, they usually milk the cows and tend home gardens with vegetables,bananas and herbs. Responsibility for fuelwood and water gathering falls mostly on women with some help from children. Cheese, candy and cassava processing are almost entirely women's enterprises. Palm fibre containers are produced and sold by women with help from children and elderly family members. Women artisans also weave the seats and backs onto locally manufactured wooden chair frames. The weaving is subcontracted as piece work to men's woodworking shops.

Plan Sierra was an integrated rural development project designed to serve a 2,500 sq.km. area within the Sierra. It included strong agricultural, reforestation and soil conservation components

from the outset. Agroforestry initiatives emphasized coffee systems. Farmers (mostly smallholders) received subsidized credit and intensive training courses to facilitate establishment of multipurpose shaded coffee stands. Credit and technical assistance were also provided for the establishment or improvement of fruit orchards, often intercropped with annual food crops. Aside from coffee and fruit, tree planting on small farms was not treated separately from reforestation of large-scale state and private holdings. Reforestation efforts focussed on indigenous and exotic pine trees for watershed management or timber. Most small farmers were unwilling to plant these trees on their own property because in the Sierra the prohibition against cutting trees (regardless of land title) has been most strongly enforced in the case of pines and other timber species.

As in many similar projects in Latin America, local women's participation in Plan Sierra was initially limited to health services/home hygiene/home economics. Women professionals were concentrated primarily in Health, Education and Rural Organization units. Women were initially hired as home-economists, secretaries, cooks and cleaners. Eventually some of the forest nurseries hired women to water seedlings and to fill polyethylene bags with potting soil. Male nursery supervisors considered women to be more efficient at this tedious task. Some women who originally took this nontraditional work with reservations latter acquired an active interest in plant propagation techniques. Plan Sierra administrators and some technical staff encouraged this trend. They trained a group of paratechnical women horticulturists who became known as the 'budders and grafters'. The job attained a high status and was accepted as a women's task, setting a precedent for inclusion of more women in technical nursery work. As in many other similar projects sexual harassment by a few coworkers and managers made work difficult for some women employees, but administrators eventually ousted the offenders. Women began to specifically request assignment to the nurseries and a few expressed interest in conducting forestry or soil conservation field work with visiting women researchers. Some of the 'budders and grafters' talked of investing part of their earnings in land and/or small citrus groves, an option they would not have considered previously.

Women are now actively sought as volunteer laborers and promoters for community reforestation. They also take part in technical training and project implementation through the teachers' training courses. About half the teachers in the Sierra were women, and attended the same training sessions regardless of individual specialization or prior training. But it was the project not the women themselves who benefited from these activities. This was not by design but by default. Since they were not consulted in project design, their concerns and needs were not adequately addressed in the technical programmes. During a mid-project evaluation of women's needs, women requested, among other things, assistance with home gardens and cottage industries (weaving and food processing), all within the domain of agroforestry.

Some women who produced woven containers complained of lack of access and/or dwindling, insecure supplies of palm fibre. The palms are also important sources of wood, food and animal feed,and they are often located in pastures or fallow land owned by neighborers or relatives. The women have free access but no guarantee of future access and no control over cutting and replacement. The palm frond supply is both free and unreliable. The management and improvement of this disrupted multiple use agro-forestry system were not integrated into either the pasture management or rural industry programmes. The importance of this cottage industry to rural women lies in the fact that it requires neither land nor capital and work can be performed by women, children and the elderly.

The fuelwood shortage also hit hardest in small holdings. Some women had closed down their cassava bread processing operations (baking) due to lack of fuelwood nearby and the high cost of purchased fuelwood. Others commented on the increasing time and effort necessary to secure the same quantity of fuel for home use. Gathering, selection, consumption, and the potential for subsistence production of fuelwood in rural farms or towns were not directly addressed in any of the programmes. The fuelwood problem was not initially recognized as a high priority issue. When the issue did arise there was a lack of training and experience in the choice, propagation, management and promotion of fuelwood species, particularly for planting on farm. Nor were there any women foresters available within the country. As such,a major opportunity to involve and serve local women in agroforestry and reforestation was lost. Moreover, women's lack of access to credit and land constituted serious obstacles to implementation of on-farm or community tree-planting projects by and for women, particularly those settled in small towns, on non-titled land or on property of absentee husbands.

The Plan Sierra example demonstrated that even in regions where women do not traditionally till the soil, they can and should be offered employment and training in nursery and horticultural techniques, some of which can be identified as women's occupations. This experience also indicates the need for prior consultation with (women) clients of agroforestry development projects about issues of immediate concern to them and about potential action to solve problems or otherwise improve their lot. This would, in many cases, imply a recording of priorities in project identification, technology design and species selection criteria to better meet the needs of rural women. Employment and training of women in fields already recognized as important to some extent could then be extended to training of women personnel for more flexible roles in agroforestry extension programmes for rural families, including subsistence farmers and smallholders.

(b) An NGO - The Chipko Movement in India

The history of the Chipko Movement in the Uttarakhand region of India illustrates the active role of women in mobilizing for

forest protection and reforestation. In some cases the divergent interests of men and women served as a key factor leading the women to act as a group both to save existing forests and to choose useful species for reforestation and agroforestry projects.

The Uttarakhand region encompasses a variety of ethnic groups and a diversity of ecological zones with some features common throughout. Most of the people live in rugged formerly-forested hill country in small, isolated villages. Relative to the rest of India the hill regions are poor and underdeveloped. Large commercial enterprises (mining and lumbering) have been extractive, economically unstable and ecologically unsound. Out-migration has been substantial, particularly among young men. The people rely on their immediate surroundings (including forests) for production of most necessities. Smallholders' agriculture is based on subsistence food production (grains and pulses) with supplementary cash crops. Larger landowners rely more on commercial crops including fruit, grains and other annuals. Animals are kept by both small and large-holders for milk production, draught power, hides, wool and sometimes meat. Cropland and homesteads are privately owned while communally owned forests and grazing lands are managed by village 'Panchayats' (councils). Communal forests are sources of fuelwood, food, herbs, medicine, and construction poles, as well as fibre and wood for handicrafts. Forests may also be grazed directly or may serve as sources of 'cut and carry' fodder for stall-fed animals. Many of the remaining large tracts of forest held by the state are also used for these purposes by nearby villagers.

In Uttarakhand region women plant, weed and harvest the crops after men prepare the soil. The burden of fuelwood and water gathering (1-15 kms. daily journey in rough terrain) also falls on the women. They usually tend small animals and must often collect fodder for larger stock. Child care, food preparation and housekeeping are also women's responsibilities. As such women have a clear interest in the management of cropland as well as in the multiple products of the existing forests. In fact, women's domain tends to be subsistence production, while men concern themselves more with wage labor and/or cash crops. Women's labor, however, is often required by male heads of household for their cash crops enterprises. Thus, men's and women's priorities are largely differentiated along cash and subsistence lines, respectively.

The Chipko Movement began with confrontations between hill people and outsiders over rights to develop or harvest the forests. In one of the first incidents, in 1972, the people Uttarakashi, a village in Chamoli district, adopted the practice of tree protection demonstrations,hugging trees to prevent their being cut down. These actions were responses to large scale deforestation of Himalayan foothills. Clear-cutting had denuded the mountains and resulted in widespread environmental damage (erosions and floods) as well as the loss of a productive resource for near by villages. 'Chipko' as it is popularly called, has developed gradually from a protective movement to prevent commercial clear-cutting, to a broad 'movement for the ecological and human rights of the hill

people and for adherence to a conservation ethnic. There are now two distinct sectors within chipko, one focussing more on protection of existing forests and the other promoting afforestation and development of sustainable village production systems based on forests and agroforestry. This latter group has joined the Ministry of Environment and others to conduct 'eco-development' camps for massive tree-planting campaigns. Through local participation these voluntary afforestation efforts have achieved 90% survival rates. The potential of chipko in promoting sustainable agroforestry systems for the Himalayas has been widely recognized in non-government circles. The potential role of Chipko and the hill women has also been recognized by the state government officials who have urged to Forest Department to follow the lead of Chipko and to support and train the hill women for the task they had already begun.

The success of Chipko has been largely due to the continued initiative and support of the hill women. While some of the earlier demonstrations focussed more on men's demands for local control and the development of timber production, by 1978 the women (and their concerns) had assumed a more prominent role. They emphasized the multiple use/subsistence value of the forests for Himalayan people. Reports indicate that women are prepared to confront their own communities, as well as outsiders to protect Panchayat forests (village commons) from encroachment. One of the key incidents occurred in 1974 when 27 women of Remi village (near the Tibetan border) successfully protected the Panchayat forest against 60 men (some armed) from a neighboring village while their own men were away, engaging in a protest against the contractor. In a more recent Paitoli (Chamoli district, Uttar Pardesh) who had not even heard of Chipko, reacted spontaneously to a move by their own men to sell the Panchayat forest in exchange for potato cultivation project. Loss of this forest stand would have added 5 kms per day to their fuelwood collection journeys. With their own efforts and subsequent help from Chipko the women defeated the project but also incurred the wrath of the men. The incident pointed out the need to include women in village decision-making and sparked demands for election of women to Forest Panchayats in Chamoli district. Moreover, women have also influenced the species selection criteria and general orientation of the tree-planting projects conducted by Chipko, the Ministry of Environment and other groups. They have requested fuelwood, fodder and food producing trees for home use in contrast to the men's preference for fruit and timber trees for sale.

The major lessons to be learned from the Chipko Movement are:

i. There may be considerable divergence between the interests and priorities of the local community and those of the encompassing state or national system. Similarly, there may be equally strong divergence between the interests of men and women in the local community. Implicit in both is the potential conflict in needs of cash and subsistence sectors. Thus, project design must include both the sectors for an effective success.

ii. The clear demonstration of women's strong and conscious interest in the management of trees at both farm and village levels is seen. Because they are more dependent on resources gathered off-farm (water, fuel, fodder), they recognize the need for balanced management (or rehabilitation) of local ecosystems. Hence, their active participation is of vital importance to the agroforestry and reforestation projects.

iii. The potential impact of women and women's groups even in the face of superior physical force and the opposition of men in their own families. It is likely that much of the women's ability to organize and sustain action flows from women's informed solidarity networks and associations. The clear lesson for agroforestry projects is the need to include women in decision making about forest use and management in order to insure both that their interests are included in the project and that their very considerable organizational energies are on the side of the project.

(c) Tree Planting and Agroforestry Workshops in Kenya

KENGO (Kenya Energy Non-Government Organizations Association) Tree-Planting and Agroforestry Workshops are conducted in cooperation with the Kenya Ministries of Energy, Environment and Agriculture. These week-long meetings combine training and consultation for rural constituents and implementors of grass-roots forestry and agroforestry projects relevant to fuelwood production and use. Because of the nature of workshops, questions and issues surface which might normally take years to manifest themselves clearly within projects or government programmes. The Kisii district workshop typifies many of the women's issues facing agroforestry in Kenya.

Kisii is a densely populated, intensively cultivated, high rainfall district in Nyanza Province. The hilly terrain is almost entirely devoted to privately owned crop and pasture land, in equal proportions. Small-holder farms of similar size predominate. Crop production systems are mix of cash and subsistence enterprises with emphasis on commercial products (tea, coffee, pyrethrum and sugar cane). Maize and bananas are the subsistence staple crops. Animal production is a supplementary enterprise that supplies milk for home consumption and sale. Exotic fuelwood and timber trees closely fit into the farmlands. These exotic trees have displaced but have not completely replaced indigenous vegetation in the region. They are planted along fencerows, in ravines, in small woodlots near boundaries and are sometimes intercropped with cash and food crops. Building poles grown on-farm are a source of cash for many households. Fuelwood has also become a commercial good which families purchase regularly from those who manage to produce a surplus. Hedgerows between farms consist of a diverse species mix, including herbaceous and woody plants used for fuelwood, cattle fodder, medicines and fibre. Fallow plots are often grazed or may be planted to soil-improving multipurpose herbaceous and woody species.

Scattered swamps and hilltop woodlands also provide fuelwood, a wide selection of fibers and medicinal plants. Community swamp and hilltop lands are managed by the country councils. Off-farm labor is a major source of income and both men and women pick tea for piece-work wages and many men work in the towns or in urban areas outside the district.

Kisii women who head households are the main decision makers and perform or manage most of the farm work, including soil tillage, maintenance of buildings and other tasks which are considered as men's work. In all cases women collect water and fuelwood; even purchased fuelwood must be transported, a service performed (for a fee) by women's groups. Women also collect fodder for cattle, grass for thatching, fibre for handicrafts and a wide variety of medicinal plants. While the men are considered to be the main crop managers in Kisii,women always participate in planting and harvesting. Food preparation, child care and house-keeping are also the women's work. Most women weave baskets and mats with fibers gathered from woody shrubs in the swamps. These may be used in the home and can also be an important source of cash income.

Although women are included throughout these workshop meetings, their most valuable contributions and their strongest expression of interest were confined largely to the informal small-group activities, such as the nursery practicum, identification and description of plants and practices during the field trip, and open exchange and discussion of information during the informal women's meeting.

During the frequent and even heated exchanges of questions, answers, criticisms, suggestions among the men in the larger sessions, the women were silent - even when topics directly relevant to them, such as improved stoves or intercropping food, fuel and cash crops, were under discussion. In subsequent interviews the women requested that they be involved more with separate discussions of fuelwood, fibre, fodder and cookstoves, and that 'agroforestry' be left to the men. The decisions about cropping systems, they contended, would not be theirs to make. The men echoed similar sentiments about division of interests (though not about spheres of control) when they asked why they were being subjected to 'irrelevant' discussions of cooking, cook-stoves and fuelwood.

During the women's meeting, both existing production systems and potential improvements were discussed. Information was freely offered as to the amount of fuel-wood used, the time and/or money spent to collect and deliver it, the role of women's groups in fuelwood delivery, the degree of dependence on off-farm sources, and the species used, in order of preference. The group also touched on fodder collection, since most women in the area were said to collect fodder off-farm. Another issue that surfaced, both in this context and on the field trip, was importance of woody shrubs and herbaceous plants found in hedgerows, along roads, and in unoccupied bottomlands. Some of the women identified more than

20 indigenous species highly valued and frequently used by them. The forestry and agricultural personnel, who were also participating in the workshop, were unfamiliar with most of these, especially the non-commercial shrubs and herbs. These plants are often multi-purpose and provide fuel, fibre, fodder, and medicinal ingredients. This is a critical consideration to incorporate into decisions about the future development of bottomlands in the area.

The interview-discussions with women participants raised issues about the kinds of fuelwood required, the type of multi-purpose trees/shrubs that might be introduced, indigenous trees and shrubs that could be propagated/managed more intensively, the potential for incorporating more of these plants on-farm, and constraints. Among the constraints cited were control of farm-land and labor and negative attitude of extension agents (and husbands) towards trees in the cropland. The separate meeting was necessary, but not sufficient, to define the social specifications for agro-forestry systems to meet the women's needs. With their information it was possible to pose more pertinent questions to the men in order to identify points of convergence, or conflicts of interest. Fence-rows were suggested by both men and women as a potential niche for fuelwood trees. Other possible niches are small fuel and fodder lots in improved fallow plots (short rotation), and inter-planted rows of fuel and polewood trees, the latter being more of interest to the men, who could provide land, and labor for clearing. The use of separate species for fuel and poles would avoid problems with allocation of a given plant to two conflicting uses by different parties.

The lessons learned from the Kisii agroforestry workshop are:

i. Issues of control and decision making can hardly be raised, let alone worked out, unless there is a chance to consider women as a separate group.

ii. The experience indicates the need not only to include women and issues of concern to them, but to provide a flexible format for them to explore and express those concerns. Some provision for separate discussion by women is critical, for reasons of both form and content of participation.

iii. Agroforestry is not generally well understood, and the aspects most relevant to women are rarely included in the training of technical personnel. Further local knowledge about indigenous plants needs to be recorded, disseminated, and incorporated into improved technologies and training programmes.

iv. Existing knowledge and technology need to be taught to both men and women who are expected to apply it on the farm. Women participant asked, "What can you give me to show a group of people how to choose the right plants, where to get seeds or seedlings and how to grow them? I need something to work with?" The answer is that at present there is almost no basic training and promotional material on agroforestry, indigenous

plants, seed collection/distribution, multipurpose trees, and propagation techniques.

The Kisii workshop raised several issues but perhaps strongest among them is the need for programmes, personnel and training materials geared specifically for women, taking into account the complete range of roles in rural production and community affairs. Within such programmes (whether in forestry, agriculture, home economics or rural development institutions) the sexual division of labor, interests, control and benefits on-farm and within community must be recognized and addressed. This applies to both form and content of any programme that is to succeed in involving and serving rural women.

From the above three case studies we learn the following lessons about women's involvement in agroforestry:

i. Participation of men and women in agroforestry projects' implementation and benefits are not the same.

ii. Priorities of men and women for agroforestry may differ to some or a great extent.

iii. Men and women have differential access to the locally available resources.

iv. Not all women are alike; they differ by social class and control of resources.

v. Special arrangements may need to be made for women's active participation in agroforestry implementation, training and extension.

In conclusion, women are traditionally active participants in both the agricultural and forestry components of agroforestry production systems. They are also private and public participants in community life and decision making. The inclusion of women is essential for the success of agroforestry projects but it may require certain changes in the present set-ups.

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Note: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library.

FOREST SOCIOLOGY

Lecture 9

TEACHER'S OUTLINE

Section B: RURAL SOCIETY AND DEVELOPMENT

Chapter 5. RURAL BELIEF SYSTEM: Case Studies

a. Experience and Perceptions of Droughts in Rajasthan, India

a) Ethnoscience of Droughts: Investigation of the living memory of local people about their past experiences with and their perceptions/ beliefs regarding droughts.

b) In Western Rajasthan drought is not simply the dearth of rain, it is the total quality of life, including besides weather, animal behavior and social relations.

c) The villagers remember each of the past 80 years in terms of the percentage 'zamana' (actually in 'Annas'), a unit of measurement mainly for the 'kharif' harvest, from severe drought (25% zamana) to good or surplus years (100% zamana).

d) They remember that each decade of the past (80 years) witnessed from six to nine severe drought years, from one to three good years and hardly one average or 'normal' year; it is surprising that these memories coincide fairly with the rainfall records of the area.

e) Although most villagers related the occurrence of drought primarily to physical factors such as winds, cloud cover, storms and temperature, many of them emphasized the role of bio-physical factors such as decline in forest and vegetation cover, wind erosion and silting of ponds and that human activities lay behind these factors.

f) They perceive that droughts cause economic and social disorders and they see droughts as a form of disorder or instability in both natural and the moral worlds.

g) They considered prediction of the nature of the coming year a traditional skill, based on the behavior of animals and birds, and the predictions to be divinely guided (a monopoly of the Rajput caste).

h) This belief is now changing and such predictions are being based on observation of simple qualitative changes in climate, vegetation and animal behavior. There are several popular

sayings regarding drought and rain that guide them in predicting for the coming year; and such predictions seem close to common sense rationalization.

i) Faith in science and in technology, tends to take over from this type of common sense rationalization, often by discrediting it before replacing it. But judging from Western experience faith in science and technology never entirely supplants this common sense or entirely changes this way of thinking.

b. Agronomic Knowledge and Practices in Punjab, Pakistan

a) Throughout the Third World the tendency has been to deem as 'irrational' those peasant farmers who have failed to respond adequately to the new agriculture.

b) Indigenous systems of knowledge, though different in content from Western ones, may be quite systematic, coherent, and rational, and are likely to define particular types of skills and abilities as well suited to their application.

c) Assuming that social action is meaningful and voluntaristic and not merely mechanical, the indigenous agronomy of Pakistani farmers is considered as a culture system - a system of symbols and meanings.

d) In indigenous terms, the process of crop production is a model of and for other naturalistic processes, most popularly that of the human life cycle.

e) In Chakpur, the characteristics of crops and the dynamics of manulations are conceived of in terms drawn from classical and folk humoral theory: 'all material world is made up of four basic elements, i.e., earth, air, fire and water.

f) The natural disposition of process of development of any living thing can be altered by the heating, cooling, drying, wetting and moderating effects of contact objects, or in the case of crops, agricultural inputs.

g) In their considerations, farmers attempt to accurately assess the species nature of the chosen crop seed in order to predict its normal growth, and then undertake those action which will allow both the crop and the land to attain desired humoral states.

h) To Chakpuris, a good farmer is one who carefully observes how a crop affects and is affected by its immediate environment. Farmers observe how crops are either adversely or beneficially affected by hot and cold weather, dry spells, rains, and different types of soils and fertilizers. They may note the condition of trees and brush that surround a field and ascertain with the weeds that may sprout within a cropped plot.

i) Chakpuris classify soil texture on the basis of clay-sand content and divide soils into those of clay, mixed and sandy categories. Frequent adjectives prefixed to the soil category labels include good, weak and powerful, or alternatively, heavy, medium and light.

j) Farmers explain that canal and shallow well water have a light content of soil, manure, minerals and organic matter (heavy and powerful); while rain and tubewell water are light, purer and cleaner.

k) They consider bovine manure relatively 'cold-wet' and chemical fertilizers 'very-very hot and dry' (requiring more and frequent water for crop growth).

l) From the indigenous agronomical perspective, sound farming entails choosing inputs that will not create adverse conditions of heat, cold, dryness or wetness for a given crop. Crops generally require inputs that do not, as farmers say, 'fight', 'war', or 'struggle' with the crop's species nature. Crops and soils may 'eat' fertilizer and 'drink' water, but sometimes they may not get enough'.

m) Soil 'tiredness', 'weakness', or depletion occurs when inputs excessively dry the soil. Conversely, soil fertility is 'strengthened', or enhanced when inputs increase the wetness of land (but not to the extent of waterlogging). Consistent with the often cited phrase, "whatever is cool will stay wet", heat tends to promote soil depletion and coolness tends to retard it.

n) Concerns for crop output and soil fertility may often be at odds. Crop hyperactivity, to a certain extent, may mean both higher yields and soil depletion; crop hypoactivity, smaller yields and soil enhancement.

o) Thus, while farmer production strategies may differ and normative orientations diverge, they do so in terms of a conceptual framework defined in terms of the indigenous agronomy. Farmers may pursue a wide variety of actions, that make sense (to them) in terms of the meanings and relationships defined by this system.

c. The Cultural Ecology and India's Cow

a) In spite of the sometimes final and unqualified fashion in which 'surplus', 'useless', 'uneconomic', and 'superfluous' are applied to part or all of India's cattle, contrary conclusions seem admissible when the cattle complex is viewed as part of an eco-system rather than as a sector of national price market.

b) Presumably, the degree of observance of taboos against bovine slaughter and beef-eating reflect the power of the ecological pressure rather than 'ahimsa'; in other words, ahimsa itself derives power and sustenance from the material rewards it confers upon both men and animals.

c) The buffalo, and not the Zebu (cow), is the dairy cow in India. Cows in the rural areas are maintained for producing bullocks rather than for milk.

d) The principal positive ecological effect of India's bovine cattle is in their condition of production of grain crops and traction needs.

e) Ploughing cannot take place at any time of the year, but must be accomplished within a few daylight hours in conformity with seasonal conditions; when a farmer needs the help of bullocks most, his neighborers are all using theirs and cannot spare for borrowing to him.

f) cattle dung is the main source of rural energy as domestic cooking fuel and as farm manure.

g) Indeed, could it be that without the Orthodox Hindu beef-eating taboo, many marginal and depressed castes may utilize an occasional, but nutritionally critical, source of animal protein. It remains to note that the slaughter taboo does not prevent depressed castes from utilizing skin, horns and hoofs or dead beasts. Moreover animal hides are used in several Indian industries.

h) The Indian men and bovine cattle do not compete for existence: Cattle generally do not eat the food that is required by human beings. Rather, the bulk of fodders and crop wastes are converted into milk and foodgrains by cattle.

i) Although the draught animals and buffaloes are properly fed, the cow gets next to nothing of stall feeding. She is expected to pick up her living on the bare fields after harvest and on the village wastelands.

j) 'Useless' means one thing to the peasant and quite another to the price-market oriented agronomist. Since non-working and non-lactating animals are thermal and chemical factories which depend on waste lands and products for raw materials, judgement that a particular animal is useless cannot be supported without careful examination of its owner's household budget. The utility of a particular animal to its owner cannot be established simply by its performance during season or an animal cycle.

k) Few, if any, Hindu farmers kill their cattle by beating them over the head, severing their jugular veins or shooting them. But assert that they do not kill their animals when it is economically important for them to do so may be equally false. People will admit that they 'neglect' their animals, but will not openly accept less rapid death which ensues. Cows and buffaloes too old to furnish milk are not treated cruelly, but simply allowed to starve.

l) The cow protection was a major political weapon in Ghandi's campaign against both British and Muslims.

m) It is possible that the anti-slaughter legislation will now back-fire and upset the delicate ecological balance which now exists. The situation has become so serious that, in some parts of the country, it is impossible to protect growing crops from grazing by wandering cattle.

n) It is difficult to believe that breeds better adapted to the present Indian eco-system exist elsewhere. By nature and religious training, the villager is unwilling to inflict pain or to take animal life. But the immemorial grind for existence has hardened him to an acceptance of 'survival of the fittest' (Natural Selection). Not only are scrub animals well adapted to the regular seasonal crises of water and forage and general year-round neglect, but long-range selective pressures may be even more significant.

Reference

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FOREST SOCIOLOGY

Lecture 9

Section B: RURAL SOCIETY AND DEVELOPMENT

Chapter 5. RURAL BELIEF SYSTEM (Case Studies)

a. Experience of Drought (Rajasthan, India)

The incidence of drought in arid and semi-arid regions has received attention from various angles. Generally it has been studied as a natural calamity creating economic, social and physical disturbance, and the major topics have been its definition, its causes and effects and advantages and disadvantages of various relief measures and policies. The present study seeks to add a dimension to these studies, in a form that may be characterized briefly as a contribution to the ethno-science of droughts. It investigates the memory of drought over a period extending back to the limits of living memory in selected villages in Western Rajasthan. An attempt is made to add to our understanding of how memory works in a cultural system which includes the synoptic perception of past droughts as all - encompassing phenomena - a perception on which is based the expectation and prediction of droughts to come. The material takes on additional significance from the changing context of drought, in consequence of population growth, technological development, and economic and social change. It is easy to forget that the categorization of phenomena as, for example, climate, biological and social, though convenient and useful, is an arbitrary product of a particular intellectual tradition. In some social situations, such as in the village communities of the Western Rajasthan, where these compartmentalizations of knowledge are not so automatically made, drought is not simply the dearth of rain (though everyone knows that rain would remove it, it is the total quality of life, including, besides weather, animal behavior and social relations.

(1) Recollection

The correlation between the farmers' recollection of the past harvests and the record of actual rainfall in Western Rajasthan is very close. Living memory of the nature of previous years extended as far back as 1899 was with substantial agreement. Each year was remembered in terms of 'Zamana', a unit of measurement mainly for the 'Kharif' harvest. Full zamana is the level of production expected, given sufficient water. Informants actually talked in terms of 'annas' - the old one-sixteenth division of a rupee. Annas have been translated into percentages for convenience. Out of 80 years (1899 - 1978), 58 years were perceived as drought or severe drought (upto 25% zamana); five were average (50-75% zamana); and

twelve were good or surplus years (75-100% zamana or more). Each decade witnessed from six to nine severe drought years, from one to three good years, and hardly one average or 'normal' year. It is worth noting that a year of high average rain-fall with severe drought show that zamana correlates not with amount of rainfall alone but with a combination of amount, timing and intensity. In this connection, it is worth remembering that we have no direct record of one particularly significant indicator of a bad year - the extent of danger from flooding.

A discussion of the causes of drought in Rajasthan ranges over a variety of factors from climatic and biological to social and religious. Although most informants related the occurrence of drought primarily to physical factors such as changes in wind direction, cloud cover, frequency and intensity of storms, and the overall quality of cold and hot seasons, many emphasized the role of bio-physical factors such as decline in forest and vegetation cover, increased wind erosion and shifting dunes and silting of village ponds. There was a general consciousness that human activities lay behind these natural factors, particularly indiscriminate cutting for fuel and construction,overgrazing and lopping of trees for fodder, but considerable emphasis was also given to supernatural and moral factors such as luck, apathy, immorality and the revenge of nature. In discussions of the effects of drought most people first cited economic disorder: failure of crops, loss of livestock, reduction in the value of assets, and forced sale. But there was only slightly less emphasis on social disorder: migration, the failure of institutions, disintegration of social groups and of households. Drought continues to be seen as a form of instability or disorder in both the natural and the moral world. But the context of instability has changed. Pastoralists may migrate long distances in search of land for grazing in a drought year and, although earlier there was enough vacant territory to absorb them, now farmers complain that they not only exhaust limited water and grass resources, but also destroy the standing crops, disrupt soil conservation measures and create conflict and tension. The problems caused by the instability have become more complex, not only because of the increased density of the population but because of recent socio-economic changes. For example, symbiosis of food-producing and occupational castes has been disturbed. Members of occupational castes such as potters, leather-workers, oil-pressers, and retailers, have now acquired land and become partially dependent on cultivation, and have thus lost flexibility while individual craftsmen may have gained flexibility through economic diversification, in may cases the crafts have gone into decline. Joint households have broken down into nuclear households causing greater pressure on scarce resources by division and fragmentation of property. Participation in social events has narrowed from the community at larger to the smaller extended kinship group. There has been general decrease in family solidarity and increase in conflict, tension and insecurity. As the social and economic context of drought has changed, so has meaning.

The change in meaning is more difficult to reconstruct. But it is worth noticing that many biophysical effects reported from recent droughts derive from the responses of weaker segments of the population. For example, particular trees and shrubs for fuel, charcoal, tanning and churns were cut and sold in larger quantities.

(2) **Prediction**

Prediction of the nature of the coming year is considered a traditional skill. Its origin is traced to the thirteenth century, the time of the Rajput seer (pir) Harbuji Sankhla, who was Jagirdar of a village in Phalodi tehsil, Central Rajasthan. Harbuji Sankhla is said to have observed birds and animals - which implies that they were assumed to be in some way closer to the physical process of nature - in order to find ways of predicting droughts. Because of his success the skill to predict became the monopoly of the Rajput caste, some of whom cultivated it in each generation.

The predictor was considered to be divinely guided. From the day of conception of a Rajput mother would make the pious intent to rear her child as a predictor. Throughout pregnancy, each day she would put water in a pitcher by a tree where particular birds could drink from it. On birth a male child's first drink was taken from that pitcher. If the child survived, he was believed to command the language of the local birds and animals and became a 'sugni',an omen seer or predictor. With the social change of the last few decades the caste monopoly of drought prediction has dissolved. Now the lore concerning drought is a matter of general discussion and effort. It is based on observation of simple qualitative changes in climate, vegetation and behavior. Arguments from Western Science have no apparent impact on it. A collection of sayings is widely used as a guide for the coming year.

These sayings illustrate a concern with rationalization of out-of-the-ordinary events or coincidences such as wind direction, thunder, astrological coincidence, cloud formation, animal and bird behavior and social relations, as well as the symbolization of drought in the intensification of the salt trade, empty grain carts, idle yokes, the sale of animals, and social monstrosities such as a painted widow, and finally personalization and personification of famine sprawled across the drought region. To sum up, the overall context is defined by an example that gives a perspective beyond the prospect of the immediate year: 7 famines ('Kal'), 27 good years ('Zamana'), 63 poor years ('Kara Kaca'), and 3 disastrous years ('ghisan') - which fits very closely with the table of actual years (rainfall records).

This material is of course the type that is usually classified as superstition, and although every effort was made to collect it from what was generally acceptable across the spectrum of caste, age,and sex differentiation in the communities studied, this sample realistically be claimed only as characteristic (case-study),rather

than representative (survey). It is nevertheless important because it demonstrates the ways of thinking which may be assumed to be closely related to the behavior patterns which the programmes of ecological management and economic development set out to change often unsuccessfully. Much of the material, though not all, also falls under the heading of commonsense. It appears to derive from ad hoc rationalization which generates rules of thumb, and though arbitrary from the point of view of scientific argument, is self-perpetuating. It is important to note that it is also functional, in the sense that it goes towards satisfying the need for order. It serves to order experience and guide expectation. Science can never adequately satisfy that need at the level of everyday thought - there is too much that science does not adequately explain, and many of its explanations are beyond the grasp of people other than professional scientists.

Faith in science and in technology, tends to take over from this type of commonsense rationalization, often by discrediting it before replacing it. To the extent that the ordinary man has a limited grasp of scientific explanation he probably suffers some anomie as a result of this reduction or weakening of order caused by the spread of science. But judging from Western experience, faith in science and technology never entirely supplants this common sense or entirely changes this way of thinking. In so far as this way of thinking survives, it deserves more serious and more intensive study.

Reference

Bharara, L.P., 1982, 'Notes on the Experience of Drought Perception, Recollection and Prediction'; in: Desertification and Development, H. Mann and B. Spooner, edited; pp. 351-361. London: Academic Press.

b. Agronomic Knowledge and Practices in Punjab, Pakistan

Throughout the Third World the tendency has been to deem as irrational those peasant farmers who have failed to respond adequately to the new agriculture. The source of this irrationality is often, taken to be culture, local beliefs, traditional practices, superstitions, or general ignorance, all of which, according to modernization theorists, have to be overcome if development is to occur. A problem with such a view is that farmer irrationality becomes a gloss for a wide variety of behaviors and beliefs that are, in the particular terms of the analyst, not explicable in terms of economic maximization. The result is that culture, beliefs, traditions, etc. become residual categories with no positive or systemic significance for model building. Assessment of the impacts and effects of the green revolution have challenged the notion of peasant irrationality. A most useful practice based on Western systems of knowledge constitutes an alternative to

practices based on indigenous systems. Indigenous systems of knowledge, though different in content from Western ones, may be quite systematic, coherent, and rational, and are likely to define particular types of skills and abilities as well suited to their application.

The study reported on here sought to discover how agricultural production is conceptually organized and how this organization provides a frame-work within which peasant farmers form purposes, feel motivations, pursue intentions,and posit explanations for what they do. Assuming that social action is meaningful and voluntaristic (i.e., negotiated, decisioned) and not merely mechanical, the indigenous agronomy of Pakistani farmers is investigated as a culture system - a system of symbols and meanings. The study does not attempt to either validate or invalidate Punjabi agronomical assumptions and principles, but rather, following the ethnographic application of cultural analysis, seeks that shared transmitted system of knowledge taken by farmers to represent the natural conditions of their lived-in reality. Viewing agronomical knowledge as a system of symbols does not suggest that Punjabi farmers, or any other farmers, are more motivated by the symbolic than the practical. What is suggested is that the farmers' practicality, the hard facts of life, and the business of producing food are, from the analyst's (but not the actor's) point of view, symbolically constituted.

Chakpur, a village of 1,200 people, is located in Sahiwal District, Punjab. It is one of scores of villages established in 1930s by British authorities as part of the Sutlej Valley Canal Colony. While the main canal is miles away from Chakpur, one of its distribution channels terminates on the village border and presently offers seasonal irrigation to about 300 of the village's 2,600 hectares (1 Hectare=2.41 Acres). Most village land is watered by some two dozen electric - and diesel-powered tubewells installed in the late 1960s. Additional irrigation is provided by animal-powered shallow Persian Wells. The main staples in Chakpur are wheat and rice, and the main cash crops, cotton and sugarcane. Surplus grains and cash crops are marketed in nearby mills and processing centers for regional distribution and consumption. One farmer,an absentee landlord owning 120 hectares, markets vegetables for export to the Middle East. The largest group in Chankpur is the Nunari, with 104 households. They obtained the land in the original settlement and they claim to be farming in the area for the last 100 years. Now more than 60% of the Nunaris own land. The second group, known as Bhatti, have 17 households in the village, is the service group. Nunari landowners engage other Nunari and Bhatti households in a system of barter called 'Seipi' in which services provided by contracted share-croppers, carpenters, smiths, porters, barbers, cobblers, etc. are exchanged for traditionally stipulated amounts of harvested produce.

Chakpuris have very clear idea about how crops grow and how various inputs and operations are related to that growth. Such ideas were elicited from discussions with many Chakpuris and

through formal intensive interviews with and observation of 15 Nunari farmers over a nine-month period. In seeking indigenous agronomical variables, relationships and principles, Chakpuris were first treated as informants and later as respondents. Farmers were basically asked why they did the particular things they did and what they thought they were doing. Only after a framework for decision making was revealed were farmers subjected to more rigorous and formalized data collection instruments (questionnaires). This is not a method often used by macro-sociologists and economists who rely on survey techniques that a priori formulate specific variables and relationships and then attempt to reconstitute, as it were, the decision making, through the analysis of statistical correlations of the farmers' responses to questions that may or may not have been relevant to the framework used by the farmer in arriving at his decision.

In indigenous terms, the process of crop production is a model of and for other naturalistic processes, most popularly that of the human life cycle. The agricultural operations of readying the soil and seed, planting the seed, raising and tending the crop, and harvesting the produce are spoken of as analogues to stages of human life, that is, conception, birth, nurturance and maturation, and death. Similarly, units within both the agricultural and human domains are metaphorically related. Equations are made between seed and sperm, soil and womb, irrigation water and mother's milk, and fertilizer and food. This is carried into the realm of actions, so that anthropomorphized crops and soils may eat fertilizer, drink water, struggle, feel discomfort, and even become intoxicated. As with descent in human domain, species ('nasl') continuity is patrilineal and provided through the seed. While seeds of a species all strive toward the same nature, individual variation is thought to occur as a direct result of the effects exerted by contact objects (e.g., soil, water, fertilizer) on a particular crop. As human persons are said to develop specific characteristics through the manipulation of diet, residence, and regimen, so too are crops thought to be subject to purposive and directed manipulation.

In Chakpur, the characteristics of crops and the dynamics of such manipulation are conceived of in terms drawn from classical and folk humoral theory: 'all material world is made up of four basic elements, i.e., earth, air, fire, and water'. Initially, life in plants, animals, and human can only exist if sufficient levels of innate heat and wetness occur. As heat is expended, growth and development occur - matter is transformed from more amorphous and malleable wetter forms to more rigid drier forms. As heat expenditure continues, matter eventually dries, becoming less receptive to further development.

The natural disposition and process of development of any living thing can be altered by the heating, cooling, drying, wetting, and moderating effects ('tasiir') of contact objects, or in the case of crops, agricultural inputs. Such effects on plant life may be consciously manipulated by human beings to achieve certain

desired results. For the Chakpuri farmers this is what agronomy is all about. In their considerations, farmers attempt to accurately assess the species nature of the chosen crop seed in order to predict its normal growth,and then undertake those actions which will allow both the crop and the land to attain desired humoral states. In human beings blood is seen as the primary bodily constituent and its disposition used as an indicator for that of the body. Chakpuri farmers generally use the exploitable (i.e., edible) portion of a plant as an indicator of its disposition.

As with subjective assessments, farmers recognize problems in attributions of crop dispositions. The same crop may be differentially judged because its interaction with the environment is perceived at two or more different points along its lifetime. The disposition of a crop as a seedling is different than that when ready for harvest. Second, assessments of a species may not involve comparable units. Sub-species and breeds may vary considerably in their dispositions - as for example HYV and traditional varieties of wheat and rice. Despite multiple factors that may lead to differential assessments, Chakpuri farmers exhibit general agreement as to the dispositions of various crops. The similarities between village attributions and those made by independent professional sources indicate not only the likely systematicity of the humoral framework but also its relatively wide geographic and societal distribution.

As with crops, farmers in Chakpur have notions about the hot-cold and dry-wet properties of other inputs. Assessments of the characteristics of those inputs that affect crop growth are commonly made and generally reveal high levels of agreement. Chakpuris classify soil texture on the basis of clay-sand content and divide soils into those of clay, mixed and sandy categories. Numerous distinctions are made by farmers to further specify soil texture. Frequent adjectives prefixed to these category labels include good, weak, and powerful. An alternative taxonomy classifies soil texture as either heavy, medium, or light. The humoral properties of soils are primarily dependent on texture, secondarily dependent on seasoned conditions, and also influenced by contact with crops, irrigation water, and fertilizer. Lighter soils are generally thought to be drier than heavier soils. They are also seasonally variable, so that while the heaviest of soils might stay fairly close moderate through the year, lighter soils will exhibit extreme variation - becoming cooler in winter and hotter in summer. Heavier soils are said to be more fertile and possess more 'power' - often attributed to moderate wetness. In this view, the land is powerful when it has a great deal of potential energy, but expends that energy in a slow or dampened manner.

As with soils, heaviness of water is said to be indicative of power and fertility. Farmers explain that canal and shallow well water have a high content of soil, manure, minerals, and organic matter, while rain and tubewell water are light, purer and cleaner. Water [illegible] various sources is subject to seasonal changes that alter [illegible] humoral properties. They say, canal water is moderate

during the summer and cold during the winter. Tubewell water is thought to be hot-dry but relatively cooler during the summer than during the winter because the lower levels of the land are thought to retain the winter's cold - Rainwater is judged to hot during the hot season and cold during the cold season. The water from shallow wells is accorded the humoral properties moderate and cold during the summer and winter seasons, respectively.

The Chakpuri farmers use both bovine manure as traditional fertilizer as well as modern chemical fertilizers. They consider the former relatively 'cold-wet' and all the later ones 'very-very hot and dry'; Urea being the hottest and driest among them. Thus, the use of chemical fertilizers necessitates more and frequent water for crop growth.

From the indigenous agronomical perspective, sound farming entails choosing inputs that will not create adverse conditions of heat, cold, dryness, or wetness for a given crop. Similarly, such inputs, including crop-seed, may be chosen so as not to adversely affect the land on which the farmers depend for their livelihood. Crops generally require inputs that do not, as farmers say, fight, war, or struggle with their species nature. Moderately cool crops, for example, should not be exposed to very hot inputs or to very cool ones. Rather, say Chakpuris, inputs should either conform to the species nature or deviate from it in relatively moderate ways. Crops and soils may eat fertilizer and drink water, but sometimes they may not get enough. The fertilizer and water they do receive may cause problems with digestion and may still leave the soil and crop hungry or thirsty. A crop may become intoxicated by a fertilizer, as in the case of being exposed to overly hot chemicals. Crops whose thirst is not quenched may remain dry and unhappy, or may burn-up. Inputs that do not satisfy the crop may confuse it by creating situations it is not used to.

Farmers distinguish several types of crop growth situations. Correct, balanced, or moderate growth is achieved when a crop is exposed to inputs that accord with its species nature. When inputs are much hotter than normal, they spur energy expenditure, creating a situation of rapid or expansive hyperactive growth. When inputs are abnormally cool, limited or hypoactive growth results. They note that dry inputs tend to accelerate the effects of hot inputs, that is, hyperactivity, while wetter inputs tend to retard their effect. The pursuit of various types of growth strategies bears on soil fertility. As soil fertility is associated with wetness and coolness, Chakpuri farmers note the importance of choosing inputs that do not excessively dry the land. Soil tiredness, weakness, or depletion occurs when inputs excessively dry the soil. Conversely, soil fertility is strengthened, or enhanced, when inputs increase the wetness of land (but not to such an extreme as to result in waterlogging). Soil fertility is maintained when neither excessive conditions of wetness nor of dryness occur. Consistent with the often cited phrase, "whatever is hot will dry out, whatever is cool will stay wet", heat tends to promote soil depletion and coolness tends to retard it.

Concerns for crop output and soil fertility may often be at odds. Crop hyperactivity, if not extreme, may mean both higher yields and soil depletion; crop hypoactivity, smaller yields and soil enhancement. Crucial for Chakpuri farmer is the ability to recognize production interactions of inputs, to choose inputs that accord with goals, and to avoid pathological humoral states that can be harmful to either or both crop and soil. The disposition of the crop output is taken to be a function of the humoral properties of the different quantities of the various inputs. Crop yield, described in quantitative terms, is said to be a function of this disposition and a crop output may be reached in a variety of ways. For example, a humoral state may be achieved by inputs all consistent with the species nature of the crop, or it may be reached through a mix of very extreme inputs that offset or balance each other. Farmers find that certain crops (e.g., wheat) enjoy and prosper in situations of comfort or limited humoral dynamism, while other crops (e.g. tobacco) are better suited to intensive struggle. Hence, yields are thought to vary among particular crop outputs even though they may have the same resultant dispositional state.

In conclusion, while farmer production strategies may differ and normative orientations diverge, they do so in terms of a conceptual framework defined in terms of the indigenous agronomy. This cultural system is not predictive in itself, although predictions may be generated in its terms. Farmers may pursue a wide variety of actions that make sense (to them) in terms of the meanings and relationships defined by this system.

Reference

Kurin, Richard, 1983, 'Indigenous Agronomics and Agricultural Development in the Indus Basin'; in: Human Organization, Vol. 42, No. 4; pp. 283-294.

c. The Cultural Ecology of India's Cow

Mismanagement of India's agricultural resources as a result of the Hindu doctrine of 'ahimsa', especially as it applies to beef cattle (cow), is frequently noted by Indianists and others concerned with the relation between values and behavior. Although different antirational, dysfunctional, and inutile aspects of the cattle complex are stressed by different authors, many agree that 'ahimsa' is a prime example of how men will diminish their material welfare to obtain spiritual satisfaction in obedience to non-rational or frankly irrational beliefs.

In spite of the sometimes final and unqualified fashion in which surplus, useless, uneconomic, and superfluous are applied to part or all of India's cattle, contrary conclusions seem admissible when the cattle complex is viewed as part of an eco-system rather than as a sector of national price market. Ecologically, it is

doubtful that any component of the cattle complex is useless, i.e., the number, type, and condition of Indian bovines do not per se impair the ability of the human population to survive and reproduce. Much more likely the relationship between bovines and humans is symbiotic instead of competitive. It probably represents the outcome of intense Darwinian pressures acting upon human and bovine population, cultigens, wild flora and fauna, and social structure and ideology. Moreover, presumably the degree of observance of taboos against bovine slaughter and beef-eating reflect the power of these ecological pressures rather than 'ahimsa'; in other words, ahimsa itself derives power and sustenance from the material rewards it confers upon both men and animals.

(1) Milk Production

In India the average yield of whole milk per Zebu cow is 413 pounds, compared with the 5,000 pound average in Europe and U.S.A. In Madhya Pradesh yield is as low as 65 pounds, while in no state does it rise higher than the barely respectable 1,445 pounds of the Punjab. According to the 9th Quinquennial Livestock Census (1961) among the 47,200,000 cows over 3 years old, 27,200,000 were dry and/or not calved. These figures, however, should not be used to prove that the cows are useless or uneconomic, since milk production is a minor aspect of the sacred cow's contribution to the ecosystem. Indeed, most Indianists agree that it is the buffalo not the Zebu, whose economic worth must be judged primarily by milk production. Thus, the buffalo, and not the Zebu, is the dairy cow. Cows in the rural areas are maintained for producing bullocks rather than for milk. For agricultural purposes bullocks are generally preferred, and, therefore, cows in rural areas are primarily maintained for the production of male progeny and incidentally only for milk.

(2) Traction

The principal positive ecological effect of India's bovine cattle is in their contribution to production of grain crops, from which about 80% of the human calorie ration comes. Some form of animal traction is required to initiate the agricultural cycle, dependent upon ploughing in both rainfall and irrigation areas. Additional traction for hauling, transport, and irrigation is provided by animals, but by far their most critical kinetic contribution is ploughing. Although many authorities believe there is an overall surplus of cattle in India, others point to a serious shortage of draught animals. It has been found that even with the so called overstocking, the draught power available for land operations at the busiest season of the year is inadequate. Under existing property arrangements in India, there is a perfectly good economic explanation of why bullocks are not shared among adjacent households. Ploughing cannot take place at any time of the year, but must be accomplished within a few daylight hours in conformity with seasonal conditions. These are set largely by summer monsoons, responsible for about 90% of the total rainfall. It is because when a farmer needs the help of bullocks most, his neighborers are all

using theirs. Thus, uncertainty of Indian farming due to dependence on rains is the main factor creating obstacles in the way of improvements in bullock labor.

(3) Dung

In India, cattle dung is the main source of domestic cooking fuel. Since grain crops cannot be digested unless boiled or baked, cooking is indispensable. Several advocate the importance of substatuting tractors for bullocks, but ignore giving adequate attention to finding cooking fuel after the bullocks are replaced. Although it is claimed that wood resources are potentially adequate to replace dung, the measures advocated do not involve ahems but are again an indictment of a land tenure system not inspired by Hindu tradition. In addition, it should be noted that many observers stress the slow-burning qualities of dung and its special appropriateness for preparation of 'ghee' - and deployment of women-power in the household.

As manure, dung enters the energy system in another vital fashion. According to a reliable estimate (1954), 40% of the cattle dung in India is spread on fields (fertilizer), 40% is burned (fuel), and 20% is lost. Another later estimate (1961) comes up with huge figures, that is, 340 million-tons of cattle dung is used in India as manure (fertilizer); 300 million-tons, as cooking fuel; and, 160 million-tons gets wasted on hillsides and roads.

Give the conscious premium set on dung, for fuel and fertilizer, thoughtful control maintained over grazing patterns, and occurrence of specialized sweeper and gleaner castes, much more detailed evidence of wastage is needed than is now available. Since cattle graze on hillsides and roadsides dung dropped there would scarcely be totally lost to the ecosystem, even with allowance for loss of nitrogen by exposure to air and sunlight. Also, if any animal dung is wasted on roads and hillsides it is not because of ahems but of inadequate pasturage suitable for collecting and processing animal droppings. The sedentary, intensive rainfall agriculture of most of the subcontinent is heavily dependent upon manuring. So vital is this that substitutes for manure consumed as fuel 'must be supplied, and lavishly, even at a financial loss to government'. If this is the case, then old, decrepit, and dry animals might have a use after all, especially when the dung they manufacture employs raw materials lost to the culture-energy system unless processed by cattle, and especially when many apparently moribund animals revive at the next monsoon and provide their owners with a male calf.

(4) Beef and Hides

Positive contributions of India's sacred cattle do not cease with milk-grazing, bullock producing, traction, and dung-dropping. There remains the direct protein contribution of 25 million cattle and buffalo (1962) which die each year. This feature of the ecosystem is reminiscent of the East African cattle area where,despite

the normal taboo on slaughter, natural deaths and ceremonial occasions are probably frequent enough to maintain beef consumption near the ecological limit with dairying as the primary function. Much of the flesh on the 25 million dead cattle and buffalo probably gets consumed by human beings whether or not, the cattle die naturally. Indeed, could it be that without the Orthodox Hindu beef-eating taboo, many marginal and depressed castes would be deprived of an occasional, but nutritionally critical, source of animal protein. It remains to note that the slaughter taboo does not prevent depressed castes from utilizing skin, horns and hoofs of dead beasts. In 1956, 16 million cattle hides were produced. The quality of India's huge leather industry - the world's largest - leaves much to be desired, but the problem is primarily out-moded tanning techniques and lack of capital, not ahems.

(5) Pasture

Direct and indirect evidence suggests that the Indian men and bovine cattle do not compete for existence. The bulk of the food on which the animals subsist is not the food that is required for human consumption, i.e., fibrous fodders produced as incidental to crop production, and a large part of crop residues or by-products of seeds and waste grazing. On the contrary, 'the bulk of foods (straws and crop residues) that are ploughed into the soil in other countries are converted into milk'. The majority of Indian cattle obtain their requirements from whatever grazing is available from straw and stalk and other residues from human food-stuffs, and are starved seasonally in the dry months when grasses wither. In Bengal the banks and slopes of the embankments of public roads are the only grazing grounds and the cattle subsists mainly on paddy straw, paddy husk, and coarse grass. Cows subsist on the pasture and any coarse fodder they can find. Grain is fed for only a day or two following parturition. The only exception to the rural pattern of feeding cattle on waste products and grazing them on marginal or unproductive lands involve working bullocks and nursing cows.

(6) Useful and Useless Animals

How then, if careful rationing is characteristic of livestock management, do peasants tolerate the widely reported herds of useless animals? Perhaps useless means one thing to the peasant and quite another to the price-market-oriented agronomist. It is impossible at a distance to judge which point of view is ecologically more valid, but the peasants could be right more than the agronomists are willing to admit. Since non-working and non-lactating animals are thermal and chemical factories which depend on waste lands and products for raw materials, judgement that a particular animal is useless cannot be supported without careful examination of its owner's household budget. Estimates from the cattle census which equated useless with dry or non-working animals are not convincing. But even if a given animal in a particular household is of less-than-marginal utility, there is an additional factor whose evaluation would involve long-range bovine biographies. The utility of a particular animal to its owner cannot be

established simply by its performance during season or an animal cycle. Perhaps the whole system of Indian bovine management is alien to costing procedures of the West. There may be a kind of low-risk sweep-stakes which drags on for 10 or 12 years before the losers and winners are separated.

(7) Slaughter

Few, if any, Hindu farmers kill their cattle by beating them over the head, severing their jugular veins or shooting them. But assert that they do not kill their animals when it is economically important for them to do so may be equally false. This interpretation escapes the notice of so many observers because the slaughtering process receives recognition only in euphemisms. People will admit that they 'neglect' their animals, but will not openly accept less rapid death which ensues. The strange result of this euphemistic pattern is evidenced from the statement, "All calves born, however inferior, are allowed to live until they die of neglect". In other words by Hindu standards, this kind of statement should read, "Most calves born are not allowed to live, but are starved to death". Cows and buffaloes too old to furnish milk are not treated cruelly, but simply allowed to starve. The same happens to young male buffaloes; they are unwanted and little effort is made to keep them alive.

(8) Anti-Slaughter Legislation and Gowshalas

It is evident from the history of anti-slaughter agitation and legislation in India that more than ahems has been required to protect Indian cattle from premature demise. Unfortunately, this legislation is misinterpreted and frequently cited as evidence of the anti-economic effect of Hinduism. Regardless of the ultimate ecological consequences of this legislation and the related laws, several points deserve emphasis. First, it should be recalled that cow prot ction was a major political weapon in Gandhi's campaign against both British and Moslems. The sacred cow was the ideological focus of a successful struggle against English colonialism; hence the enactment of total anti-slaughter legislation obviously had a rational base, at least among politicians who seized and retained power on anti-English and anti-Moslem platforms. It is possible that the legislation will now back-fire and upset the delicate ecological balance which now exists. The situation has become so serious that it is impossible in some parts of the country to protect growing crops from grazing by wandering cattle. Given the increasing growth rate of India's human population, the critical importance of cattle in the ecosystem, and the absence of fundamental technical and environmental changes, a substantial increase in cattle seems necessary and predictable, regardless of slaughter legislation. Furthermore, there is some indication that many who protest most against destructiveness of marauding herds of useless beasts may perceive the situation from very special vantage points in the social hierarchy.

Among the more obscure aspects of the cattle complex are bovine old-age homes, variously identified as 'gowshalas', 'pinjrapoles',and under the Five-Year Plans, as 'gosandans'. Undoubtedly, some of the these are 'homes for cows, which are supported by public charity, which maintain the old and derelict animals till natural death occurs'. However, owners of cows sent to these religious institutions pay rent with the understanding that if the cows begin to lactate, they will be returned. The economics of at least some of these charitable institutions is, therefore, perhaps not as quaint as usually implied.

(9) Natural Selection

Expert appraisers of India's cattle usually show little enthusiasm for the typical undersized breeds. Much has been made of the fact that one large animal is a more efficient dung, milk, and traction machine than two small ones. Weight for weight, a small animal consumes a much larger quantity of food than a bigger one. More dung is produced when a given quantity of food is consumed by one animal than when it is shared by two animals. Thus it would seem that India's smaller breeds should be replaced by larger, more powerful, and better milking breeds. But once again, there is another way of looking at the evidence. It might very well be that if all of India's scrub cattle were suddenly replaced by an equivalent number of large, high-quality European or American dairy and traction animals, famines of noteworthy magnitude would immediately ensue. It is not possible that India's cattle are undersized precisely because other breeds never could survive the atrocious conditions they experience most of the year? It is difficult to believe that breeds better adapted to the present Indian ecosystem exist elsewhere. By nature and religious training, the villager is unwilling to inflict pain or to take animal life. But the immemorial grind for existence has hardened him to an acceptance of 'survival of the fittest'. Not only are scrub animals well adapted to the regular seasonal crises of water and forage and general year-round neglect, but long-range selective pressures may be even more significant.

The conclusion to all the above discussion is that the relationship between the human and bovine populations is symbiotic rather than competitive; more traction animals than are presently available are needed for carrying out essential agricultural tasks. Under existing techno-environmental conditions, a relatively high ratio of cattle to humans is ecologically unavoidable. This does not mean, that with altered techno-environmental conditions,new and more efficient food energy systems cannot be evolved.

Reference

Harris, Marvin, 1966, 'The Cultural Ecology of India's Sacred Cattle'; in: Current Anthropology, Vol. 7, No. 1; pp.51-59.

Note: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library.

FOREST SOCIOLOGY

Lecture 10

TEACHER'S OUTLINE

Section B: RURAL SOCIETY AND DEVELOPMENT

Chapter 6: RURAL ECONOMIC BEHAVIOR: Case Studies

a. Risk and Uncertainty in Subsistence Farming

a) Village-level economies operate much as self-contained, self-sufficient economic enclaves with communal goals, institutions and processes designed far more for the preservation of human life than for development.

b) The earlier characterizations of subsistence or traditional farmers described them as technologically backward, with deficient entrepreneurial ability, and with limited aspirations.

c) More recently, the idea of an economically inert peasantry has been challenged on the basis of ample evidence that subsistence farmers are 'economic men' and that they do respond to economic incentives.

d) Despite all this new evidence, there is equally ample evidence that, in several cases, farmers have seemingly not responded to an 'obvious' economic opportunity. This attitude is usually attributed to indigenous culture militation, religious prohibition, likely defabrication of the traditional society, real flow of benefits towards better-off villagers, corruption of government officials, and/or high costs of innovations.

e) The subsistence farmer basically makes decisions on basis of the events to which he can assign probabilities and those he cannot assign probabilities through his personal experience and knowledge.

f) While deciding to adopt an agricultural innovation, the farmer compares not only the levels of expected 'net yield', but also the 'reliability' with which these yields can be expected, as he sees it. If the proposed innovation and its associated variability exceeds his minimum subsistence level, he may adopt it swiftly.

b. Diffusion of Innovations: Improved Stoves (India)

a) Improved wood burning stoves through their potential for saving on the amount of firewood needed by the household for cooking, are seen as one way of alleviating the problem of

firewood shortage. However, the degree to which this purpose is achieved would depend on the extent to which the stoves do in fact save wood in practice (and not merely in laboratory tests), and the degree to which they are accepted by the mass of rural users, especially by the women of poor households.

b) Only a dozen or so of more than a hundred wood-stoves diffusion programs initiated in the Third World countries since the early 1980s, are noted to have been running for over two and a half years, and even fewer are believed to have distributed or sold more than 5000 stoves.

c) In broad terms, the factors likely to affect the diffusion of improved wood-stoves can be divided into five categories: (i) the method of wood-stove designing and development; (ii) economic aspects; (iii) infrastructural aspects (extension, credit, etc.); (iv) cultural aspects (attitudes to change, etc.); and finally, (v) the connecting link, viz. social structure.

d) Design and development: Available evidence strongly points to the unsuitability of a 'top-down' and 'straight transfer' approach for diffusion of wood-stoves, and to the importance of field adaptation involving the local users, local materials, and local artisans.

e) Economic Aspects: In fact in several countries, the improved stoves being promoted have to be purchased (not made with local materials) and often the costs, despite state subsidy, prove too high for poor households.

f) Infrastructural Aspects: What appears at first sight to be fairly straight forward functions of providing physical facilities are in fact complex, since whether or not these facilities serve the needs they are set up to fulfill depends crucially on the approach followed in delivering these services, and on their degree of susceptibility to biases in favor of certain groups over others.

g) Cultural Aspects: Frequently, problems of rural diffusion are attributed to the 'irrational', 'conservative' attitudes of rural people. But, in fact, the problem is located in the potential adopter's particular economic and social position within the community. What may appear to be irrational to an 'outsider' may in fact be perfectly logical within the potential adopter's cultural context, and an understanding of this context would be crucial for successful diffusion (or implementation).

h) Social Structure - The Link: Inequalities in social status and the unequal nature of power balances between different classes, casts, etc., and between the sexes are likely to affect wood-stove (or any other rural innovation) diffusion.

Social hierarchies, whether based on difference in distribution of material assets, or on gender differences, or defined by some other criteria, are likely to make difficult the setting up of precisely those linkages between the user and the scientist/professional. The user-extension worker-scientist/professional linkage is of crucial importance towards the successful diffusion of rural innovations in general, and wood-stoves in particular.

c. **Trees as Savings and Security for the Rural Poor**

a) Nowadays, trees have increasing importance and potential as savings and security for the poor, of whom many already plant, protect and retain trees as part of their livelihood strategies, and use them to meet contingencies.

b) Contingencies can take many forms: they may be sudden and unexpected; they may be slow in onset; or they may be large needs which can be foreseen. Classified in a common-sense manner, they have five categories: social conventions, disasters, physical incapacity, unproductive expenditure and exploitation (by powerful).

c) Reducing vulnerability to contingencies is, however, rarely a direct objective of the government anti-poverty programs. If such programs are successful, they may reduce vulnerability through flows of food and income indirectly. Whether the assets provided to the rural poor are milch buffaloes, goats, or sewing machines, they are for income generating but precisely not for sale or disposal. But the priorities of the poor are not necessarily those of the planners.

d) The needs of poor people for the assets that can be sold or disposed of in cases of emergency have risen recently by the higher costs of living and maintenance and the eroding mutual help and patron-client relationships. Thus, they are becoming more and more defenseless and being forced by the circumstances to be self-sufficient in meeting contingencies.

e) Rural assets can take many forms: land, crops, domestic animals, trees, rights of usufruct, huts, tools, weapons, cash, bank accounts, ornaments, jewellery, future labor and so on. The mortgaging, forfeiture, or sale of assets is very widespread in the rural societies.

f) Professionals usually neglect the things that matter to the poor. Trees which had little capital value before the penetration of the market and the fuelwood shortages of the energy crisis have now become prized capital assets, but policy has been slow to adjust to the change.

g) Costs of meeting contingencies have risen at the same time as traditional means of meeting them have weakened. Simultane-

ously, the market for trees and tree products has expanded and their value has risen. Together, these trends raise and sharpen questions about the past use and future potential of trees as savings banks for the rural poor to help them meet contingencies.

h) There is some scattered evidence to show that trees and tree products are used to cope with contingencies. Such uses are of two types: subsistence and consumption (direct use) and market relations (sale or mortgage).

i) It is not that poor people in practice use trees just for contingencies. Trees are also often planted or retained as part of deliberate long-term strategies for savings and security. With the increased privatization of land, and fewer trees on common property, the incentives and opportunities for using trees in this way have increased.

j) The most marked disadvantages of trees concern rights, cashability, marketing and safety.

k) Policy implications, in this regard, are linked with shift in thinking to place more emphasis on enabling poor people to acquire and accumulate assets (including trees), to meet contingencies. The livelihoods which poor people want and need can be defined as a level of wealth and of stocks and flows of food and cash which provide for physical and social well being and security against becoming poorer.

d. Ecological Implications of Change: Demand for Fuel (Iran)

a) The dryland ecosystems are characterized by sparse vegetation with a low and widely variable annual productivity. Throughout the Middle East this sparse vegetation is an essential resource upon which depend the livelihood and very biological survival of the local populations. Pastoralism is a major means by which this natural resource is exploited. An equally essential aspect of the relationship between settlement and environment is the collection of woody vegetation for fuel - equally essential to the populations involved.

b) Firewood, paraffin and farming by-products are all used for fuel in Tauran (Iran). Fuel is burned there today for two main purposes; winter heating and food preparation, whether year round cooking or seasonal processing. It is also used to heat water and to burn gypsum plaster.

c) Firewood collection is primarily a domestic, non-commercial activity carried out at irregular intervals without records of any kind. Brushwood for fuel is, whenever possible, collected by men; women who have no adult male at home, hire men to collect for them. The round trip may take up to half a day and requires travelling several kilometers outside the

settled area. Generally, people collect wood where they, their kins and their village have grazing rights.

d) Because pastoral products, such as yogurt (curd), clarified butter (ghee) and concentrated butter milk (panir) require so much heating and boiling, summer milking stations use significantly greater quantities of firewood per household than villages.

e) Although social differentiation in terms of wealth and status is not great in Tauran, fuel consumption does vary from household to household and village to village. The more sheep and goats whose milk is processed and/or the more grape gardens where grape syrup is made, a household has, the more fuel it consumes. The wealthier or more religious are likely to give community feasts (more food cooking). Moreover, the location and degree of winter insulation affects fuel consumption for winter heating. In addition, yearly fluctuations occur in both weather and market conditions which in turn affect local economic strategies and therefore the fuel consumption.

f) Domestic and industrial fuels whether firewood, charcoal, or modern alternatives (i.e., fossil fuels), have long linked rural and urban economies. In the past urban areas were dependent on their hinterlands for fuel supply that helped support a dispersed (rural) population who might otherwise have migrated to the cities. Today the roles are reversing as many rural areas increasingly depend on cities to supply fossil fuels (oil and gas) and equipment.

g) An understanding of the social and economic contexts of the exploitation of rural resources is essential to the study of processes of desertification or to the assessment of potential outcomes of management decisions.

e. Conservation at the Local Level: Individual vs. group (Iran)

a) Why do people cause desertification? To begin with, in order to work out answers, it is necessary to investigate in some detail what the people actually do and why, and then analyze the conditions - social, economic and political - in which they make decisions.

b) Both farmers and herdsmen are often portrayed as being unaware of the negative effects of their practices - or if aware, as pursuing them anyway and displaying insensitivity to their own and others' future interests. Often both ecologists and historians treat all pastoral strategies as the same and equally unresponsive to the environment upon which they depend.

c) There is, however, a growing literature that demonstrates significant variation in environmental knowledge and perception in the practices of rural populations. There is also

evidence of adaptation to ecological change. In Tauran (Iran), for example, certain patterns of resource use may contribute to environmental stress and potential desertification, whereas others are responsive to environmental change and serve to prevent or reduce stress.

d) Even with the use of ground-water for irrigation and watering animals, the current population cannot support themselves entirely from Tauran plain. Some families always seek additional income both on and off the farm.

e) Three strategies of production - dry farming, collecting vegetation and village pastoralism - have been found potentially destructive towards vegetation on the Tauran plain, particularly where they compete for the same land.

f) Assuming that the villagers had recognized the negative impact of these activities on pastoral protection, why do they not organize to protect communal grazing and fuel resources?

g) The lack of communal organization has been explained in a variety of ways. One explanation refers to national character which, for example, would suggest that there is a 'strongly individualistic', indeed anarchical, strain in Iranian character which often prevents sustained cooperation. Another suggestion is that this behavior is the result of people following an unwritten cultural 'rule', namely, 'a moral familism' in which one will maximize the material, short-run advantage of his family; assume that all others will do likewise'. A similar explanation of peasant behavior is that they 'act' on the basis of a model termed the 'image of limited good', (i.e., all the desired things in life are perceived to be in short supply; thus, to improve one's position at the expense of others and be suspicious to others which limits cooperation and mutual trust).

h) What then are the conditions under which cooperation occurs? In the logic of 'collective action', though all of the members of a group have a common interest in obtaining collective benefit, they have no common interest in paying the cost of that collective good. The cost of establishing an organization entails that the first unit of a collective good would find agreement among Tauran villagers; they have in past cooperated only in small groups.

i) The behavior of an individual in the group is due partly to the fact that each one of them may place different value upon the collective value wanted by his group and his willing participation can arise only if the resource in question works the same way for all users. In Tauran, the individual benefits of participation are not equated with group benefits, and group pressure for participation in an organization for control is not very strong.

3) In the present context, the tribally-organized groups are the most interesting. The presence or absence of tribal organization within a society is important because it can serve as the basis for resource control in the absence of a political super-structure, such as might be provided by the central government.

References

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NOTE: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library, Peshawar.

FOREST SOCIOLOGY

Lecture 10

Section B: RURAL SOCIETY AND DEVELOPMENT

Chapter 6. RURAL ECONOMIC BEHAVIOR: Case Studies

a. Risk and Uncertainty in Subsistence Farming

Village-level economies operate much as self-contained, self-sufficient economic enclaves with communal goals, institutions, and processes, designed far more for the preservation of human life than for development. Since in its earliest phases, sedentary agriculture is a productive process whose product may be eaten by the producer, there is inevitably a strong attachment by the peasant farmer to the goals, institutions, and processes associated with the economy, society, and polity of the village. Despite the almost infinite variety of village-level institutions and processes to be found around the world,they have three common characteristics which are pertinent to change: 1) they have historically proven to be successful, i.e., the members have survived, 2) they are relatively static, at least the general pace of change is below that which is considered desirable today;and 3) attempts at change are frequently resisted, both because these institutions and processes have proven dependable and because the various elements constitute something akin to an ecologic unit in the human realm.

The earlier characterizations of subsistence or traditional farmers described them as technologically backward, with deficient entrepreneurial ability, and with limited aspirations. The influence of limited aspirations is best summarized in the colonial stereotype of the 'lazy natives' who refuse to work for an income beyond what they require for their subsistence. Economists labeled such behavior the 'backward bending supply curve of labor'. Other social scientists, more enthusiastically sensitive and empathic, viewed such behavior as merely instances where non-economic variables dominated and swamped economic factors favorable to economic maximization. During the colonial period, in most instances, the economic opportunity was the dynamic development of new markets in the metropolitan country for the beverages, food, industrial raw materials which could be produced in the colony. Some but not all of the rapid dynamic response in these cases, however, could be explained by the coercion of colonialists, or by the development of infrastructural facilities by the colonial power, or by a crop's promotion by organized interest groups.

More recently, the idea of an economically inert peasantry has been challenged. First, there are those economists, who find ample evidence that subsistence farmers are economic men who do maximize in the utilization of their available economic resources given the available technology. This group argues that what is

fundamentally lacking is improved technology. Second, the overwhelming evidence from empirical economic research indicates that subsistence and semi-subsistence farmers do in fact respond to economic incentives. They increase the production of those crops whose relative economic returns have improved, and decrease those which have become disadvantageous. Despite all this new evidence, there is equally ample evidence, usually in semi-anecdotal or case study form, where farmers have seemingly not responded to an obvious economic opportunity. Explanations of such cases range from non-economic factors to actually uneconomic results, i.e., indigenous culture militation, religious prohibition, likely defabrication of the traditional society, real flow of benefits towards better-off villagers, corruption of government officials, and high costs of innovations.

The subsistence farmer basically makes decisions on basis of the events to which he can assign probabilities and those he cannot assign probabilities through his personal experience and knowledge. Even the most illiterate peasant farmer has a knowledge of probabilities which attach to his current traditional practices. These relate to three major sources of year to year variability. That is, variability in crop yield, as a function of physical conditions and practices; input cost; and output price or value. The critical element is that these three variabilities combine in any given crop period to affect the net return to the farm family. The extent to which farmer can reduce unintended fluctuations in each category is quite limited, but every effort is made to reduce those subject to his control. Historical knowledge on the past variabilities in each does exist, and he takes these into account - whether it is distrust of assured government prices, or fear of a locust cycle.

Any new technology or practice has associated with it some expected probabilities for yields per acre and consequent income figures. Extension workers or salesmen who are promoting new techniques often present them in terms of average (and sometimes maximum) yields obtained at an experiment station. But the typical subsistence farmer has his own subjective rate of discount for such probabilities. He has learned from bitter experience to be wary of new methods which, as he sees them,have been insufficiently adapted and evaluated for his particular situation, and which may not perform in his fields as promised. The farmer, in deciding whether to adopt an innovation, may be seen as making a choice: on the one hand he estimates the most probable yield from a new technique, and the range of variability around this expected yield from the familiar method he has been using, and the much narrower range of variability around that expected level. In short, he compares not only the levels of expected net yield, but also the reliability with which these yields can be expected, as he sees it.

When the subsistence farmer confronts a possible innovation, he will be concerned with two questions: 1) Will the new method, taking its probable costs into account, produce an expected yield appreciably higher than his old method? 2) Is there a reasonable probability that something will go wrong, and that the new method

will result in a net yield below his minimum subsistence level? Even if the answer to the first question is 'yes', he will not change his method unless he can also get a negative answer to the second question. Thus, the closer his current output is to his minimum subsistence level, the more conservative he is likely to be. The more unfamiliar the proposed innovation and/or the change agents concerned with it, the more cautious will be the farmer's approach. However, if he can be convinced that the new method is not only better but reliably so, and that its probable negative variability will still leave him better off than he was before, then he is most likely to make the change. Moreover, if the proposed innovation and its associated variability exceeds the minimum subsistence level, as was the case with the Maxi-Pak variety of wheat in Pakistan and with the rice varieties in the Philippines, the adoption proves to be swift.

Given a close historical relation between annual food output and a farm family's minimum subsistence level, the degree of risk aversion - and thus the extent of resistance to innovations - will be reinforced by the following five factors:

i. the greater the concentration on food crop(s) on the farm.

ii. the lesser the availability of other food sources.

iii. the lesser the opportunities for alternative employment of family labor, or of other farm resources.

iv. the tighter the capital rationing facing the farmer, and the higher the interest rate he must pay.

v. the closer the value of the family's minimum subsistence level is to the value of the family's net worth.

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Wharton, Clifton, 'Risk, Uncertainty, and the Subsistence Farmer'; in: Economic Development and Social Change, G.Dalton, edited; Chapter 26, pp. 566-574.

b. Diffusion of Innovations: Improved Stoves (India)

Improved wood-burning stoves (henceforth called 'wood-stoves') through their potential for saving on the amount of firewood needed by the household for cooking, are seen as one way of alleviating the problem of firewood shortages. They can also provide cleaner and more pleasant cooking conditions in the kitchen clearly, however, the degree to which this is achieved would depend on the extent to which the stoves do in fact save wood in practice (and not merely in laboratory tests), and the degree to which they are accepted by the mass of rural users, especially by the women of poor households who (as noted) experience the problem most acutely. In different parts of the Third World, more than a hundred programmers for

diffusing improved wood-stoves of a variety of designs have been initiated since the early 1980s. Only a dozen or so of the programs currently being implemented are noted to have been running for over two and a half years, and even fewer are believed to have distributed or sold more than 5000 wood-stoves. Partly, but not entirely, because of the newness of these programs, in-depth evaluation studies on them are extremely few. However, of these, some are sufficiently detailed to provide rich illustrative material and useful pointers. In broad terms, we could divide the factors likely to affect the diffusion of improved wood-stoves into five (often interrelated) categories: (i) the method of wood-stove designing and development; (ii) economic aspects; (iii) infrastructural aspects (extension, credit, etc); (iv) cultural aspects (attitudes to change, etc); and finally, (v) what could be seen as the connecting link, viz. social structure.

(1) Design and Development

Available evidence strongly points to the unsuitability of a 'top-down' and straight transfer' approach for the diffusion of wood-stoves, and to the importance of field adaptation involving the local users, local materials, and local artisans. As perceived by most users, in a study in India, the main advantages of the improved stove over the open fire are the following: decreased smoke (although some households see this as a negative feature, as for instance, where the house-roofs are of straw which the smoke-soot helps to seal and make water-tight, or where the smoke serves to get rid of mosquitoes or of pests in ears of corn hung from the rafters); cleaner and more comfortable working conditions (cooking can be done standing up); less effort needed in cooking (with the open fire, the pots are often in a precarious position and need constant watching); and some saving of firewood (although no precise estimates of this were made, and only two families claimed saving half of the wood used previously,while four reported using the same amount as before). The main disadvantages perceived by the users are that the stove provides no space heating; the cooking surface is inflexible in that the potholes provided in the body of the stove limit the number and size of pots which can be used; the pots often do not fit the holes (causing smoke and heat to escape); and the stove needs more careful maintenance. Attempts by the users to 'adapt' the stove to suit their needs include removing the firebox door to provide some space-heating; making almost exclusive use of the firebox to cook individual foods quickly, rather than using all the pot-holes for slow simultaneous cooking of different foods as had been intended in the stove design; the removal of the flue dampers due to an inadequate understanding of their functions in controlling and directing heat flows inside the stove; the use of the firebox as an oven (a use for which it had not been intended); and so on. The need for the users to make the noted adaptations, point to specific lacunae in the programme: a) the specificity of users' needs has not been taken into account; and (b) the stove has been promoted as a piece of equipment rather than as a new process of cooking.

(2) Economic Aspects

The private financial benefits of investing in an improved wood-stove are likely to be small or nil where wood is still not generally purchased. The private financial cost of the investment would depend on what materials are used to build it. Where built from material available locally, such as local mud or clay, the expense may be negligible. Where the material is difficult to procure and needs purchasing, some financial expenditure would have to be incurred. In fact in several countries, the improved stoves being promoted have to be purchased and often the costs, despite State subsidy, prove too high for poor households. In Upper Volta, for example, it is noted that all those purchasing the stoves are middle and upper-middle class households who buy the stoves basically to reduce smoke but have little incentive to save fuel. There could also be an indirect financial cost if the stove necessitates the purchase of new cooking utensils. Among the non-financial benefits of investing in an improved stove would be the saving of women's labor time (in wood collecting, cooking, lighting fires, scrubbing blackened vessels, etc); the absence of smoke (although, as noted earlier, this may not always be seen as a benefit); the greater ease of cooking where the stove is adapted to the most comfortable cooking posture; the saving of cattle dung (currently burnt as fuel) which has an alternative use as manure; and being able to maintain or improve nutritional levels. Most of these potential benefits seem to be non-monetary and often in the form of intangibles, while the costs may in fact be monetary in nature.

(3) Infrastructural Aspects

In the present context, public infrastructure may be seen to serve basically three functions in the diffusion of rural innovations: a) the development of innovation; (b) spreading knowledge of the innovation to the user (extension service); and (c) making it feasible for the potential users to acquire the innovation (credit facility). What appear at first sight to be fairly straightforward functions of providing physical facilities are in fact complex, since whether or not these facilities serve the needs they are set up to fulfill depends crucially on the approach followed in delivering these services, and on their degree of susceptibility to biases in favor of certain groups over others. In agricultural modernization, for example, it has been noted both in Asia and Africa that the mass media and extension agents tend to favor the economically and socially privileged households, as village level agricultural extension workers, typically contact the richer land-owning farmers.

The elitist attitudes displayed by workers vis-a-vis the rural poor have also often been commented upon. For example, it was noted in Kenya that extension agents who had secondary school education performed less well than who had only primary school education, both in terms of the number of visits they paid to the farmers, and in their level of knowledge and ability to communicate that knowledge. This was attributed to the matriculates' (a) lack of motiva-

tion - being better educated they tend to think that the job is unworthy of their talents; and (b) having acquired, through their greater exposure to urban influences and values, elitist attitudes towards the rural areas and towards farming, which is considered by them to be an inferior occupation. Similarly, (African) planners often feel that the peasant is incapable of adopting recommended changes on his own initiative and look on adult peasants as only big children who need constant watching. Likewise, in Nepal, the government officials have been noted to be often condescending and at times even insulting towards villagers when they undertake village tours or when villagers visit government offices. Further, extension services tend to favor men over women. In both Asia and Africa, the government extension agents are typically male and generally contact the household men, even when the information is directly relevant to the women, as is, say, agriculture-related information to women farmer.

(4) Cultural Aspects: Attitudes towards Change

Frequently, problems of rural diffusion are attributed to the irrational, conservative attitudes of rural people. Such explanations can be misleading. More often than not, the problem is located in the potential adopter's particular economic and social position within the community. Further, what may appear to be irrational to an outsider may in fact be perfectly logical within the potential adopter's cultural context, and an understanding of this context would be crucial for successful diffusion. An understanding of the local customs and beliefs and their regard thereof in implementing plays a vital role in diffusion of innovations. Also, beliefs have themselves been known to be adaptable: for instance, the three-stone stove is considered to be a symbol of a united family in African communities, but this has not prevented the women from using alternative fireplaces for particular uses, or from adapting the stove in various ways, such as by putting an extra rock or two between the stones on a windy day.

The potential adopter's attitudes towards particular innovations would also be governed by the person's past experience with innovations; and, equally important, the person's experience with past promoters of innovations. Where the same set of extension agents are used for promoting wood-stoves, as are used for promoting a range of other rural technologies from HYVs and mechanical equipment to contraceptives, their credibility with the potential adopter would depend significantly on the degree of success with these other innovations. This is because the adoption of any new innovation contains an element of risk for the user. It might be risk of financial loss as involved in switching from traditional seed varieties to HYVs, or a risk of inconvenience if say a new stove does not work as expected.

(5) Social Structure: The Link

Now here comes the turn of the linking issue of social structure. An attempt is made to indicate how inequalities in

social status and the unequal nature of power balances between different classes, castes, etc., and between the sexes are likely to affect wood-stove diffusion. The threads prepared by the above discussion will be attempted to inter-weave here.

Consider first the question of women's status. The status of women within the household could be a significant factor in wood-stove adoption, especially where adoption requires cash expenditure, by virtue of the fact that although women are the potential users of the innovation and therefore in the best position to assess its advantages & disadvantages, it is men who usually handle the household cash and make decisions on how it is to be spent. Generally, rural women and men are noted to have differing priorities in household expenditure. For instance, in poor rural households if women have some independent earnings they are observed to spend them on family's basic needs, while the men spend their earnings largely on their own needs, such as liquor, clothes, etc. Hence, where men make decisions, the purchase of an improved stove may not get priority, especially where the only advantage perceived is greater leisure or convenience in cooking for the women. It is in fact noteworthy that in the heart of India's green revolution, viz. Punjab, while there have been considerable improvements in the technology handled by men, in the form of tractors, threshers, combines, etc., there has been little improvement in the women's kitchen apparatus, even in the economically well-off families. Further, women seldom have access to information on new innovations and generally the extension officials are not willing to involve or consult women in the designing and development of innovations, such as woodstoves.

Consider next the issue of the balance of power between rural households which differ in their ownership and control of material assets and/or in their social status - political power and social status generally, though not always, co-exist with the ownership of wealth. This affects the ability of different households to purchase (with their own incomes) technologies which require financial expenditure and also affects their access to information and credit.

Further, social hierarchies, whether based on differences in inter-household distribution of material assets, or on gender differences, or defined by some other criteria, are likely to make difficult the setting up of precisely those linkages between the user (including the user-innovator) and the scientists/professionals, that were identified earlier as being important in the successful diffusion of rural innovations in general, and wood-stoves in particular. That such innovations and innovative skills usually remain isolated instances and are rarely picked up and integrated into the formalized research and extension systems, points essentially to the weakness of existing links between the rural user-innovator, the extension worker, and the Scientist/professionals. And it is precisely the strength of these links which is likely to determine the efficiency of attempts at field adaptation and diffusion of wood-stove (or any other innovation

with similar characteristics) on a mass scale. Typically, there is an absence of a two-way interaction - a dialogue - between the Scientists/professionals, the village extension agents, and the poor peasants or other underprivileged (in particular women) users of innovations.

Reference

Agarwal, Bina, 1986, Chapter IV: 'Factors Affecting the Diffusion of Improved Wood-Burning Stoves'; in: Cold Hearths and Barren Slopes; pp.77-105. Riverdale: Riverdale Co.

c. Trees as Savings and Security for the Rural Poor

Professionals have rarely seen trees as saving banks for poor people. But while trees and their products have become more valuable and easier to market, many poor people have become more vulnerable as contingencies cost more and traditional supports weaken. Consequently, trees have increasing importance and potential as savings and security for the poor, of whom many already plant, protect, and retain trees as part of their liveli-hood strategies, and use them to meet contingencies. For savings and security, trees compare quite well with jewellery, large stock, small stock, livestock, land, and bank deposits. Disadvantages of trees can include insecure or unclear rights, restrictions of cutting and selling when needed, and problems with marketing; but common advantages include cheap and easy establishment, rapid appreciation in value, divisibility to meet needs closely, and regeneration after cutting.

Contingencies can take many forms. They may be sudden and unexpected; they may be slow in onset; or they may be large needs which can be foreseen. Classified in a common sense manner, five categories can be identified:

i. Social Conventions: Such as dowry, bride-wealth, weddings and funerals, and other ceremonial or social needs.

ii. Disaster: Such as theft of assets, loss by fire, death of animals, floods, droughts, epidemics of plant or animal diseases, civil disturbance and war, and food shortages.

iii. Physical Incapacity: Including disablement; sickness; the child-bearing sequence of pregnancy, childbirth and the post natal period; old age; and accident.

iv. Unproductive Expenditure: Such as failures in small enterprises, litigation of gambling; and fees for schooling or apprenticeship which do not pay off.

v. Exploitation: Including excessive demands and illegitimate acts by the powerful, such as demands of exorbitant interest by money-lenders, expropriation of property, law-suits, intimidation, and blackmail.

For a poor household, any of these can lead to further impoverishment, in which assets have to be mortgaged or sold, or damaging obligations accepted. This often has a ratchet effect, being difficult or impossible to reverse. Contingencies are especially harmful when they entail a loss of food or income. This can result from the contingency itself - the death of an animal, the wrecking of a fishing boat, a physical injury or sickness - or from the asset disposal used to meet the contingency, such as the sale of ploughing oxen, tools, or land. When a productive asset is thus lost, it is even harder to get back to the previous position.

Reducing vulnerability to contingencies is, however, rarely a direct objective of government anti-poverty programs. If such programs are successful, they may reduce vulnerability through flows of food and income which meet consumption needs at bad times of the year, or which allow savings and investments. But few programs try to reduce vulnerability directly by enabling poor people to gain disposable assets which they can realize at will to meet contingencies. In many countries relief work programmes, often 'Food for Work', allow poor people to earn food or money when they need it, and so help them to meet the contingency of seasonal deprivation; but this is through food or wages for work rather than through disposable assets. India's large-scale Integrated Rural Development Programme (IRDP) does provide poor people with economic assets, but these are intended to generate income which will raise them above poverty line, not give them lump-sums to meet contingencies. Whether the assets are milch buffaloes, or goats, or sewing machines, they are precisely not meant for sale or disposal. But priorities of the poor are not necessarily those of the planners.

In two ways, the needs of poor people for such assets have generally become more acute. First, in many rural areas the costs of meeting contingencies have risen as have dowry prices in India, and health treatment in much of sub-saharan Africa and elsewhere. Second, mutual help through primitive sharing and patron-client relations has eroded or disappeared. Earlier patrons often provided security by advancing loans to help their dependent clients meet large or sudden needs. With labor now more on employer-employee cash basis and with weaker mutual social obligations, poor people face a new defenselessness. To meet contingencies, they need a substitute for their former patrons' support, but in government programmes this need is normally overlooked. Nor have scholars and practical analysts often treated contingencies and asset disposal as central concerns. Yet assets can take many forms - land, crops, large and small domestic animals, rights of usufruct, huts, tools, weapons, cash, bank accounts, gold and silver and other ornaments, jewellery, future labor and so on - and the mortgaging, forfeiture, or sale of assets is so widespread as to be universal. A further oversight in this context has been trees.

Professionals usually neglect the things that matter to the poor. Normal professional analysis of deprivation defines poverty as lack of flows of food and income rather than lack of assets. Nor have professionals been organized to notice trees in villages or on farmland; agricultural scientists have been concerned with

crops, veterinarians and animals husbandry specialists with domestic animals, and foresters with trees in forests and plantations, rather than private land. Foresters and others have also been influenced by rich country and temperate climate experience, where slow tree growth limits the value of trees as assets, with growth rates of the order of only one-tenth of those in the tropics.

A further factor has been the time lag in recognizing the implications of the rapid rise in value of timber, fuelwood, charcoal and other tree products. Trees which had little capital value before the penetration of the market and the fuelwood shortages of the energy crisis have now become prized capital assets, but policy has been slow to adjust to the change. Finally, tree tenure has recently been better recognized as a comparative subject, emphasizing that rights to trees are often separate from land tenure, and sparking new ideas about tree reform. Thus, in many rural areas of the Third World, costs of meeting contingencies have risen at the same time as traditional means of meeting them have weakened. Simultaneously, the market for trees and tree products has expanded and their value has risen. Together, these trends raise and sharpen questions about the past use and future potential of trees as savings banks for the rural poor to help them meet contingencies.

There is much scattered evidence to show that trees and tree products are used to cope with contingencies. This evidence could be categorized according to type of contingency, the scale of need, whether the need is sudden or of slow onset, or whether it is unforeseen or foreseen. A more useful classification for our purposes is between direct use of trees or tree products, and their sale or mortgage for cash. This distinguishes subsistence and consumption (direct use) from market relations (sale or mortgage). Direct use tends to involve small quantities, while sale or mortgage can involve both small and large quantities. Moreover, it seems likely that with economic and social change, direct use has and will become relatively less significant and sale for cash more so. Direct use of trees and tree products to meet contingencies takes two forms. The first is where trees provide resources to deal with seasonal shortages. Trees can be sources of recurrent flows of food, fodder and other useful material. When these flows are counter-seasonal they help households get through the slack or lean months. Trees and tree products which help people and livestock to survive the worst times of the year reduce vulnerability at that time and diminish the dangers of impoverishment through sale of assets to buy food or through loss of livestock. The second form of direct use is where a contingency entails a one-off need for trees or tree products. Examples are fire-wood for funeral pyres or feasts, poles and timber for hut and house-building after fire, flood, or house collapse, and replacing a lost boat or canoe. In these cases, ownership of or access to suitable trees can meet the need, while lack of ownership or access can mean impoverishment through the need to dispose of other assets or take on debts.

Contingencies requiring cash are of two main types: those where a large sum is required, often suddenly; and those where only

a small sum is needed but people are poor or desperate. Trees are found playing a part with both. A large sum can be needed urgently for medical treatment, funeral, rebuilding a house or hut, or replacing lost or damaged capital equipment (oxen, buffalo, fishing boat, etc). Large sums may be borrowed but the debt cripples.

It is not that poor people in practice use trees just for contingencies. Trees are also often planted or retained as part of deliberate long-term strategies for savings and security. With the increased privatization of land, and fewer trees on common property, the incentives and opportunities for using trees in this way have increased. Examples are reported from many parts of the world. In Costa Rica & Ecuador it is common for farmers to plant a few trees around their dwellings in their fields and cut and sell them for timber when money is needed for a wedding or a major cash outlay. In a village in Uttar Pradesh (India), it was found that though most trees belonged to the large landholders, others did own a few trees that were planted in their court-yards or on bad patches of land. The wood from such trees was used only on special occasions or emergencies, such as a marriage feast or burning of the dead. In Kerala (India), although land holdings are often very small, large numbers of trees are grown. Dowry and wedding expenses can be provided for by trees. In Turkey, it is reported to be traditional to plant trees on the birth of a female child, as a kind of 'down payment' on her wedding. The value of trees in strategies for savings and security is enhanced by their use to obtain credit and liquidate debt. In Kenya, it was noted that pledging of palms is a sure and fast way to raise cash to meet contingencies. In India a case is reported where an enterprising bank manager gave a consumption loan with trees as security.

The most marked disadvantages of trees concern rights, cash-ability, marketing, and safety. Even where trees are on their own land, they are often prohibited by law, and impeded by bureaucracy, from cutting them down when they want to. In parts of the Sahel farmers are unwilling to grow certain valuable trees because they are on the Forest Department's list of protected species. Haitian peasants who planted trees on their land as part of a programme were told they belonged to the government and that they would be punished if they were cut down. The Philippines has also laws to control the cutting of trees and the process of getting a cutting permit is slow and cumbersome; as a result, some small farmers who have invested in tree growing find it difficult to harvest and sell their own trees. In Uttar Pradesh in India, tree cutting has similarly been prohibited on private land. Obtaining a permit is liable to be protracted and to involve costs in bribes, and cutting without a permit exposes the owner to prosecution or bureaucratic blackmail.

Policy implications, in this regard, are linked with shift in thinking to place more emphasis on enabling poor people to acquire and accumulate assets, to meet contingencies. The livelihoods which poor people want and need can be defined as a level of wealth and of stocks and flows of food and cash which provide for physical and social well-being and security against becoming poorer.

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d. Ecological Implications of Change: Demand for fuel

Blame for desertification is too often cast not only on non-industrialized populations but on traditional technologies of production, without careful analysis of the total range of factors involved. The fact is that dryland ecosystems are characterized by sparse vegetation with a low and widely variable annual productivity. Nevertheless, throughout the Middle East this sparse vegetation is an essential resource upon which depend the livelihood and very biological survival of the local populations. Pastoralism is a major means by which this natural resource is exploited. An equally essential aspect of the relationship between settlement and environment is the collection of woody vegetation for fuel - equally essential to the populations involved. This section explores the requirements & consequences of energy supply and consumption in Khar and Tauran (Iran) and aims to show that behind average annual fuel consumption figures lies a multiplicity of factors influencing levels of demand and intensities of exploitation.

Firewood, paraffin and farming by-products are all used for fuel in Tauran. Of these firewood is the most important in terms of the total number of calories. Fuel is burned there today for two main purposes; winter heating and food preparation, whether year round cooking or seasonal processing. It is also used in lesser quantities to heat water and to burn gypsum plaster.

Firewood collection is primarily a domestic, non-commercial activity carried out at irregular intervals without records of any kind. Brushwood for fuel is, whenever possible, collected by men; women who have no adult male at home, hire men to collect for them. The round trip may take up to half a day and requires travelling several kilometers outside the settled areas. Since a household averages six collection trips a month (less in summer, more in winter) roughly 36 days per year are required to collect firewood. Usually, whole brushes are uprooted, bound into large bundles and balanced on the back of a donkey for the return trip. Women carry firewood on their heads. Generally, people collect wood where they, their kin and their village have grazing rights.

Because pastoral products, such as yoghurt (curd), clarified butter, and concentrated butter milk require so much heating and boiling, summer milking stations use significantly greater quantities of firewood per household than do villages. Although social differentiation in terms of wealth and status is not great in Tauran, fuel consumption does vary from household to household and from village to village. For example, some house holds own more

sheep and goats than others and have greater quantities of milk products to process. Some have larger grape gardens and process more syrup. The wealthier or more religious are likely to give community feasts. The wealthier can better afford paraffin and paraffin-burning equipment. Moreover the location and degree of winter insulation (such as wall thickness, tightness of doors and windows, or orientation of houses and settlements) affects fuel consumption for winter heating. In addition, yearly fluctuations occur in both weather and market conditions which in turn affect local economic strategies and therefore the total quantity of fuel used in Tauran in any particular year.

Domestic and industrial fuels, whether firewood, charcoal or modern alternatives, have long linked rural and urban economies. In the past urban areas were dependent on their hinterlands for fuel supply, and the demand for firewood and charcoal helped support a dispersed population who might otherwise have migrated to the city. Today the roles are reversing as many rural areas increasingly depend on cities to supply fossil fuels (oil and gas) and equipment. Although in Khar and Tauran domestic consumption relies primarily on locally cut firewood, the transition to dependence on sources from outside has certainly begun. The intent of this discussion has been not to weigh up the advantages and disadvantages of alternative technologies, but show that levels of demand and environmental impact are tied to events and conditions outside Khar and Tauran, and in ways that may not be immediately apparent. An understanding of the social and economic contexts of the exploitation of rural resources is essential to the study of processes of desertification or to the assessment of potential outcomes of management decisions.

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e. Conservation at the Local Level: Individual vs. Group (Iran)

Why do people cause desertification? To begin with, in order to work out answers, it is necessary to investigate in some detail what the people actually do and why,and then analyze the conditions - social, economic and political - in which they make their decisions.

In much of the ecological literature on the Middle East and South-west Asia the rural agricultural and pastoral populations stand accused of accelerating the process of desertification by various strategies of pastoral and agricultural production and firewood collection. Both farmers and herdsmen are often portrayed as being unaware of the negative effects of their practices - or if aware, as pursuing them anyway and displaying insensitivity to

their own and others' future interests. Often both ecologists and historians treat all pastoral strategies as the same and equally unresponsive to the environment upon which they depend. There is, however, a growing literature that demonstrates significant variation in environmental knowledge and perception in the practices of rural populations. There is also evidence of adaptation to ecological change. Some strategies, especially pastoral strategies, are described as 'inherently' destructive, but there are many studies of resource use in drylands which claim that particular strategies are not inherently destructive, though they may result in varying degrees of stress under certain but not all environmental or socio-economic conditions. Such strategies and conditions include, for example, firewood collection, charcoal production for urban markets, grazing in situations of prolonged drought, border closure, and enforced sedenterization.

An examination of agricultural and pastoral strategies in Tauran (Iran) suggests that certain patterns of resource use may contribute to environmental stress and potential desertification, whereas others are responsive to environmental change and serve to prevent or reduce stress. The 308 households of the Tauran Plain are divided among thirteen villages ranging in size from 6 to 46 households. These small, isolated settlements are unable to support themselves by either pastrolism or agriculture without exploiting the underground water-table. Pastrolism is the primary economic activity in the larger region and over 95% of the Tauran Plain (12,000 hectares) is grazed. Irrigated agriculture is practiced on a small scale - at present only 160 hectares, or not quite 0.5 hectare per family. Various types of rainfed farming are also practiced but are generally unreliable, although in a good year as much as 240 hectares may be ploughed for this purpose. Even with the use of ground-water for irrigation and watering animals, the current population cannot support themselves entirely from Tauran Plain. Some families always seek additional income both on and off the Plain. Today this additional income comes from shepherding, truck hauling, and less often, from laboring in urban brick works. In the past the additional income was obtained with greater difficulty through charcoal production, shepherding, hauling by camel, occasional brigandages and collection and sale of vegetation (fuel, food, spices, medicine and for tanning).

Three strategies of production - dry farming, collecting vegetation and village pastrolism (all primarily for local consumption) - have been found potentially destructive towards vegetation on the Tauran Plain, particularly where they compete for the same land. Villagers are aware that particularly by grazing on the Plain they must settle for lowered milk, meat and wool production. To raise production they will try to move animals off the Plain whenever possible or supplement the diet with barley and straw. Although they are aware that the vegetation quality is poor, it is not known to what degree they see dry farming, fuel collection, and increased number of animals as contributing factors. It is no doubt also true that perception of the problem varies, and those who use the range most - particularly older residents and those who go out

daily (e.g. shepherds) - are more aware of the state of the range. Assuming that villagers had recognized the negative impact of these activities on pastoral protection, why do they not organize to protect communal grazing and fuel resources? What differentiates them from, for example, northeastern Afghanistan, medieval England, Greece, the Swiss Alps and Mexico where local communities have established control over the local resources?

The lack of communal organization has been explained in a variety of ways. One explanation refers to national character which, for example, would suggest that there is a 'strongly individualistic, indeed anarchical, strain in Iranian character which so often prevents sustained cooperation'. Another suggestion is that this behavior is the result of people following an unwritten cultural 'rule'. For example, it is suggested about Italian society that the people there behave as if they were following a 'rule' which is termed as 'amoral familism' in which one will 'maximize the material, short run advantage of the nuclear family; assume that all others will do likewise'. A similar explanation of the behavior of peasants is that they act on the basis of a model termed the 'image of limited good'. According to this view, there is a common perception in peasant societies that all the desired things in life, such as land, wealth, health exist in finite quality and are always in short supply. As far as the peasant is concerned, there is no way directly within his power to increase the available quantities. An individual or a family can improve a position only at the expense of others, and mutual suspicion seriously limits cooperative approaches to village problems. These examples illustrate various attempts to explain the lack of cooperative effort on the basis of national character or cultural rules - or 'ethos'. But none explains why cooperative behavior 'does' occur in some situations for control of areas of common grazing, fuel collection or agriculture.

What then are the conditions under which cooperation occurs which will help us explain cooperation or the lack of it in a peasant society such as in Tauran, or for that matter in any type of society? In the 'Logic of Collective Action', Olson suggests that though all of the members of a group (large or small) 'have a common interest in obtaining collective benefit, they have no common interest in paying the cost of that collective good'. In Tauran one of those costs is setting up a formal village or Plain-wide organization for enforcing grazing, fuel cutting, and dry farming. Olson's contention that 'the cost of establishing an organization entails that the first unit of a collective good obtained will be relatively expensive' would find agreement among Tauran villagers. They have in past only cooperated in smaller groups, primarily as shareholders in the qanat water, cooperating to clean the storage pool or arrange for repair in case of serious damage interrupting the essential flow of water.

Another important factor is that 'the behavior of the individual in the group is due partly to the fact that each individual in a group may place different value upon the collective value

wanted by his group' and that willing participation can arise only if the resource in question works the same way for all users. When examining the Tauran communities, it is seen that in fact resources are not used in the same way at all. Fuel is used differently by different families depending upon the size of family, the number of animals owned, and differential ownership of garden lots (which affects fuel needs for making pomegranate and tomato paste and grape syrup). Charcoal production also affected the communities differently. The degree of use of the Plain for grazing by a household is determined by the size of its holding, their access to a summer or year-round station, access to relatives who can take animals off the Plain, their ability to supply supplemental barley and straw, and to meet the labor requirements of milk processing and assistance to the shepherd. Thus the individual benefits of participation are not equated with group benefits, and group pressure for participation in an organization for control is not very strong.

These explanations of lack of collective action have been phrased in terms of the individual decision-maker and the benefits he would or would not receive by paying the costs associated with cooperative action. It is important to consider these individuals in their socio-political context. For example, the groups listed above which effectively exercise communal control of a common resource range from tribally organized groups in Afghanistan to feudal society and autonomous small villages in Europe and Mexico and the nature and extent of their group control varied considerably. In the present context the tribally-organized groups are the most interesting. The presence or absence of tribal organization within a society is important because it can serve as the basis for resource control in the absence of a political superstructure such as might be provided by the central government. The recent history of the Middle East is filled with examples of the disintegration of tribally organized society and its replacement by the social and administrative framework generated by the rise of the nation state. This change has occurred at a time when population growth and other changes have increased both local pressure and general demand on natural resources.

Reference

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Note: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library.

FOREST SOCIOLOGY

Lecture 11

TEACHER'S OUTLINE

Section B: RURAL SOCIETY AND DEVELOPMENT

Chapter 7. LAND TENURE SYSTEM: Case Studies

a. Culturally Relevant Categories of Rural Landholders (Bangladesh)

a) Any discussion of social change in modern South Asia, at some point, must address questions concerning the possession and use of agricultural land. For any land reform scheme to work equitably, a great deal of thought needs to be given to the categories of analysis in terms of which the discussion of these issues proceeds. The suggested socio-economic categories of landholders for use in culturally sensitive considerations of land reform in South Asia are: landless; homestead owners; marginal cropland holders; and small, medium, big and super cropland holders. Because possession of any land constitutes an agriculturist as a 'malik', the first three categories must be distinguished from the categories of large landholders or bigmen.

b) 'To go into the fields' is an idiomatic expression which only be understood in terms of primacy which the possession and use of land has in the cultural beliefs of the farmers.

c) The farmer goes out to examine the earth (fields) because he draws his sustenances, his strength and skill and his mastery from this earth. The earth is both a symbol and a sacrament for him. By possessing and farming the earth he reproduces 'Adam' in himself; Adam who was created from the earth ('mati') and later sent back to it to live with it and die into it.

d) Every person who possesses and puts land to productive use is a 'malik' or master; a mature person in rural society. However, not all maliks are equally influential in village affairs. The more land a person possesses and uses productivrly, the more influential that malik can be in community affairs. All the maliks (big or small) of a village area are part of a localized residential social unit known as a 'somaj', the residential brotherhood.

e) The whole system of cultural conceptions, the world view of the farmers must be kept in mind by anyone interested in bringing about change or stimulating development in the agricultural sector of Bangladesh society (or South Asian societies).

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f) Anyone with cropland, be it only one-tenth of an area, engages in the culturally significant activity of 'going to the fields'. Somehow these farmers need to be represented in the analytic categories used to investigate rural Bangladeshi society. Bigmen are, of course, of fundamental importance in such an analysis, however, more attention has to be paid than at present being paid, to the categories of smaller farmers who make up the bulk of the rural population.

b. The Use and Productivity of Commonly Owned Rangeland Resources (Baluchistan, Pakistan)

a) Range productivity is determined by many factors. Some of the important factors are soil, climate, precipitation, type of vegetation, and past and present uses. The local institutions can be related to past and present use rates but it is not possible to isolate effects of institutions on productivity.

b) Traditionally the chiefs were mostly authoritarian and hereditary, but if they acted against the tribal laws or against the interests of the tribe, there was always the possibility of tribal action against them. There were also other contenders for the position, including their brothers and cousins. This posed a threat to them and consequently they could not go beyond a limit or could not violate tribal laws with impunity.

c) Once the tribe is no longer the source of power and authority, the Chief's attitudes towards the tribal laws are bound to change. The traditional chiefs now became intermediaries between the tribe and the government. Not only they are uninterested in any resource regulation and customs enforcement, but they have also started appropriating better parts of the common lands which have increasingly resulted in overstocking of animals on the remaining parts of the ranges.

d) The traditional institutions of family, tribe and religion are adapted and designed to take the high risks of animal raising into consideration. Kin and tribal assistance, guaranteed employment opportunities as a shepherd as well as the customs and traditions that food must be the preference of family members, provide a great degree of future security to an individual and ensure him against risks.

e) In the non-traditional tribal areas, individuals look to other means of future security. The easiest and most practical way is to increase his stocking rates. So that even if a portion of his animals is lost, some can still survive and provide sustenance.

f) The closing periods along with other means of limiting animal numbers in the ranges, is a very old institution, as old as the institution of common property rights itself. Such closing periods have two-fold objectives: to allow vegetation in the rangeland and to avail the vegetation in the open fields.

g) In a subsistence economy goats are hardier animal and require less feed and care but fulfill important needs of nourishment, and equipment making, but sheep are less capable of fulfilling these subsistence needs. In a market economy, higher sale prices and profitability are the main considerations and here sheep far surpasses the goat. However, sheep are intensive grazers and feed mostly on grass and smaller plants which hold the very thin layer of soil in the semi-arid conditions of Baluchistan - that results in excessive soil erosion.

h) Even if the tribesmen know that high use rates of the rangelands will decrease future productivity and future revenues, they may still continue to have excessive uses and high revenues at present due to high 'time preference' rates, since they have lower incomes. The animal raisers, more so in non-traditional than in traditional tribal areas, are motivated by higher profitability of sheep, minimal institutional restrictions facilitating the fulfillment of this incentive.

i) The animal lenders in tribal areas have purely economic as well as non-economic considerations in selecting borrowers. They lend animals to their relatives and friends not only to help them out when they need such help but in doing so they are also buying insurance for themselves. This is like deliberate rationing of the available supplies of animals, or in other words, investments in social and political relations. The excess demand situation are coped with by lending on discriminatory basis and political and social benefits are substituted for economic benefits.

j) As the number of animals raised or owned goes up, the religious and tribal taxes and contributions to be paid rise more than proportionately. Progressive taxes generally result in conservation and these taxes and contributions seem to play an important role in discouraging animal raisers to overstock in traditional areas where the same are relatively more progressive.

c. The Tragedy of the Commons and 'Morality'

a) A technical solution to a certain problem may be defined as one that requires a change only in the techniques of the natural sciences, demanding little or nothing in the way change in human views or ideas of morality. Because of previous failures in prophecy, it takes courage to assert that a desired technical solution is not possible.

b) 'The tragedy of the Commons' develops in this way. Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. Such an arrangement may work even for centuries, but finally a day comes when the inherent logic of commons remorselessly generates tragedy.

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c) Each man (herdsman) gets locked into a system that compels him to increase his herd without limit, in a world that is limited. Ruin is the destination towards which all men rush, each pursuing his own best interests in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.

d) The tragedy of the commons as a food basket is averted by private property, or something formerly like it. But the air and waters surrounding us cannot readily be offended, and so the tragedy of the commons as a cesspool must be prevented by different means, by coercive laws or taxing devices. The next is the principle of 'morality': the morality of an act is a function of the state of the system at the time it is performed.

d. The impact of Decline in Common Property Resources (Rajasthan, India)

a) Common property resources - community pastures, forests, waste lands - are an important form of natural resource endowment in the rural areas of the developing countries. Broadly defined, common property resources are those used by an entire community without any exclusive individual ownership or access rights. In the absence of regulatory institutions, rapid population growth may lead to degenerative patterns of use and the gradual depletion of common property resources.

b) In Rajasthan, the introduction of land reforms in the 1950s disrupted traditional arrangements that protected and regulated the use of common property resources. The process of change as it occurred there suggests that well intentioned public programs like land reform can deprive a region of its comparative advantage in a key economic activity, like livestock farming. Privatization of the land and its resources raises the cost of livestock raising and, hence erodes the region's comparative advantage.

c) Considering their several advantages, there is a strong case for protecting and developing common property resources. The government strategy in this regard should be: a strict ban on further curtailment of common property resources, achieved by introducing some element of private cost for the users; and designation of common property resources as a source of revenue for the 'panchayats', to induce them to conserve and systematically manage them as productive resources.

e. Common Resource Management: Forests of Pakistan

a) Baluchistan (Pakistan): Common ownership enables the tribesmen to take their herds to any part of the tribal territory that has recently received some rain. There are several tribal institutions that insure that the environment is not

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over-exploited. However, in the non-traditional tribal areas, the picture is very different in terms of tribal control systems.

b) Rajasthan (India): In the arid region of Rajasthan, the livestock themselves have an adaptation by their mobility to the perennial threat of severe but localized droughts. The mobility of the livestock is ensured by the tribal institution of common ownership of rangelands which allows the tribesmen to take their herds to whatever part of the tribal territory most recently received some rain. But, as a result of the land reform program, the land is becoming concentrated in the hands of the wealthy few, being over-exploited, and consequently deteriorating; and the herds sizes are declining.

c) Swat (Pakistan): In the past individual Pathan (Swati) did not own land per se, rather they each owned a certain number of 'brakha' or shares in the overall landed estate of their descent group. Under the traditional system, these shares were rotated among the individual households after every 5 to 10 years. But in the 1920s, the ruler ('Wali' of Swat) 'froze' the rotation as it happened to be at that time.

d) Baluchistan, Rajasthan and Swat: Each one of these systems is or was supported by strong, traditional tribal sanctions. In contrast, the setting in which 'The Tragedy of the Commons' takes place is one without sanctions. It is precisely the way people behave, when they have to answer to no one else, that leads to such a tragedy. When the traditional institutions for common property management are removed, the people involved abandon the balanced use of their natural resources and begin to over-exploit and indeed destroy them.

e) The World Bank Project (Azad Kashmir): One of the several components of this project was a forestry program designed to address problems of deforestation, environmental degradation, and a shortage of fuelwood. The forestry operations focussed on village 'shamlat' lands in the expectation that the benefits provided would thereby accrue largely to the village 'poor'. In fact, as soon as the shamlat lands were planted with trees, the wealthier villagers began to claim that the land and therefore the newly planted trees belonged to them, not the village as a whole. Later, the focus of planting trees was shifted from shamlat lands to private lands held by single families.

f) The USAID Project (Pakistan): One of the principal aims of this project is to encourage the rural population to plant trees on their private landholdings, not the village shamlat lands, for use as fuel and fodder.

g) There are numerous examples of institutions for common management of resources (e.g., forests) that have 'evolved traditionally' and that work beautifully; there are very few

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examples of institutions created by development planners for the same purpose that have not failed utterly. In creating the new institutions, something crucial is often left out: the need for sanctions against behavior that maximizes the short-term good of the individual to the detriment of the long-term good of the society.

h) In all efforts to create new institutions for the management of common property resources in the developing world, the target population is likely to have no less need for positively motivated sanctions than in similar populations in the world. Moreover, any attempt to create new institutions is always less likely to succeed than attempts to simply make use of the existing traditional institutions.

i) There is a strong source of local level sanctions that has rarely been appropriated by the central governments of the developing nations, namely the 'religion'. The threat of super-natural sanctions has helped to support traditional institutions for managing natural resources all over the world (e.g., trees in graveyards, shrines, etc.).

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FOREST SOCIOLOGY

Lecture 11

Section B: RURAL SOCIETY AND DEVELOPMENT

Chapter 7. LAND TENURE SYSTEM: Case Studies

a. Culturally Relevant Categories of Rural Landholders (Bangladesh)

Any discussion of social change in modern South Asia, at some point, must address questions concerning the possession and use of agricultural land. Indeed, a great deal of interest has been shown in such questions,especially in regard to the issue of land reform. However, for any land reform scheme to work equitably, a great deal more thought needs to be given to the categories of analysis in terms of which the discussion of these issues proceeds. The suggested socio-economic categories of landholders for use in culturally sensitive considerations of land reform in South Asia are:landless; homestead owners; marginal cropland holders; and small, medium, big and super cropland holders. Because possession of any land constitutes an agriculturist as a Malak, the first three categories must be distinguished from the categories of large landholders or bigmen. 'Landlessness' is more circumscribed in farmers' thought than is reflected in the current development categories of landholders. More culturally relevant categories will make possible more socially acceptable rural development.

The case-study presented in here was carried out in October 1975 at a village, say, 'Daripalla' in Pabna District (Bangladesh). The very first lesson the researcher learnt there was that his going out into the fields was not at all the same activity that the Muslim farmer was involved in when 'he went into the fields'. The researcher was involved in the pedestrian anthropological task of seeking out informants. The farmer, on the other hand, was involved in behavior of fundamental cultural importance in his life. 'To go into the fields' is an idiomatic expression which only be understood in terms of the primacy which the possession and use of land has in the cultural beliefs of these farmers.

To be a mature, masterful person in rural Muslim society individual must, first of all, possess land. Even the tiniest, homestead plot bestows this maturity or mastery. Secondly, a person must use his land productively, ordinarily by cultivating it by himself. Every person who possesses and puts land to productive use is a 'malak', or master; a mature person in rural society. However, not all malaks are equally influential in village affairs. The more land a person possesses and uses productively, the more influential that malak can be in community affairs. The more productive, large landholders within a village are the influential

people in the processes of public decision making, in village politics. Large landholders are the village 'bigmen' (baralok). However, their influence does not make the small holders irrelevant in village life. All the malaks of a village area are part of a localized residential social unit known as a 'somaj', which can possibly be translated as 'residential brotherhood'. These social units are made up of both big and small holders who are all explicitly aware of their brotherhood as Adam's descendants.

An important concern for all the development agencies, both public and private,in Bangladesh is the question of land ownership. These agencies seem to approach this question, on the one hand, in terms of those farmers whom they can easily (i.e., quantitatively) identify as large landholders, or, on the other hand, in terms of those members of rural society who are considered 'landless'. Few observers of rural society have taken into consideration the significance of being a malak for those farmers who find themselves in an intermediate position between the large landholders and the landless poor. Any one with cropland, be it only one-tenth of an acre, engages in the culturally significant activity of 'going to the fields'. Somehow these farmers need to be represented in the analytic categories used to investigate rural Bangladeshi society. Without a doubt, who owns the largest amounts of land is of fundamental importance in this analysis. However, more attention has to be paid to the categories of smaller farmers who make up the bulk of the rural population.

On the basis of above discussion, it is suggested the following culturally relevant categories of persons/households are necessary for an in-depth investigation and understanding of the rural Bangladeshi society.

i. Landless: Those who do not have even homesteads of their own, rather live in huts or small mud-houses built on other's lands.

ii. Homestead owners: Those who do own their homelots but do not have any cultivable land.

iii. Marginal cropland holders: Those villagers who do have some cropland but it is hardly sufficient for producing subsistence for the family/household, or even below subsistence level.

iv. Small cropland holders: Those farmers whose cropland is normally enough for producing subsistence for the household with little surplus for sale.

v. Medium cropland holders: Relatively better-off farmers whose holdings are relatively enough for producing at least some surplus produce for sale after meeting the household needs.

vi. Large cropland holders: The 'bigmen' of the village who produce large surplus quantities of agricultural produce for marketing, and through which they tend to exert some or more degree of power and influence over socio-economic and socio-political matters of the village life. They may have some land sharecropped or contracted out to tenants.

vii. Super cropland holders: The 'bigmen', landlords, or 'jagirdars' who oftenly operate their lands through a large number of tenants and control village and surrounding area's social, economic, and political life through power, authority and influence over villagers, market and the government offices.

These categories take into account the conceptions of landholders' themselves concerning the possession of land, and they are also empirically verified in the field. At least, they are verifiable for Daripalla. With minor adjustments in acreage ranges they would also be verifiable throughout Bangladesh. Similar culturally relevant categories could and should be created for use in other Muslim and non-Muslim areas/countries in the South Asia.

Reference

Thorp, John P., 1983, 'Culturally Relevant Socio-Economic Categories of Rural Landholders in Bangladesh'; in: South Asian Anthropologist, vol.4, No.2, pp.83-92.

b. The Use and Productivity of Commonly Owned Rangelands Resources (Baluchistan, Pakistan).

Range productivity is determined by many factors. Some of the important factors are soils, climate, precipitation, type of vegetation, and past and present uses. The local institutions can be related to past and present use rates but it is not possible to isolate effects of institutions on productivity. Therefore, maximum possible efforts were made, in this study, to select tribal areas nearly homogeneous in all factors, except in institutions, effecting productivity. Here, emphasis has been placed on associating institutional changes to changes in stocking rates and relating stocking rates to the biological and economic productivity of the ranges. Generally higher ratios in any particular rangelands indicate lower productivity. This ratio when related to animals per forage acre (stocking rates) is expected to show relationships between general range productivity and stocking rates. Stocking rates effect long term as well as short term productivity of the rangelands.

Since the tribal organization was the first to be effected by outside influence, the consequences of disintegration of the tribal

organization was examined first. From the time that the government had contacts with these tribes after subduing them, the chiefs were made responsible for internal law and order and the security of the government means of communication. In return the government recognized them as official chiefs which entitled them to payments and rewards. The chiefs thus started deriving their strength from a source of other than the tribe they headed. Traditionally the chiefs were mostly authoritarian and hereditary, but if they acted against the tribal laws or against the interests of the tribe, there was always the possibility of tribal action against them. There were also other contenders for the position, including their brothers and cousins. This posed a threat to them and consequently they could not go beyond a limit or could not violate tribal laws with impunity. Once the tribe is no longer the source of power and authority, the chief's attitudes towards the tribal laws, including laws of resource use and regulations, are bound to change. The traditional chiefs now became intermediaries between the tribe and the government. Not only they are not interested in any resource regulation and customs enforcement, but they have also started appropriating the better parts of the common lands. This is in violation of traditional laws and causes increased overstocking on the remaining parts of the ranges. In addition family members, other relatives and friends,as well as sub-chiefs, started following the chief's example; thus economic and social differentiations among tribesmen started to appear. The chiefs and other wealthy members do not need any tribal solidarity and therefore do not contribute to it. The poor are not able to call upon traditional tribal and family solidarity and are less able to escape their poverty and suffering.

Disintegration and changes in other local institutions have lead to similar results. For example, animal raising is a risky enterprise under most circumstances, but the type of environments in which the nomads live makes it even more risky. Uncertain and unpredictable precipitation and associated risks of droughts, possible loss of animals through stealing, consumption of animals by wolves and other predators, and occurrence of epidemics and diseases in general all make animal raising a highly risky enterprise in the tribal areas of Baluchistan. The traditional institutions of family, tribe and region are adapted and designed to take these risks into consideration. The degree of risk can be imagined when it is realized that a very wealthy animal owner can become poor or even bankrupt in one year and he will need the help of his kin and tribe fellows. Draught, disease and thefts are only a few hazards. A murder ransom and/or a bridal payment could take away all his wealth in just period of time. Kin and tribal assistance, guaranteed employment opportunities as a shepherd as well as the customs and traditions that food must be the preference of family members, provide a great degree of future security to an individual and ensure him against risks. With the social system and relations to the kins and tribesmen, and by himself following the institutional requirements, an individual is provided more

security than economic means such as raising excessive numbers of animals. Since under the non-traditional changed circumstances some degree of disruption has taken place in these institutions, an individual animal raiser can not expect the same sort of security as before. He looks to other means of future security for himself and for his family. The easiest and most practical way, from his point of view, is to increase his stocking rates. So that even if a portion of his animals is lost, some can still survive and provide sustenance.

Under the traditional system animals are raised mainly for subsistence and are not for marketing. Physical, social, and economic conditions, and rules do not allow accumulation of surpluses. A large part of the food and other needs of life come directly from within the range and from the animals raised. Only a small portion of the animals are sold or bartered to obtain the few necessities of life which are not produced locally and have to be purchased from areas outside the tribal territories. The animals which are surplus to the immediate requirements, are used for economic purposes as insurance systems through the loaning of animals and for social purposes as sacrifices and contributions towards the tribe and the religion. In these areas the animals most suited for purposes of subsistence are animals like goats and camels.

Although no entire non-traditional tribes or sections were found to carry out production exclusively for market, sizable numbers of individuals were involved in production for markets and profits alone. In these cases animals were bought in the beginning of the year, raised and fattened during the year and sold at the end of the year. Production for market also necessitates raising sheep which fetch higher prices than goats which would be more beneficial under subsistence conditions of living. At least for the past few decades sheep and wool have had far greater market value because there has been increased demand for these products in remote markets. The result is an increase in the number of the intensive grazing and depleting animals like sheep. More important is the fact that when animals are mainly produced for market there is a decline in the number of animals available for traditional loans and gifts to those in need, and for sacrifice on religious and tribal festivals. The traditional social and economic network, due to these changes, has loosened considerably and there is a general reorientation of economic activity towards the market.

(1) Closing Period in the Year

The closing period along with other means of limiting animal numbers in the ranges, is a very old institution, as old as the institution of common property rights itself. The closing periods are observed in the summer and rainy months (normally May-Sept.). Such closing periods have twofold objectives. First, to allow vegetation to grow to a stage where, when grazed, it is not completely uprooted or destroyed so that there is enough grass and

other vegetation for the hard and dry winter months ahead and the least depletion in the long run. The second objective is to avail, to the maximum extent possible, the vegetation in the open fields which grows in the rainy season, and so save one's own resources (e.g. fodder). In the areas where closing periods were not observed or the duration was very short, it has been so only for the last few decades; earlier they were not so. The observance of closing periods obviously effects the stocking rates and the general forage productivity of the ranges.

Rotations within the range lands are also observed in traditional tribal areas and not observed in the non-traditional tribal areas or are observed to a limited extent. Such rotations have the objectives of balanced grazing within the range lands by allowing a rest period for the vegetation to grow in one area while other areas are being grazed and also provide manure to different areas of the range land by camping on different sites. Such rotations have obvious positive effects on the state of conservation in the range lands.

(2) Forms of Economy (sheep/goat ratio)

This indicates and is a proxy for the subsistence or market oriented production as well as the relative prices of products showing price affects. In a subsistence economy goats are hardier animal and require less feed and care but fulfill important needs of nourishment and equipment making, but sheep are less capable of fulfilling these subsistence needs. In a market economy where production is mainly for the market and not for self consumption, higher sale prices and profitability are the main consideration and here sheep far surpasses the goat, at least in the last few decades.

During the study year a sheep was sold for twice the price of a goat and wool prices were about five times higher than mohair prices. However, sheep are intensive grazers and feed mostly on grass and smaller plants which hold the very thin layer of soil in the semi-arid conditions of Baluchistan. Under overstocked and dry conditions the sheep completely remove the vegetation cover and expose the soil to the eroding forces of wind and water (rainfall). Also, over the long run, by eating to the roots and destroying the palatable species of grass, the species composition of the grass and other vegetation changes so that in the grass and other vegetation changes so that in the end unpalatable species remain. Goats have different grazing habits and preferences. They usually pick up leaves of thorny bushes and trees without damaging or hindering the growth and future productivity of the trees and bushes and new leaves are produced after every rainfall. With these considerations, sheep/goat ratio is assumed to be an indicator of depletion or conservation and of monetary project motive or the subsistence motive. Economic theory indicates that as the prices of depleting products rise it leads to depletion and as the prices of conserving products rise it leads to conservation of resources.

(3) Economic Factors

In the traditional tribal areas, it is possible that the animal borrowing interest rates system or the credit institution might have been devised and maintained with economic efficiency and social welfare in mind; welfare is partly dependent upon relative incomes. Other considerations might have been redistribution of income from the rich to the poor and conservation of ranges in the interest of both the borrower and the lender as the borrower and lender maxima are the same. The credit system, in this sense, does not provide any incentives to the resource user, the borrower, to overgraze the rangelands. The trend in the non-traditional areas to indirectly charge higher interest rates through 'zarsari' system is potentially more depleting.

The animal lenders in tribal areas have purely economic as well as non-economic consideration in selecting borrowers. It was consistently observed that the demand for borrowing animals was high and has remained so for a long time. Most likely, this is because the interest rates, in terms of a share of the output, have always remained the same and fixed in the tribal areas. Only that part of the interest rates determined by the uncertainty factors is variable from year to year and person to person. Why is this so? This is because the economic gains are just part of the gains they seek in such transactions. They lend animals to their relatives and kinsmen not only to help them out when they need such help but in doing so they are also buying insurance for themselves. This is also true when lending animals to friends, fellow tribesmen, and other favored people. This is like deliberate rationing of the available supplies of animals, or in other words, investments in social and political relations. One such investment is the establishment of political alliances and marriage relations with other families, groups, and sub-tribes.

The excess demand situations are coped with by lending on discriminatory basis and political and social benefits are substituted for economic benefits. In the nontraditional tribal areas, however, a system of borrowing and lending is slightly different. Here interest rates are also determined in the same way but the lenders impose some conditions which oblige the borrowers to tend for free a fixed number of animals belonging to the lender so that the borrower would not get any share in the gains and offsprings. This system called 'amanat' in fact makes the borrowers pay high interest rates and may result in overuse and depletion of resources.

Under taxes and contributions are grouped together all those animals or money give away which a family undertook during the preceding year. This includes animals which were sacrificed on certain religious occasions and animals which were contributed to the poor and the religious people, needy kin, the common tribal funds, the chief and to the government. Generally the number of animals sacrificed at religious occasions is the same whether the family has 50 or 300 animals. This seems to be a regressive tax.

The required annual tax ('zakat') is a fixed proportion (2.5%) of the animals/or wealth) owned at the end of the year. But contribution to kin and strangers according to custom, to the tribal collective funds, and sometimes to the chief, all seem to be progressive taxes and contributions. In these cases as the number of animals raised or owned goes up, the taxes and contributions to be paid rise more than proportionately. Progressive taxes generally result in conservation and these taxes and contributions seem to play an important role in discouraging animal raisers to overstock in traditional areas.

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Buzdar, Nek M., 1982, Chapter IV: 'Analysis'; in: 'Economic and Social Factors Effecting the Use and Productivity of the Commonly Owned Rangelands Resources in the Semi-Nomadic Tribal Areas of Baluchistan Province of Pakistan' (unpublished Ph.D. Dissertation); pp. 61-98. Hawaii: University of Hawaii.

c. The Tragedy of the Commons and 'Morality'

Weisner and York (1964) said, "both sides in the arm race are confronted by the dilemma of steadily increasing military power and steadily decreasing national security. It is our considered professional judgement that this dilemma has no technical solution. If the great powers continue to look for solution in the area of science and technology only, the result will be to worsen the situation. But an implicit and almost universal assumption of discussion published in several scientific journals is that the problem has a technical solution. A technical solution may be defined as one that requires a change only in the techniques of the natural sciences, demanding little or nothing in the way of change in human values or ideas of morality. Because of previous failures in prophecy, it takes courage to assert that a desired technical solution is not possible. The authors exhibited courage; publishing in a science journal, they insisted that the solution to the problem was not to be found in the natural sciences. Whether they were right or not is not the concern of this section. Rather, the concern here is with the important concept of a class of human problems which can be called, 'no technical solution problems', and, more specifically, with the identification and discussion of one of these.

We want the maximum good per person; but what is good? To one person it is wilderness, to another it is skilodges for thousands, to one it is estuaries to nourish ducks for hundreds to shoot; to another it is factory land. Comparing one good with another is likely impossible because goods are incommensurable; they cannot be compared. But in real life, unlike theoretically, the incommensurable are commensurable. Only a criterion of judgement and a system weighing is needed. In nature the criterion is survival. Is it better for a species to be small and hideable, or

large and powerful? Natural selection commensurate the incommensurable. The compromise achieved depends on a natural weighing of the values of the variable. Man must imitate this process. There is no doubt that in fact he already does, but unconsciously. It is when the hidden decision are made explicit that the arguments begin. The problem for the years ahead is to work out an acceptable theory of weighing.

'The tragedy of the commons' develops in this way. Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. Such an arrangement may work reasonably satisfactorily for centuries because tribes wars, poaching, and disease keep the numbers of both man and beast well below the carrying capacity of the land. Finally however, comes the day of reckoning, that is, the day when the long-desired goals of social stability becomes a reality. At this stage the inherent logic of the commons remorselessly generates tragedy.

As a rational being, each herdsman seeks to maximize his gain. Explicitly or implicitly, more or less consciously he asks: What is the utility to me of adding one more animal to my herd"? This utility has one positive and one negative component. The positive component is a function of the increment of one animal. Since the herdsman receives all the proceeds from the sale of the additional animal, the positive utility is nearly +1. The negative component, on the other hand, is a function of the additional overgrazing created by one more animal. Since, however, the effects of overgrazing are shared by all the herdsmen, the negative utility for any particular decision making herdsman is only a fraction of -1. Adding together the component partial utilities, the rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another; and another... But this is the conclusion reached by each and every herdsman sharing a commons. Each man is locked into a system that compels him to increase his herd without limit - in a world that is limited. Ruin is the destination towards which all men rush, each pursuing his own best interests in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.

The tragedy of the commons as a food basket is averted by private property, or something formerly like it. But the air and waters surrounding us can not readily be offended, and so the tragedy of the commons as a cesspool must be prevented by different means, by coercive laws or taxing devices that make it cheaper for the polluter to treat his pollutants than to discharge them untreated. Then, the next is the principle of morality: 'the morality of an act is a function of the state of the system at the time it is performed'. Using the commons as a cesspool does not harm general public under frontier conditions, because there is no public; the same behavior in a metropolis is unbearable.

Reference

Hardin, Garrett, 1968, 'The Tragedy of the Commons'; in: Science, Vol. 162, pp. 1243-1248.

d. The Impact of Decline in Common Property Resources (Rajasthan, India).

Common property resources - community pastures, forests, waste lands - are an important form of natural resource endowment in the rural areas of developing countries. Broadly defined, common property resources are those used by an entire community without any exclusive individual ownership or access rights. In the absence of regulatory institutions, rapid population growth may lead to degenerative patterns of use (e.g., overgrazing) and the gradual depletion of common property resources. Indeed, as popularly conceived, depletion of such resources is a straightforward consequence of rapid population growth. Several recent studies have suggested, however, that the impact of rapid population growth on natural resources is not at all straightforward. These studies indicate that the effects of rapid population growth are mediated by institutional factors and often overshadowed by pressures arising from changing market conditions.

This section examines the decline of common property resources in the arid zone of Rajasthan in India and the factors underlying the decline. In Rajasthan, the introduction of land reforms in the 1950s disrupted traditional arrangements that protected and regulated the use of common property resources. Commercialization, population pressure, and large-scale adoption of tractors have played important roles in the resource depletion process; but their impact has greatly magnified by the circumstances created by various provisions of the land reform program. The process of change as it occurred in Rajasthan suggests that well intentioned public programs like land reform can deprive a region of its comparative advantage in a key economic activity (in this case, livestock farming).

Privatization of the land and its resources raises the cost of livestock raising and, hence erodes the region's comparative advantage. The adjustments to the decline in common property in Rajasthan suggest the directions that will characterize the future of livestock farming in the region. The continuing shrinkage and degradation of common property resource is likely to force further reductions in the size of livestock holdings and changes in their composition. This has already happened to some extent, as indicated by the decline in the number of cattle and unproductive animals and the increased emphasis on sheep and buffalo raising. Another likely consequence is increased dependence on stall-feeding of cattle and a greater incidence of seasonal out migration of sheep. However, the lasting consequence of all these changes could be the erosion of comparative advantage that the area enjoys in livestock farming.

Another conclusion from this study relates to the future of common property resources in general. Considering their several advantages - such as promoting the economic activity best suited to the natural resources base of a region, sustaining the rural poor, and ensuring the use of arid lands according to their capabilities - there is a strong case for protecting and developing common property resources. A government strategy along the following lines might reverse these trends: a strict ban on further curtailment of common property resources, achieved by introducing some element of private cost for the users; and designation of common property resources as a source of revenue for the panchayats to induce them to conserve and systematically manage them as productive resources.

Reference

Jodha, N. S., 1985, 'Population Growth and the Decline of Common Property Resources in Rajasthan, India'; Population and Development Review, vol. 11, No. 2; pp. 247-264.

e. Common Resource Management: Forests of Pakistan

One of the most influential studies in the current debates over common resource management continues to be Garrett Hardin's, published in 1968 under the title 'The Tragedy of the Commons'. The basic thesis of this article is that common resources control to over-exploitations because the benefits to each individual of over-exploitation will always exceed the costs. This will occur, Hardin says, even though the individual's benefits are exceeded by the costs of his actions to society as a whole, and even though his benefits will eventually be exceeded by his own costs - assuming all other members of the society follow his example - because each member of society is bound to act both selfishly and independently.

For examining the applicability of Hardin's thesis to the management of common property resources in Pakistan, we will begin by discussing three case studies of the traditional management of such resources, and suggest that they demonstrate a basic limitation in his analysis, namely its inapplicability to traditional as opposed to modernizing societies. Then, we will discuss the role of common property concepts in development planning in Pakistan today, focussing on two social or farm forestry projects. We will argue that problems have arisen due to the difficulties of creating new institutions, as well as to misunderstanding of the functioning of traditional institutions. The answer, we will suggest, is to utilize extant, traditional but still powerful institutions, examples of which include both formal and folk religious beliefs.

(1) Baluchistan (Pakistan)

Nek M. Buzdar (1982) suggests that the system of tribal ownership and management of grazing lands in Baluchistan represents an

adaptation to the local ecology and economy: common ownership enables the tribesmen to take their herds to any part of the tribal territory that has recently received some rain; and it provides economies of scale as well. Thus, this institution maximizes human exploitation of the local environment. There are several tribal institutions that insure that the environment is not overexploited. They are the controlling systems of closing and rotation periods of the range lands, tribal taxation and obligatory social expenditure, the ritual proscription of particular trees or patches of forest, and the subsistence-oriented focus on goats, who deplete the range lands less than sheep which is a more market-oriented animal. He explains that all of these institutions are backed by tribal sanctions, the cost of violating which exceeds the benefits of the violation. However, in the non-traditional tribal areas, where outside influences have made greater penetration, the picture is very different in terms of the tribal control systems; either they are loose or disappearing altogether. He suggests that as a result in this case, individual tribesmen have over-exploited the rangelands.

(2) Rajasthan (India)

N. S. Jodha (1985) have reached conclusions similar to those of Buzdar. He (Jodha) says in the arid region of Rajasthan which is inhabited by tribal herdsmen, the livestock themselves represent an adaptation by their mobility to the perennial threat of severe but localized droughts. He argues that the mobility of the livestock is ensured by the tribal institution of common ownership of rangelands which allows the tribesmen to take their herds to whatever part of the tribal territory most recently received some rain. Then, he analyses the impact on this setting of recent government instigated land reform, which involved breaking the tribal rangelands down to individual family-held sections. As a result of this reform, he observes that land is becoming concentrated in the hands of the wealthy few, being over-exploited, and consequently deteriorating; and the average size of the herds is declining in the area.

(3) Swat (Pakistan)

In his classic study of the tribal politics of the Swat Pathans, Frederick Barth (1959) offered a few observations on the local system of land tenure that are relevant to the current discussion. Specifically, he noted that in the past individual Pathan did not own land per se, rather they each owned a particular number of 'brakha' or 'shares' in the overall landed estate of their descent group. Under the terms of the traditional system, every 5 to 10 years the shares were rotated among the members of the descent group. But in the 1920s, the ruler ('Wali') of Swat 'froze' the rotation as it happened to be at the time, and no further rotations have occurred since.

This system of land tenure arguably had a number of different functions. At the most superficial level, it minimized conflict

within the descent group over use of the choicest land, since every descent groups (biradari or qaum) eventually got to use every section of the group's land. At another level, the system helped to maintain the integrity of the descent group, by periodically severing, during the periodic rotation of land sections - all ties between the Pathan landlord and the numerically superior but politically inferior non-Pathan tenants who resided on and worked each section of land of more relevance to the current discussion, however, the system of rotation arguably helped to maintain an optimum population - Land balance, by 'randomizing' the distribution of Pathan families - regardless of size or agricultural predilection - over the landscape and hence over time equalizing their impact on the environment. However, not all of the consequences of this system were benign, for example, Barth (1959, p.66) himself noted that it was not conducive, for obvious reasons, to the planting of tree crops.

(4) Analysis

These case studies of systems of common property management seem to disprove Hardin's thesis. However, note that each one of these systems is supported by strong, traditional tribal sanctions. In contrast, the setting in which Hardin's 'tragedy' takes place is one without sanctions. It is precisely the way people behave, when they have to answer to no one else, that leads to the tragedy of which he speaks. Both Buzdar and Jodha present evidence showing that when the; traditional institutions for common property management are removed, the people involved abandon the balanced use of their natural resources and begin to over-exploit and indeed destroy them.

(5) Forestry Development Projects

Two projects will be discussed to illustrate the current view of common property resources in development circles. One is the World Bank's 'Azad Kashmir Hill Farming Technical Development Project' carried out between 1979 and 1983, and the other is USAID's 'Forestry Planning and Development Project' for Pakistan that began in 1985.

(a) The World Bank Project (Azad Kashmir)

This project comprised several components, one of which was a forestry program designed to address problems of deforestation, environmental degradation, and a shortage of fuelwood. The forestry operations focussed on village 'shamlat' lands in the expectation that the benefits provided would thereby accrue largely to the village 'poor'. In fact, as soon as the shamlat lands were planted with trees, the wealthier villagers began to claim that the land and therefore the newly planted trees belonged to them, not to the village as a whole; much less to the village poor people. It was concluded later that the designers of the project had erred in their initial perception of the shamlat lands. Whereas they had

been told by government officers that these lands were community lands, and whereas these lands did indeed belong to the village as a whole at some point in the past, it was argued that had since come to belong to certain individual villagers, through a gradual process that was supported by changes in government regulations, on a de facto if not de jure basis. On the basis of this mid-project evaluation (Michael Cernea: 1985), the focus of the tree planting efforts was shifted from shamlat lands to private lands held by single families.

(b) The USAID Project (Pakistan)

Mainly based on lessons learned from the World Bank project in Azad Kashmir, the USAID's 'Forestry Planning and Development Project' is currently underway in Pakistan. One of the principal aims of this project is to encourage the rural population to plant trees for use as fuel and fodder. These efforts are almost exclusively targeted on the private holdings of individual farm families. Community lands a specifically excluded from these efforts (although 'extended family's lands are not).

(c) Analysis

The planting of trees on the 'shamlat' lands resulted in a change in their status, a change that the wealthier and more influential farmers were able to take advantage of the principle involved here, namely that planting a tree on a piece of land can change its status, is of course a well-known one, and has been used and abused by farmers and foresters alike all over the world. The failure to anticipate and provide for this in advance was more likely due to two problems. The first problem is that of creating a new institution, which is a challenge that is best avoided wherever possible. There are numerous examples of institutions for common management of resources that have 'evolved traditionally' and that work beautifully; there are very few examples of institutions created by development planners for the same purpose that have not failed utterly, of which the notoriously unproductive 'communal farm' is just of the better known example. The second problem is that in creating the new institution, something crucial was left out: the need for sanctions against behavior that maximizes the short-term good of the individual to the detriment of the long-term good of the society. Prior to the world Bank project in Azad Kashmir, the village poor were in fact able to make some use of the shamlat lands. A variety of traditional institutions served to prevent the wealthier and more influential villagers from using these lands completely for their own benefits. The wealthy welcomed the World Bank project,thus, as a way of circumventing these traditional institutions, while attaching minimal blame to themselves.

(5) Recommendations

In all efforts to create new institutions for the management of common property resources in the developing world, therefore,

the target population is likely to have no less need of positively motivated sanctions than any similar population in the world. Moreover, any attempt to create new institutions is always less likely to succeed than attempts to simply make use of extant traditional institutions. Accordingly, Buzdar (1982, p.113-114) recommends that new institutions for managing the Baluchistan rangelands be created, based on the traditional institutions of cooperation and constraint. The problem with such a recommendation, of course, is that the traditional institutions are almost all local level ones; whereas social powers of sanction are increasingly being transferred to the national level of the state. There may be a solution to this problem, but in the meantime there is still one source of local level sanctions that has rarely been appropriated by the central governments of the developing nations states, namely the 'religion'. The threat of supernatural sanctions has helped to support traditional institutions for managing natural resources all over the world. For example, in many parts of the tropics the only remaining stands of healthy forest were those whose exploitation was prescribed by local ritual taboo or religious doctrine. A similar example of this was noted by Buzdar relating to the ritual proscription of exploitation of certain patches of vegetation in the rangelands of Baluchistan, that is considered as a conservative function. Another example from Pakistan is the widely observed proscription against exploiting vegetation around graveyards and holy shrines.

Reference

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Note: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library.

FOREST SOCIOLOGY

Lecture 12

TEACHER'S OUTLINE

Section C: SOCIAL AND FARM FORESTRY

Chapter 8: TREES AND CROPS: Case Studies

a. Farmers' Perceptions of Tree-Crop Proximity (Thailand)

a) Agricultural lands capes result from the natural characteristics of an area, such as terrain, climate, soil and natural vegetation; and from effects of human actions, both intended and unintended. The study of both sets of factors is well developed, and influences scientists, business operators, government officials and farmers alike.

b) Physical conditions alone cannot fully explain the existence of trees in the paddy fields (Northeast Thailand) in the number they are observed. In the paddy field environment, it is people themselves who determine whether new trees will be planted, existing trees will be removed, or seedlings will be protected, transplanted or destroyed. The farmer chooses the trees he wants to keep or plant and eliminates those he does not want, depending on his assessment of the requirements of the paddy field and the use he plans for the trees.

c) Shade: One of the primary uses of trees in paddy fields is 'shade' for humans and livestock. Grass growth under tree cover is longer lasting that helps livestock survive in the dry season. Whenever rice is not growing in the fields, livestock spend much of their time under trees and thus deposit most of their dung there. Too much shade is considered by farmers to have negative effects on the rice crop. However, some degree of tree cover is considered beneficial to the crop in severe weather conditions.

d) Many tree species, both natural and planted ones, are sources of food and fruit for humans, fodder for livestock and medicines for both. Moreover, trees in paddy fields provide habitats for wildlife, both useful and harmful.

e) Wood: These trees provide major lumber, small timber and fuelwood for domestic use as well as for sale by the farmers, thereby fulfilling their subsistence and cash needs.

f) Litter fall: Leaves and twigs falling from trees into rice paddies may have important relationship with rice field

ecology. Trees may be acting as 'nutrient pumps', their roots tapping nutrient sources from far below the levels of crop roots.

g) Roots: The tree root system helps hold the field dikes, particularly in the soils that have low clay content, as is common in the Northeast Thailand. But these roots also create difficulty in ploughing the fields.

g) These trees generally seem to be at home in the biophysical, but human managed, environment of the Northeastern Thailand paddy fields. The farmers value them so much that they make sacrifices in terms of land, rice production and labor, in order to maintain and plant trees in paddy areas.

i) No doubt, technical strategies and solutions to biophysical protection and development problems are of utmost importance, but at the same time, social organizational and extension techniques need also to be utilized because, after all, tree planting, maintaining, harvesting and using are but essentially human management matters.

b. The Farming Systems Research Approach to Agroforestry (India)

a) Traditional agricultural systems in many cases are adaptations to local social and ecological conditions which have proven to be productive and sustainable over long periods of time. The application of a holistic perspective can be an important tool for bringing together technical and human elements for the generation of new technology or the improvement of existing systems.

b) Farming system Research (FSR) in fundamentally a location specific methodology for understanding and dealing with the agricultural system, both biophysical and socio-economic, as a whole with all the factors interwoven. The obvious implication is that what might work in one environment or system will not work necessarily in another.

c) There is much to be learned about how resources are combined in traditional systems that have practical value for research directed to increasing production under their particular conditions. The associations and relationships of the biophysical elements that have been brought into being by farmers often hold keys to solutions that cannot be discovered through the 'a priori' assumptions and methodologies of conventional on-station disciplinary research.

d) Recently, an FSR project was launched in Rajasthan to understand the system as a whole and improve the condition by mixing indigenous and scientific technologies. The project was designed to provide: (i) a technical and socioeconomic

baseline study of the agricultural system that would be of use in future research programs, (ii) linkages between on-station research and off-station agricultural conditions, and (iii) farm level sites for adaptive trials and demonstrations under a variety of conditions.

e) In Sikar District (Rajasthan), expansion on previously uncultivated lands entails the loss of village common lands used for pasture, fodder and fuelwood. Common lands are highly degraded from uncontrolled tree felling and over grazing due to population pressure. The new socio-political arrangements on one hand have freed people from the old feudal order but have also effectively destroyed traditional institutional control at the local level over common resources.

f) While the trials and demonstrations had their value, the most significant findings of the project came from enquiry into how farmers combine their resources and separate farm activities into a system; an indigenous agroforestry system incorporating trees on crop lands. The basic outline of this system are a number of associations and interdependencies between trees, field crops and animal husbandry that are also linked to fuel and timber concerns. Trees, crops and animals are a tripod which farmers have adapted to the fluctuations in their environment with trees serving as the stabilizing element for both crops and livestock.

g) The 'Khejri' (a local tree) is ever green with heavy shading, adds organic matter and nitrogen to soil, deep roots do not compete for moisture with crops, shade reduces soil temperatures and the canopy acts like an umbrella to protect the crop; all these encourage crop growth and yield (pearl millet). However, regarding its negative effects, it attracts birds and hosts or encourages several insects and pests (both beneficial and destructive to the crop) and hinders farm mechanization. It does not compete for labor with agricultural operations and produces beans used as a vegetable in the dry hot season, leaves as fodder for livestock, and twigs for use as firewood.

h) Population increase, institutional changes affecting natural resource use, and the linkage to wider markets all push for the intensification of production. When sufficient quantities of fuel and fodder are no longer available from common lands then attention turns to trees on one's own land. Farmers also realize the direct benefits to crops and are encouraging 'Khejri' on that account as well. In fact, farmers are reinterpreting and integrating trees into their farming to enhance their personal resource base and intensify the production of crops, fuel, fodder and timber. In the process they are also decreasing the risk of degrading their own land.

i) The conventional research sees crops as separate from animals and separate from trees. While silvo-pastoralism comes out ahead in terms of monetary return, the examination of tree-crop combinations is barely considered. Thus, it is suggested that the interdisciplinary team approach to agricultural and forestry research would permit inclusion of anthropological and sociological methodologies for the detection of existing systems which may be objects of investigation for the improvement or further propagation.

c. **Replanting Trees in Improved Water Management Areas (Pakistan)**

a) Trees along the water channels and fields are considered to cause water loss in irrigated areas. Thus, the water management improvement program in the country has been forcing farmers to remove trees from the watercourses planned for rehabilitation. Consequently, irrigation water is saved for the crops but at the same time an important resource of trees is reduced.

b) Both the programs, watercourse improvement and tree planting, are being run by the same government. While one department is planting trees, the other is removing them and there has so far been little coordination between the two. Hundreds of thousands of trees have been removed in the country but sadly enough that no organized efforts have so far been made by the government to replace those trees. Something needs to be done to remake for the loss.

c) There are many opportunities for replacing the removed trees at strategic locations that in turn would meet the farmers' needs and also fulfill the requirements of the watercourse improvement program. That is to say, to bring about a 'compromise' between the two conflicting ends. What if trees are grown in such a way that they do not hurt crops.

d) It is proposed that the concerned agencies with water management, agricultural extension and research and tree growing (farm forestry and horticulture) sit together to come up with a collaborative workplan, at least for experimentation. Such experiments should be carried out on various land and soil types, locations along the watercourses and field boundaries, species and spacing variables of the trees least competing with or harmful to crops.

e) Any activity that involves participation of the beneficiaries (such as farmers) has to be based on a 'participatory approach', if it is expected to succeed. The 'participatory approach' is a middle range point between the traditional bureaucratic-technocratic 'top-down' and the revolutionary 'bottom-up' approaches. That is, development of people 'with' the people and 'for' the people. In simpler words, to bring

about a change or development in a society, the beneficiaries or people involved must be invited to participate fully in planning, decision making, implementation throughout, and monitoring and evaluation of the project undertaken. Ignoring them by considering that they are just 'recipients' of the benefits, has often been a major factor in the failure of the development projects.

f) Any new idea takes time and a considerable amount of energy to get accepted in the society. The best strategy in experimentation for implementation of a certain development activity is to take along only those people who are willing to join. If the effort moves towards success, others will join because every one likes to be a part of a success. However, never expect 'magic'; the program will move but its speed will be highly dependent on the implementing and beneficiary actors.

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FOREST SOCIOLOGY

Lecture 12

Section C: SOCIAL AND FARM FORESTRY

Chapter 8. TREES AND CROPS: Case Studies

a. Farmer's Perceptions of Tree-Crop Proximity (Thailand)

Agricultural landscapes result from the natural characteristics of an area, such as terrain, climate, soil and native vegetation; and from effects of human action, both intended and unintended. The study of both sets of factors is well developed, and influences scientists, business operators, government officials and farmers alike. The agricultural scientist who works on technologies for growing rice, for example, has a basic idea about what a rice paddy is and how it is used or should be used. The presence of trees in rice paddies is not a part of this generally held view, yet a striking feature in Northeast Thailand is the presence of numerous trees in most rice paddy fields. These trees warrant investigation because their presence suggests that significant natural and human causes may be involved. If they are, perhaps agricultural researchers and development workers should consider changes in both the technologies they develop and the way such technologies are assessed. Cost-benefit computations, for example, might need to examine the value of trees compared to the value of extra space and sunlight for rice. In designing tools, such as ploughs, one might take account of the need to get around trunks and roots. Chemicals to be used in rice fields might need to be assessed for their effects on trees. In breeding rice varieties, mild shade tolerance could be desirable characteristic. We cannot even begin to decide whether any such changes might be needed until we begin to study the role of these trees.

Physical conditions alone cannot fully explain the existence of trees in the paddy fields in the numbers they are observed. In the paddy field environment, it is the people themselves who determine whether new trees will be planted, existing trees will be removed, or seedlings will be protected, transplanted or destroyed. It was found through a 'Rapid Rural Appraisal' (RRA) that trees are maintained in Northeastern rice paddies because the perceived net values of maintaining them override those of not having such trees. When paddies are built, trees with high lumber value are retained for various uses, especially for food, medicine, and fodder. Trees are also planted by the field owners, primarily for food, but also for fodder, and various other products and uses. Most planted trees have more than one usage. The mix of naturally occurring trees and planted trees varies widely, as does the mix of species of planted trees and the reasons for planting them. The farmer chooses the trees he wants to keep and eliminates those he does not want, based on his assessment of the requirements of the

paddy field and the uses he plans for the trees. For instance, if shading is too severe, he may cut or prune more trees. He cuts the trees only as fast as wood can be used; while retaining more useful trees in preference to less useful ones. He usually leaves stumps in place until they rot enough to be easily removed.

(a) Shade

One of the primary uses of trees in paddy fields is as 'shade' for humans and livestock. While trees exist in much greater abundance than are needed for this purpose alone, the distribution of trees widely over the paddy fields means shade is never far from human activity. Livestock spend much of their time resting under the trees and a greater percentage of grazing can be done in or near shade, a vital advantage in the dry season when temperatures are highest and water sources upon which buffalo must depend to cool themselves, are largely unavailable. Post wet season grass growth on paddy floors is more dense and has a longer growing season under trees. Livestock can stay in the shade while eating the grass. Grass not under tree cover generally dies out before April during the dry season, but grass under trees sometimes remain green until the rains arrive in May or June. Whenever rice is not growing in the fields, livestock spend much of their time in shade of the trees and thus deposit most of their dung there. It is possible that this has differential effects on both grass and rice.

The negative effects of too much shade are well understood by farmers, and this is the main reason they frequently prune these trees. According to the farmers, too much shade causes rice to grow faster and taller, making it susceptible to lodging. Even if it does not lodge, however, fewer tillers form, and they are less productive, with less grain and less filled grain per panicle. It is possible, however, that some degree of tree cover may even be beneficial for rice there, where due to weather conditions, paddies probably receive more direct solar radiation and have a more fluctuating moisture regain than in other parts of Thailand.

(b) Human Food and Medicines

Many tree species, both naturally occurring and planted, provide human food and medicine. For example, bamboo shoots are an important vegetable; and the lontar palm, a widespread paddy tree, is favorite for sugar, liquor and desserts, as well as a host of non-food utilitarian uses. Many types of fruit and nut trees are also planted in paddy areas. The vast majority of planted trees, and many of the naturally occurring species retained in these paddy fields seem to have food and medicinal uses.

(c) Livestock Fodder

Except during the rice growing season, livestock in many areas can feed directly on tree foliage within their reach in the fields. Where favored foliage is within reach, it is a common dry season sight to see buffalo and cattle virtually mobbing certain trees.

When grazing is more controlled or where leaves are out of reach, human harvest the leaves and feed them to livestock. The volume of such usage is probably quite significant, and its usefulness in livestock production may exceed its nutritional content per se. Farmers indicate that at erotical times tree leaves are mixed with old straw to make straw more palatable to buffalo.

(d) **Fuelwood and Property Aspects of Tree Projects**

Depending on the season and local rules, paddy fields and what is in them are subject to both private and public rights. In many areas, paddy fields not under cropping are open to grazing and other forms of commercial use. While good lumber is probably always private property, access to fuelwood, small branches, and tree leaves seems to vary from area to area, depending on scarcity and value; and planted trees may also be different than naturally occurring trees.

It was found that traditionally no trees were planted specifically or solely for fuelwood, but in several instances this was clearly one of the intended uses. Fuelwood usage allows for a wide range of species substitution so trees are planted for values in addition to their fuelwood value. It is possible, however, that if a species were sufficiently productive for fuelwood only, it might find favor in fuel scarce locations.

(e) Trees as Habitats

Trees in paddy fields provide habitats or partial habitats for a variety of wildlife, both useful and pest species. According to farmers, insects living in the trees are not harmful to rice. The eggs of red ants in the trees are edible, and some of the small reptiles that live in trees are also eaten by the people. In certain areas, roots of paddy trees are partial habitats for rats that harm rice but are caught and eaten and may be important sources of protein at specific times of the year. Perhaps the most widespread population in trees, however, are birds. Many species of birds are hunted and eaten. Many of these wildlife products are also collected for sale. In some areas, however birds are also serious pests in rice paddies.

(f) **Major Lumber**

The vast majority of good lumber trees in paddy fields are naturally occurring, not planted. Lumber usage of trees seems in all areas strictly a manner of private property. Despite their obvious perceived value, however, virtually no trees are being planted for lumber. One farmer said, "if anyone were to give us trees to plant, we would choose fruit trees, not lumber trees". Apparently the high value of the trees is counterbalanced by the long wait before lumber harvest.

(g) Small timber

Trees may be planted to provide materials, tools,and utensils; bamboo is an ideal tree for such purposes. Thorny bamboo makes excellent fencing and protection for water-holes; split bamboo has a wide variety of uses, is durable, and is easier to work with than wood. Similarly, there are many other species that produce small timber for the same or similar uses, including furnishing and packaging.

(h) Litterfall

Leaves and twigs falling from trees into rice paddies may have important relationship with rice field ecology. Trees may be acting as 'nutrient pumps', their roots tapping nutrient sources below the level reached by the roots of rice and other crops. There is some reason to believe, however, that at least some farmers observe or suspect a positive relationship between litterfall and rice growth. This may have to do with mineral nutrient availability, moisture retention, soil structure, or some combination of these and other factors. Farmers sometimes rake and burn heavy litterfalls into the paddy fields, where the ashes help rice crop grow better, but this task is regarded as a bother.

(i) Trees and Paddy Dikes

In many areas of the Northeast Thailand, soils have a low clay content and weak structure, so dikes are very crumbly and quite difficult to keep in shape. A popular tree species in the area, namely 'Ton Sio', is planted extensively on dikes primarily because its dense root structure help hold the dikes; in addition to its fuel and other uses. Two other species, ket (Pandamus sp.) and bamboo are also used for holding the paddy field dikes.

To sum up, these trees generally seem to be at home in the biophysical, but human managed, environment of the Northeastern Thailand rice paddy fields. It was found that trees in paddies are of high perceived value to the farmers for a variety of human purposes - shade, fuel, food, and other uses. The farmers make sacrifices in terms of land, rice production, and labor, in order to maintain and plant trees in paddy areas. It is likely that people will continue to promote trees in paddy areas and in some situations increase their density.

The study (RRA) also produced some fairly specific findings useful to organizations with action and extension activities. Of course, there are technological strategies and solutions to bio-physical protection and development problems, but at the same time social organizational and extension techniques need also to be utilized because, after all, tree planting, maintaining harvesting and using are but essentially human management matters.

Reference

Grandstaff, S. W., et al, 1985, 'Trees in Paddy Fields in Northeast Thailand'; in: Traditional Agriculture in Southeast Asia - A Human Ecology Perspective; G. Martin, edited. Boulder, Colorado: Westview Press.

b. The Farming Systems Research Approach to Agroforestry (India)

The appreciation of indigenous technology is an underlying tenet of Farming systems Research. Traditional agricultural production systems in many cases are adaptations to local social and ecological conditions which have proven to be productive and sustainable over long periods of time. Agricultural science has investigated relatively few farming systems, and as a result the observation and study of undocumented systems may be a necessary prerequisite to the improvement of local systems. The application of a holistic perspective can be an important tool for bringing together technical and human elements for the generation of new technology or the improvement of existing systems. This case study describes a Farming systems project in Rajasthan, India. The project dealt with an arid zone where grain is produced in association with nitrogen fixing trees. The multiple benefits of this association make it unlikely that farmers will change this production system unless major climatic or infrastructural changes occur.

Farming systems Research (FSR) is fundamentally a location specific methodology. Soils, climate, topography, cropping pattern, floral and faunal components form the bio-physical elements of an agricultural system, but even within socalled homogeneous cropping zones the diversity is great due to the variety of associations which can be formed with that set of elements. Furthermore the diversity in the bio-physical dimension is mirrored in the socio-economic arrangements through which the bio-physical ones are organized and acted upon. The obvious implication is that what might work in one environment or system will not work necessarily in another.

A widespread belief among the scientists, is that traditional systems are by definition backward, unproductive and inefficient. Since they are to be changed and replaced through the application of science, there is no need to interact or understand them except at the extension stage. Recommendations and packages of practices are developed on research station and taken to farmers who, rational creatures that they are, will accept the self evident advantages of scientific farming. The basic argument for FSR is to the contrary. There is much to be learned about how resources are combined in traditional systems, in this case dryland rainfed ones that have practical value for research directed to increasing production under such conditions. The associations and relationships of the bio-physical elements that have been brought into being by

farmers often hold keys to solutions that cannot be discovered through the 'a priori' assumptions and methodologies of conventional on-station disciplinary research.

Combined with the bio-physical features, the human element also provides a set of problems unique to the Rajasthan desert. Of all desert zones, Rajasthan has one of highest population densities in the world. The 61% of the state's area that lies west of Aravallis contains 13.39 million people, or 39% of the total population, for an average density of 167 per square miles. Population increase in Western Rajasthan is higher than the rest of the state and exceeds the all-India average as well. Perversely, there is an inverse relationship between population growth and amount of annual rainfall. This population growth exerts increasing pressure on natural resources for food and fuel for humans and fodder for an animal population increasing at a faster rate than the human population. Intensification of production is the inevitable result, through bringing more marginal lands into production, the use of shorter fallows, and the extraction of resources from common lands that leads to deforestation and pasture degradation. The problem, that is also the crisis, is how to meet these demands without further degrading the environment.

Recently an FSR project was launched in Rajasthan to understand the system as a whole and improve the condition by mixing indigenous and scientific technologies. The project was designed to provide: a) a technical and socioeconomic baseline study of the agricultural system in Sikar District that would be of use in future research programs, b) linkages between on-station research and off-station agricultural conditions, and c) farm level sites for adaptive trials and demonstrations under a variety of conditions. Attention was focussed on pearl millet and its place in the farming system of the field work area. The purpose of the baseline study was to provide a descriptive analysis of predominantly rainfed pearl millet agriculture to identify major agricultural features, associations, and problem domains for research planned for that region. A few years prior to the project the local university had received the mandate for all agricultural research in the state, and took over research facilities and moved into regions previously under the jurisdiction of the State Department of Agriculture. Although a research station was planned for the district, the program did not provide for off-station investigation. The lack of such linkages was seen as a lacuna by the scientists with whom the project was to work. Research scientists generally have few direct links to the agricultural systems for which their work is conducted. The flow of information from the field into the research process is indirect from the state extension services to the directors of research and extension and then to the scientists. Most scientists, unless they happen to come from farm backgrounds in the same region, have little notion of agriculture as practiced off-station. Furthermore they have little opportunity or encouragement to get off-station and if they do, few contacts to approach at the farm level.

Sikar District has a number of social features significant for agriculture and the farming systems practiced there. Historically the district was linked to the former princely state of Jaipur and until the 1950s was ruled and administered by a feudal regime that at the local level took the form of lords controlling all aspects of land and natural resources use. As with the rest Rajasthan after Indian Independence in 1947, Sikar underwent a series of politico-administrative and land reforms into the 1960s. These reorganized and integrated the various princely states into the Indian Union, conferred land ownership on former peasant tenants, and formed elected village councils as the lowest level of democratic institutions to govern village affairs, including common lands. A concomitant change has been the demise of localized systems of subsistence production, exchange, and consumption based on patron-client structures with the inroads of commercial markets, modern transportation and closer links with wider state and national institutions. Demographic changes have occurred as well. The district as a whole has had a slightly more than 100% increase in population from 1951 to 1981. Rural densities, while not high by Indian standards, run from 238 per square mile in the dry northwest to 487 in the irrigated tracts. These changes have implications for agriculture, natural resource use, and the strategies people pursue in making a living from the land. Given the fragile ecology, a decreasing 'per capita' land base, and increased demand for agricultural products from both local and national markets, attempts at intensification are inevitable but also run the risk of ecological degradation. Irrigation is the most resource enhancing of intensification techniques but given the water quality and depth, and capital and power constraints, it is possible only in limited areas. Expansion on previously unculti-vated lands entails the loss of village common lands used for pasture, fodder and fuelwood. Common lands are highly degraded from uncontrolled tree felling and overgrazing due to population pressure. The new socio-political arrangements on one hand have freed people from the old feudal order but have also effectively destroyed traditional institutional control at the local level over common resources.

While the trials and demonstrations had their value, the most significant findings of the project came from enquiry into how farmers combine their resources and separate farm activities into a system. What was discovered was an indigenous agroforestry system incorporating trees on crop land, under rainfed conditions. The basic outline of this system are a number of associations and interdependencies between trees, field crops, and animal husbandry that are also linked to fuel and timber concerns. Trees, crops and animals are a tripod which farmers have adapted to the fluctuations in their environment with trees serving as the stabilizing element for both crops and livestock. The spread and development of this system also allows for the intensification of production on a long term sustainable basis. The most important tree, and the most numerous perhaps as a result of social selection, is a native mesquite (Prosopis cineraria) locally called 'Khejri'. A common observation by both farmers and agricultural scientists is that

crop stands and yields are better under and around the Khejri canopy than out in the open. Possible, and highly researchable, reasons for why this happens are many. The Khejri is evergreen and leguminous with heaviest shading of leaves during the summer before the 'kharif' season. This adds organic material and nitrogen to the soil. The deep root system does not compete for moisture with crops in their root zones. Shade reduces soil temperatures and conserves moisture, both problems for crop germination in sandy soils. Later in the growth cycle this micro-environment protects against heat and moisture stresses that inhibit photosynthetic activity in the crops. The canopy acts as an umbrella, protecting pearl millet seedlings from heavy cloudbursts shortly after emergence. The Khejri also provides protection against the desiccating dry winds near the end of the kharif season.

However, there are some possible problems with these associations. Trees attract birds that may damage crops although they may also attract beneficial ones. The khejri is a preferred host of the adult white grub beetle. The shaded micro-environment may increase soil pathogens and insects that would be neutralized by the baking action of the sun during the hot season. Mechanization of the field operations is problematic since trees are volunteers and appear in random pattern. The khejri is slow growing and its seedlings are particularly susceptible to livestock grazing. Given the long maturation period it is less attractive in comparison to some exotic species that have been introduced for fodder purposes.

The khejri is managed and harvested like a crop,the activities and sequencing of which are neatly integrated with farm operations, labor availability, animal and human needs, and natural cycles. First, the random spacing of trees presents no difficulty for animal powered operations. Draught animals, usually water-buffalo and camels, are yoked singly and can plough straight tight furrows through a thick stand with ease. Second, beans like pods are produced during the hot pre-monsoon season when vegetables are scarce. The young tender beans are a supplementary and free vegetable particularly for the poor. Third, harvest occurs after kharif is over. This creates an extra month to month and a half of employment and wage labor during an otherwise slack season, particularly where a second crop is not taken. Fourth, the khejri is harvested by lopping its leaf bearing branches. These are dried and the leaves beaten off. The leaves are slightly less nutritious than 'alfalfa' and coincidently their crude protein is highest during the cool season, the time of harvest, during November and December. Fifth, the woody lopping are used as a domestic fuel and for other purposes such as firming bricks. This frees animal dung from use as a fuel, allowing most to go into compost. Sixth, management practices dovetail with agro-meteorological cycles for the two cropping seasons. This is significant if a winter 'rabi' crop is taken. The removal of the canopy opens the area to warmth and solar radiation during the cool winter season when it is needed. In any event an assured source of seed is associated with religious practices. Shrines to field gods found on most farmers' fields are

always shaded by a khejri, which is never lopped or cut. Moreover, a mature tree can bring several hundred rupees as fire-wood when the need for cash is immediate. Farmers practicing rainfed agriculture do report, however, that they now have more trees than previously, and they want more. The apparent increase of agroforestry also appears linked to the social changes that have occurred over the past thirty or forty years. Population increase, institutional changes affecting natural resource use, and the linkage to wider markets all push for the intensification of production. However, the way in which the agroforestry has come into its own is through a rather circuitous route. It appears to be a private response initially to the ecological degradation and/or disappearance of village common lands, the major traditional source of fuel and fodder. If sufficient quantities are no longer available from common lands then attention turns to tree resources on one's own land. Farmers also realize the direct benefits to crops and are encouraging the khejri on that account as well. In fact, farmers are reinterpreting and integrating trees into their rainfed farming to enhance their personal resource base and intensify the production of crops, fuel, fodder, and timber. In the process they are also decreasing the risk of degrading their land.

The Farming Systems Methodology, the off-station environment sets the parameters within which 'solutions to problems' are to be found. This is particularly important where targeted production systems are relatively unknown, unfamiliar, or not fully understood. The understanding of off-station parameters brings to the fore some rather crucial relationships and processes that would otherwise go unnoticed in conventional disciplinary enquiry confined to the experiment station. Conventional research sees crops as separate from animals and separate from trees. In fact most literature on the khejri recommends that it be grown on waste and uncultivated land. Furthermore the dichotomy between trees and field crops is a pervasive one that on the face of things appears to follow common sense

While silvo-pastoralism comes out ahead in terms of monetary return, the examination of tree-crop combinations is barely considered. Thus, it is suggested that the interdisciplinary team approach to agricultural and forestry research would permit the inclusion of anthropological and sociological methodologies for the detection of existing systems which may be objects of investigation for the improvement or further propagation.

Reference

Michie, Barry H., 1986, 'Indigenous Technology and Farming Systems Research: Agroforestry in the Indian Desert'; in : Social Science and Farming System Research, J. R. Jones and B. J. Wallace eds., pp.221-244. Boulder, Colorado: Westview Press.

c. Replanting Trees in Improved Water Management Areas (Pakistan)

(1) Irrigation Water Versus Trees

Several experiments in the past by various organizations including those of WAPDA at the Mona Reclamation Project (Bhalwal) revealed that a considerable amount (30%-40%) of irrigation water gets wasted in the farm-level channels, i.e., watercourses and field-ditches. Besides worn out banks and silted beds for lack of maintenance, these water losses were also attributed to the existence of vegetation on these channels.

The trees and shrubs, compete with crops in water consumption and the roots injure the water channels causing water seepage and leakage. Loss of water from the channels, while causing ponding and waterlogging problems in the adjoining lands, creates a severe problem of water shortage for the downstream farmlands. Thus, a situation of imbalanced supply of irrigation water occurs that damages the crops. Further, shade of trees effects crop growth negatively and their roots cause difficulty for farmers in ploughing the fields.

Thus, under the late 1970s' On-Farm Water Management (Pilot) Project (OFWM) that was later expanded nationwide, and the recently launched Command Water Management Project (CWM), tree removal was made an essential activity in the improvement of watercourses. That is, farmers willing to improve their watercourse are required to clear all trees from its banks before they can qualify for any technical and financial assistance from the government. No doubt, removal of trees from the watercourses has resulted in saving water from crops but at the same time farmers have lost a considerable part of an important resource. Though trees cannot compete with food and fibre crops and hence with irrigation water, yet they have a great importance in agrarian rural life in the country, for some of the following major benefits:

i. Tree leaves are used as fodder for livestock and spread in fields for increasing organic matter in the soils.

ii. Twigs are used in basketry and roofing of huts and houses.

iii. They produce fruits for consumption and marketing.

iv. Their wood is utilized in making agricultural implements, indigenous furniture and housing; burning as fuel; and selling for the household or farm needs.

v. They provide soothing shade to the farm-workers and livestock alike in the burning hot summers.

vi. They purify air by releasing oxygen and consuming carbon dioxide.

vii. They increase probability of precipitation in the environment that provides more water and cleaner atmosphere.

viii. Finally, some farmers have emotional (ancestral) attachment with trees that may at times surpass all other benefits.

The objective of water management programs through watercourse improvement is to save and utilize each drop of water to increase agricultural productivity. Farmers do resist or at least delay removal of their trees to a large extent. But sooner or later, they have to sacrifice the trees to fulfill the official requirement for improving their watercourse. Do they keep the watercourse banks clear by removing the resprouted twigs later on? Or, do they even really believe that vegetation is injurious to the watercourse civil works, effecting the water conveyance efficiency or reducing the water? These and similar questions need empirical evidence to answer. But such questions would fall an outskirts of the scope of this proposal.

Here what we need to ask ourselves, is the overall cost-benefit ratio of the renewal or replanting of trees and its long-term effect on the farming communities. To the farmers, trees are an asset: part of their living and a commodity to sell in bad times. Therefore, they still grow trees wherever they can and take care of them in a similar way as they do of their crops and livestock. Some of them also obtain assistance from the government (Forestry and Horticulture departments), particularly for growing fruit orchards. The government also has various programs for promoting tree planting in the country. Both the programs, water course improvement and tree planting, are being run by the same federal and provincial governments. While one department is planting trees, the other is removing them and there has so far been very little collaboration or even coordination between the two. Since the beginning of the watercourse improvement programs in 1970s, hundreds of thousands of trees have been removed and this practice is still going on. But it is sad to say that no organized effort has so far been made by the government to replace those trees. No doubt, those trees were injurious to the watercourses and agricultural crops and their removal may have been necessary. But still it is a loss and something needs to be done to recover this loss.

(2) A proposal for Tree Planting

There are many opportunities for replacing the removed trees at strategic locations that in turn would meet the needs of the farmers and also fulfil the requirements of the watercourse improvement program. That is to say, to bring about a 'compromise' between the two conflicting ends. This compromise is needed because crops, water and trees are all valuable resources to farmers and to the nation as a whole. What if trees are grown in such a way that they do not hurt crops?

The scope of the on-going CWM project is far broader than the ordinary watercourse improvement program. It is designed with some built-in flexibility to achieve the final goal of increased productivity of land-with-water. How about trying to replant trees in the command areas of some watercourses in the CWM subproject areas? This is a good opportunity to avail for learning and trying to optimize utilization of the two most valuable resources, namely, land and water.

Accordingly, it is proposed that the concerned agencies with water management, agricultural extension and research, and tree growing ones (farm forestry and horticulture) sit together to come up with a collaborative workplan, at least, for experimentation. The CWM subproject areas may be considered as most suitable sites for initiation of such an activity.

Some field level considerations and strategies are suggested hereunder for use in the discussions and the proposed workplan:

a) The highest priority should still be given to food and fibre crops and their rights in the use of land, water and other resources be safeguarded. That is, good soils that are under such crops or have a potential for them should be avoided. However, field boundaries of such fields may be considered for planting trees, preferably, the less shady ones. But the lands that are not very good for crops, for one or the other reason, may be utilized for growing trees. Particularly, the water-logged and/or saline lands, or those that are elevated, can best be utilized in this way; but it would need a careful selection of the species, e.g. salt or drought resistant ones.

b) Similarly, the watercourse bed and banks, a strip of 10 to 12 feet, will have to be avoided. The trees may, however, be planted along outer margins of the watercourse strip limits. This may prove to be a very risky and tricky matter to implement. The adjoining farmers may tend to plant trees inwards to the watercourse banks. Unless the planting work is strictly supervised, this pursuit is likely to create a serious problem for the implementers and conflict among the farmers. Moreover, some farmers may not like the idea because the trees may cover part of their farmland and damage some of their crop by shading it. Here again, less shady species of trees should be preferred, with the farmer's approval.

c) Keeping in view the above two strategies, a general policy should be made that the number of trees removed from a certain watercourse must be replaced at least within the same command area. This will lessen the shock of loss among the farmers and they would be more willing to remove trees from the watercourse whether for initiating improvement or for the routine maintenance because they will get a hope of having trees shortly on their lands to compensate for the removed ones. This policy may also serve as a fairly effective motivation to the farmers for better operation and maintenance of the watercourse.

d) To implement the above suggested activities, a good quality and quantity of evidence would be needed. In today's scientific world, nothing can be done blindly without any empirical evidence. Certainly, people involved in research and extension of forestry and horticulture may have identified certain species that compete least with crops in the use of land and water. But these findings may not suffice when put in the context of the water management program. A lot more research is needed before 'tree-replacement' can be recommended for replication onto an expanded area. The agencies that are involved in research on forestry and horticulture should be asked to lay some experimental demonstrations in collaboration with the water management teams. They should monitor and evaluate these plantations collectively for a number of years to come up with certain final recommendations for extension of the program. Some experiments for this purpose are suggested below:

e) Experimentation of Species:

i. Field Boundaries: Certain species of trees that are less shady and least competing with crops in the use of land and water be tested on some field boundaries.

ii. Poor Soils: Species that can be grown in poor soils for crops with higher cultural or economic return be tested on such soils.

iii. Waterlogged/saline Lands: Species that are water intensive as well as salt resistant be tried on such lands.

f) Experimentation along Water Channels:

Experiments may also be put along water channels (but on outer margins) to better understand the actual interactions and the overall economic benefit/loss of planting trees there. Suggested variables for such an experiment are:

i. Species of trees
ii. Spacing of trees (distance from tree to tree).
iii. Distance of trees from the water channel (e.g. watercourse or field channel).

(3) A Note on Farmer Participation

Since all the above activities of tree planting will be carried out on the farmers' land and with their involvement, they must be contacted well in advance for their active participation in the program. Any activity that involves beneficiaries participation has to be based on a 'participatory approach' if it is expected to succeed. The 'participatory approach' is the middle range point of the traditional bureaucratic-technocratic 'top-down' and the revolutionary "bottom-up" approaches. That is, development of people 'with' the people and 'for' the people. In simpler words,

to bring about a change/development in a society, the beneficiaries or people involved must be invited to participate fully in planning, decision-making, implementation throughout and monitoring and evaluation of the project undertaken. Ignoring the beneficiary people by considering them only as "recipients" has often been a major factor in the failure of the development projects.

Thus, farmers must be consulted as equal partners in finalizing the idea, site and location selection and species and spacing determination. It is understood that all the farmers will not agree at once. Any new idea takes time and a considerable amount of energy to get accepted in the society. The best strategy in experimentation for implementation of a certain development effort is to take along only those who are willing to join. If the effort moves towards success, others will join because everyone likes to be part of a success.

This writer has already discussed this matter with a number of farmers in the CWM subproject areas and some local and expatriate experts. The overall response tends to be more positive. Therefore, it is hoped that if this proposal is accepted and something is done really in the field, the program is more likely to succeed. However, never expect 'magic'; the program will move but its speed will be highly dependent on the implementing and the beneficiary actors. Let's try and see!

Reference

Niazi, M. Iqbal A., January 1988, 'Replanting Trees in the Command Water Management Project Areas in Pakistan: A proposal'. Islamabad: USAID Office of Agriculture and Rural Development. (This document has been reproduced here almost entirely).

Note: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library.

FOREST SOCIOLOGY

Lecture 13

TEACHER'S OUTLINE

Section C: SOCIAL AND FARM FORESTRY

Chapter 9. SOCIAL FORESTRY DEVELOPMENT: Case Studies

a. Socio-Economic Constraints in Tree Planting in Homesteads (Kerala, India)

a) Farm Forestry, or the cultivation of trees in close association with agricultural crops, is a major aspect of the social forestry program being implemented in India. Supply of seedlings of selected species and providing necessary know-how on planting and tending trees have been the main focus of the program.

b) Acceptance of such technological packages, however, depends on a number of social and economic factors, extending far beyond the simple cost-benefit calculations. Land allocation among the different components in the farming system - food crops, cash crops, tree crops, livestock, etc. - is primarily determined by a complex of social, economic and cultural factors.

c) In Kerala, typically, homegardens are used for cultivation of perennial crops like coconut, arecanut, rubber, pepper and seasonal and annual crops like pulses, black gram, banana, tubers and vegetables. In addition, a number of trees are also grown along the boundaries or in intimate mixtures with agricultural crops.

d) Two factors have been primarily responsible for a reduction in the size of holdings in Kerala (i) the growth of population and the decline of joint family system; and (ii) the implementation of land reforms, involving fixing a ceiling on the size of holding and assignment of excess land to the landless.

e) Smaller holdings are generally more intensively cultivated than large and very large holdings. As the size of the holding declines, there is a marked increase in the number of trees per hectare. Two factors seem to be responsible for this: (i) the better utilization of the vertical space to enable both trees and agricultural crops to grow to a certain limit;and (ii) most of the tree crops cultivated have multiple uses and they form an integral part of the farming system.

f) While a large production of trees in the smaller holdings consists of multiple use species, the larger holdings have a higher proportion of timber species. Thus, a reduction in

the size of holding has led to an intensification of cultivation and this has resulted in the replacement of miscellaneous tree species having no direct benefits with those of multiple use species.

g) Economic and social compulsions force some of the low income households to sell land and this immediately brings about a conspicuous change in the land use pattern. Most of the purchasers resort to commercial cultivation of cash crops, relying heavily on purchased inputs. Tree crops cease to be of any relevance to the new owners, unless they are able to command high market prices. If tree crops are grown at all, they are usually of short rotation and aimed at meeting specific market demands.

h) Pauperization of some of the small holders, who continue to rely upon agriculture on account of their inability to find suitable employment openings in other sectors, leads often to distress land sales and migration of sellers to the highland region for encroachment in the forest; the whole cycle is then repeated.

i) Social forestry should try to preserve and improve the homegarden system by protecting it from the instability of the market prices. Current social forestry programs, which see trees in isolation from the whole system, are not geared to achieve this. A better understanding of the dynamics of the homegarden system is essential to formulate ecologically sound,economically appropriate, and socially relevant farm forestry programs.

b. Social Forestry and Other Tree Planting Schemes

a) 'Farm forestry' usually implies individuals growing trees on private land. 'Social forestry' on the other hand implies the planting of trees for meeting the needs (fuel and fodder) of the rural people, usually through the use of government or communal land, under government or communal management. Such tree planting when undertaken by the community (on communal land) is also termed as 'Community Forestry'.

b) While farm forestry has had a limited degree of success in some parts of the Third World, social forestry with very few exceptions has been a failure in most countries. In many instances, these schemes have been actively opposed by the people. In other instances, a passive resistance to schemes is apparent in the poor success of most government-promoted, community self-help projects.

c) Many of the schemes where the government have directly taken charge of tree planting have been introduced in opposition to the wishes of the people rather than with the support of people. Essentially, these projects undertaken in the name of

social forestry provide no guarantee that the benefits will flow to the people. This absence of surety also underlies the failure of most of the so-called community forestry schemes.

d) Traditionally the forestry department has been tree-oriented and not people-oriented; and although now the officials accept that community forestry is 'for the people', they are still far from saying that it is 'by the people'. There is a tendency too of the forestry officials to 'decide what we should do for them', while the voluntary agency approach is 'the community decides what is good for them and we help them in doing it'. These problems and even hostility stem not only from the land use policy but also from the attitudes and practices of the forest officials.

e) The two best known examples of social forestry that may be termed successful on a country-wide basis, and not just in isolated schemes, are South Korea and China, in both of which the schemes were introduced within relatively egalitarian agrarian structures brought about by radical agrarian reforms undertaken in the 1950s. In South Korea, the Village Forest Associations (VFAs); and in China, a strong political commitment by the government to the local institutions have been the major factors in bringing about such a success.

f) In fact, the social and farm forestry schemes can have several dangerous social consequences. The shift of fertile land from food to commercial wood production will: (i) reduce the availability of food and fibre in the country; (ii) reduce employment because tree production is less labor intensive; (iii) be ecologically destructive where the trees planted are fast-growing species noted to deplete the soil of nutrients and water; and (iv) have a particularly adverse effect on the poor due to lower employment opportunities, faster rising food prices and less excess to crop waste for fuel. In short, farm forestry is not only unlikely to solve the problem of woodfuel shortages but will likely accentuate the crisis for the poor.

c. The Social Forestry Program Change in India

a) Set up to alleviate a perceived crisis in fuelwood, the social forestry programs in India have recently come under increasing criticism for failing to realize their primary objective of producing fuelwood for domestic use, even while becoming successful in growing trees. Those participating in the programs - mainly big farmers - are instead growing trees for commercial uses as poles and timber.

b) It is argued that, while it is true that the motivations of rural people participating in social forestry are indeed different from those of national level planners, the program is far from a failure. Rather, planners should expand the purpose of the program to take local needs and wants into

account. Even though the project has already been launched, but there is nothing wrong with mid-course adjustments in a development project, rather than getting embarrassed. Thus, social forestry offers a splendid opportunity for such an 'adaptive development administration' approach.

c) In addition to involving local people in project design and redesign, concerted efforts should be made to incorporate them as collaborators in the research side of social forestry. Farmers, then, will constitute the equivalent of thousands of foresters and agronomists, each with his own field trials.

d) The various uses to which trees are put, are going to benefit not only the growers but also the public at large, and if those benefits do not come in exactly the same ways or to the same people as initially intended, the original goals will nonetheless be realized in considerable measure. Given that both panchayats and individuals growing trees intend to sell a great part of what they are growing, some serious thought should be devoted to helping them do so.

e) Social forestry should be involved in that overall change and ought to be able to contribute to it, but it cannot produce much change by itself. Some of the ways it can assist are with extension advice to women on homestead agroforestry for fodder and fruit species, processing of minor forest products and marketing what they produce and process.

d. The Distribution of Social Forestry Benefits (India)

a) The stated objectives of the social forestry program in India were to provide benefits to the rural poor in terms of fuel-wood, fodder, small timber and raw materials for cottage industries. Further, it was supposed to contribute to environmental stability and provide income and employment to the landless and other poor.

b) The most spectacularly successful part so for has been 'farm forestry'. The sapling distribution to farmers far exceeds any estimates. The saplings distributed are largely eucalyptus and they are believed to be lifted in large numbers by the well-to-do farmers. Consequently, there is poor progress of social forestry and in the problem of involving small farmers in the farm forestry component.

c) In general, farm forestry has benefited the larger farmers and the small farmers and poor villagers have suffered a loss in the process particularly in their employment opportunities. Other beneficiaries have been the paper and pulp, and pole industries.

d) The second largest component of the social forestry program is plantations on canal banks, roadsides and railway sides,

termed collectively as strip plantations. The strip plantations, because of overwhelming numbers of eucalyptus will ultimately find their way to the paper, pulp and pole markets. Thus, the urban construction industry, the paper and pulp industries, the contractors and perhaps the petty officials will benefit, not likely the village poor.

e) A small component of the program was the community self-help plantings in village common lands to demonstrate to the rural people the benefits of afforestation. The distribution of benefits from these 'village woodlots', if any, have been to the panchayat leaders and a few others. None of the landless, reportedly, had even heard of the real scheme or received any benefit.

f) Experience of these three projects indicate that social and economic problems cannot be solved by the government's crash programs, large budgets and a 'top-down' approach to rural resource development programs. The efforts to deal with such problems must be comprehensive, long-term, prioritized according to the needs and wants of various classes and men and women, and by making sure that the benefits flow to the real target beneficiaries who in most cases are the poor and weak people in the villages.

g) The concluding lesson learned from this and other such experiences is: "All the wealth of the world cannot help one little Indian village if the people are not taught to help themselves". Thus, a need for motivation and a 'bottom-up' approach to such development programs is of vital importance.

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NOTE: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library, Peshawar.

FOREST SOCIOLOGY

Lecture 13

Section C: SOCIAL AND FARM FORESTRY

Chapter 9: SOCIAL FORESTRY DEVELOPMENT: Case Studies

a. Socio-Economic Constraints in Tree Plantings in Homesteads (Kerala, India)

Farm forestry, or the cultivation of trees in close association with agricultural crops, is a major aspects of the social forestry program being implemented in India. Supply of seedlings of selected species and providing necessary know-how on planting and tending trees have been the main focus of the program. Although ecological, economic and social conditions vary markedly between regions and localities, non-availability of seedlings and lack of technical know-how have been assumed as the major constraints in the cultivation of tree crops in farm lands. Acceptance of such technological packages, however, depends on a number of social and economic factors, extending far beyond the simple cost-benefit calculations. Land allocation among the different components in the farming system - food crops, cash crops, tree crops, livestock. etc. - is primarily determined by a complex of social, economic and cultural factors. Most of the work hitherto done on the economics of social forestry is focussed on simplistic financial profitability calculations, while important issues like land tenure, size of land holding, dependence on land, farm labor availability and the whole dynamics of these are neglected or at best dealt with superficially.

In Kerala, typically, homegardens are used for cultivation of perennial crops like coconut, arecanut, rubber, pepper and seasonal and annual crops like pulses, black gram, banana, tubers and vegetables. In addition, a number of trees are also grown along the boundaries or in intimate mixtures with agricultural crops. Even small holdings less than 0.20 hectares contain a large number of trees providing timber, fuelwood, fodder, fruit and green manure to the household. Although the homegardens appear to be a bewildering mixture of trees, shrubs and herbs, a certain general pattern seems to exist. Wide variation in the intensity of tree cropping is noticeable between homegardens situated in the same agroclimatic region. This is largely due to differences in the socio-economic conditions of the households and how they respond to externally determined changes, particularly prices of inputs and products, dependence on land, tenurial conditions, etc.

Since land availability is an important factor that determines development of each of the components in the system, variation in the size of holding could affect the tree cropping intensity. Two factors have been primarily responsible for a reduction in the size

of holdings in Kerala. First and foremost is the growth of population and the decline of joint family system. Implementation of land reforms, involving fixing a ceiling on the size of holding and assignment of excess land to the landless, is another important factor that led to a reduction in the size of holding. The general response to a decline in the size of holding is the increased intensity of cultivation primarily through utilizing the uncultivated area. Smaller holdings are generally more intensively cultivated than large and very large holdings. However, an inter-class comparison shows that both tree cropping intensity and number of trees per hectare is higher in the small holdings. A high proportion of the large and very large holdings has low tree crop intensities. As the size of the holding declines, there is a marked increase in the number of trees per hectare. Two factors seem to be responsible for this. Firstly, an extension of cultivation of tall perennial crops such as coconut, arecanut, etc. permit a judicious combination of a number of tree crops permitting the better utilization of the vertical space. Thus, both forest crops and agricultural crops are possible up to a certain limit. Secondly most of the tree crops cultivated have multiple uses and they form an integral part of the farming system. An increased intensity of cultivation would enhance the direct and indirect demand on tree crops, as a source of fodder and green manure and as standards for pepper, betel leaves and other climbers.

A large proportion of trees in the smaller holdings consists of multiple use species like jackfruit, mango, tamarind, cashew, and macaranga. In contrast, the larger holdings have a higher proportion of timber species such as teak, rosewood, aini, etc. than the smaller holdings. Such a marked preference for the few multiple use species is quite logical considering that almost all parts of these are utilizable in one form or another. To summarize, during the first phase of transition, a reduction in the size of holding has led to an intensification of cultivation and this has resulted in the replacement of miscellaneous tree species having no direct benefits with that of multiple use species. Although this has reduced species diversity, the intensity of cultivation of the few multiple use species has increased considerably.

Fragmentation of land eventually makes some of the holdings too small and uneconomical, and in a situation where non-agricultural opportunities exist, farming ceases to be the main source of income. A reduction in dependency on agriculture favors natural tree growth on account of keeping the land fallow. Increase in the number of available workers has been absorbed by the secondary and tertiary sectors. Most of the current cultivators and agricultural laborers belong to the older age group while the younger generation has very little interest in agriculture. Growth of fishing and allied activities and the inflow of remittances from the workers in the Middle East countries have led to rapid development of the tertiary sector in the coastal village of Nattika. A reduction in the dependence in land generally favors a higher tree cropping intensity. This is not due to a deliberate shift in favor of

trees, but incidental to the neglect of agriculture, permitting the retention of wild tree growth.

In contrast to the households whose dependency on land has declined, those who continue to rely upon farming attempt to increase the cultivation by resorting to the use of purchased inputs like fertilizers, pesticides, weedicides, etc. Especially in comparison with those organic fertilizers collected locally. This drastically reduces the relevance of multiple use species so that instead of being treated as complementary to farming, they are considered as competing with agricultural crops for space. This provides sufficient justification for their removal. The pace of tree cutting has accelerated further due to the increasing price of timber and firewood. With the fodder, fruit, and green manure values of the multiple use species becoming redundant, most of the trees in the homesteads are likely to be cut and sold - as timber. Most of the intensification, however, takes place by replacing the other trees with coconut, which is one of the best available multiple use species. Coconut forms the major source of fuelwood in Kerala. However, since it does not provide fodder and green manure, farmers have to rely upon markets as sources for these.

Increasing land price, partly due to population growth and partly to the willingness of the purchasers to pay high prices, is another important factor influencing tree cropping. Inflow of remittances from workers in the Middle East has led to increased purchasing power and escalation of land value. Economic and social compulsions force some of the low income households to sell land and this immediately brings about a conspicuous change in the land use pattern. Most of the purchasers resort to commercial cultivation of cash crops, relying heavily on purchased inputs. Tree crops cease to be of any relevance to the new owners, unless are able to command high market prices. If tree crops are grown at all, they are usually of short rotation and aimed at meeting specific market demands. Thus, the transition from the intensively managed, self-contained, homestead system with a large number of multiple use species to the intensively managed commercial farms is progressing. Pauperization of some of the small holders, who continue to rely upon agriculture on account of their inability to find suitable employment openings in other sectors, leads to distress land sales and migration of sellers to the highland region for encroachment in the forests; the whole cycle is then repeated.

In conclusion, in spite of their known ecological stability, homegardens are on the decline, mainly due to social and economic pressures. They are being replaced by commercial farming, which, in the long run, is neither ecologically stable, nor socially and economically desirable. Disappearance of the homegardens would not only imply the loss of an ecologically stable and genetically rich system, but would also amount to the loss of the valuable cultural heritage associated with it. Social forestry should try to preserve and improve the homegarden system by protecting it from the instability of the market prices. Current social forestry programs, which see trees in isolation from the whole system, are not

geared to achieve this. A better understanding of the dynamics of the homegarden system is essential to formulate ecologically sound, economically appropriate, and socially relevant forestry programs.

Reference

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b. Social Forestry and other Tree Planting Schemes

Tree production can be promoted under individual, government or communal management; on private government, or communal (belonging jointly to the village or community) land; and for different purposes - commercial or non-commercial. 'Farm forestry' usually implies individuals growing trees (to sell or for own use) on private land. 'Social forestry' on the other hand implies the planting of trees for meeting the needs (especially of fuel and fodder) of the rural people, usually through the use of government or communal land, under government or communal management. Such tree planting when undertaken by the community (typically on communal land) is also termed as 'community forestry'.

The available studies evaluating these schemes, indicate that while farm forestry has had a limited degree of success in some parts of the Third World, social forestry with very few exceptions has been a failure in most countries, even in the sense of ensuring the planting and maturing of trees, let alone in providing for the daily needs of fuel, fodder, etc. of rural poor. In many instances, the schemes have been actively opposed by the people. In Niger, villagers pulled down trees planted under a World Bank project and allowed their cattle to graze uncontrolled in the area. In general, the saplings distributed by foresters were purposely destroyed by the people. In Bihar (India), villagers cut down the trees planted by the government in the local forest. In Tamil Nadu (India), 5000 hybrid eucalyptus saplings planted by the government were uprooted by the villagers. In Ethiopia, landless laborers, when given saplings to plant, planted them upside down. In the Philippines the Tinggian tribal communities are said to be starting forest fires deliberately. In other instances, a passive resistance to schemes is apparent in the poor success of most government-promoted, community self-help projects. In India, for example, a mid-term appraisal of two large-scale, World Bank aided forestry project showed that while targets for farm forestry had been far surpassed, those for self-help village woodlots had fallen drastically behind. Reports of such failures are in fact numerous. How do we account for them? The reasons must be sought in the range of complex, interlinked factors which emerge through a closer examination of the socio-economic context within which the programs have been introduced and the methods of initiation and implementation of the schemes.

Some argue that the failure of such projects may be traced to there being no 'culture' of forestry as a productive activity among the people; that forests are generally looked upon with hostility or as impediments to be cleared or burned in order that land can be cropped as, for example, under the practice of 'slash-and-burn' agriculture. However, this explanation cannot be sustained in the face of existing evidence which establishes that rural people usually, and forest communities in particular, have traditionally shown a deep sensitivity to the need to maintain the ecological balance and to preserve rather than destroy. In the Philippines, for example, the Tinggians who are now said to be starting forest fires had earlier practiced methods of forest conservation. They had constructed fire lines to prevent forest fires from spreading, and tree cutting in the watershed had been disallowed because of their recognition of the relationship between trees and water supply. Similarly, the often-mentioned practice of 'slash-and-burn' agriculture, as traditionally practiced by forest communities in India and elsewhere, was not disruptive of the ecological balance - the land being left fallow long enough to restore vegetation. If today such practices are leading to ecological damage, this may be attributed to these people being pushed to depend on smaller and smaller areas of land, while large tracts of forests land have been taken over by others for different uses. Land is set apart and trees on that land are cut in a planned manner for building public facilities, such as schools, etc. The Chipko Andolan (tree-hugging movement) to save trees in Himalayan hills in Uttar Pradesh in India again points to the close relationship between people and trees. The scriptures and old texts in India and elsewhere are replete with sayings emphasizing the sacredness and importance of trees in people's lives. Swaminathan (1982) says about the tribals of Rajasthan:

'There is nothing we can teach the tribals about trees. They know that rain falls heaviest where there are more trees. They know that soil erosion and the run-off increase with deforestation. They know the ecological changes that happen with hills being denuded of forests,how the soil become dry, sterile, hard, and unyielding'. The forests are 'intricately woven into their culture, religious, songs, dances, and rituals. For them, forests are their very life'.

Many of the schemes where the governments have directly taken charge of tree planting have been introduced in opposition to the wishes of the people rather than with the support of people. This is especially so where the schemes have involved the reservation of land for tree planting which restricts or terminates the rights of farmers, cattle grazers and hunters to the hitherto free produce of the forest, and where the restrictions are imposed from above without the involvement of the local community in the decision. Such reservations have particularly hit tribal communities, whose main sustenance has come from the forests for generations. In some cases, such takeover of the land has been to plant trees solely for commercial purposes. Even where the planting is ostensibly for eventual community use, the lack of an assurance that the people will benefit and the lack of an attempt to involve the people has led to scheme failure.

In general, the approach of the forest department in scheme implementation has come for severe criticism in many countries. In the context of Trinidad, it is pointed out: 'It is noticeable that despite the concept of social forestry, foresters still tend to think solely in terms of trees and not of the community as well'. Another observation made in Bihar State (India) states: traditionally the forestry department has been tree-oriented and not people-oriented; and although now the officials accept that community forestry is 'for the people', they are still far from saying that it is 'by the people'. There is a tendency too of the forestry officials to 'decide what we should do for them', while the voluntary agency approach is 'the community decides what is good for them and we help them in doing it'. In general, there is a feeling that the government projects make many promises but never fulfill them.

Problems with and even hostility towards government programs stem not only from the land use policy of the forest department but also from the attitudes and practices of the forest officials, especially the forest guards. These practices range from the elitist approach of the guards to out-right exploitation. For example, the failure of an experiment to promote teak planting along with crops in Java was located to the failure of the forest officials to establish a close interpersonal relationship with the peasants and local population.

According to Roy (1980),the tribal communities (Ranchi, Bihar) view the forest department officials as 'instruments of the government, and as exploiters who take bribes,harass, threaten and extort in the name of unfamiliar laws, and who are gradually taking away from them their natural habitant, namely the forest. In Andhra Pradesh, forest guards take a share of the value of minor forest produce collected by the tribals, and sometimes make the people work without wages. They are noted to be (Madhya Pradesh) to collect regular tributes from the tribals; non-givers are implicated in legal cases with the connivance of the local police. On the slighted pretext,suspicion or desire to teach someone a lesson, the forest guards (Rajasthan) beat up tribals mercilessly, and many of them are made to pay huge fines for minor offenses. Similarly, in Azad Kashmir, Cernea (1983) notes that there are 50,000 cases of forest offenses from the region pending in courts, with one family in every six being implicated in a reported offence. In Bangladesh again, a ten village study reveals how the landless in the villages are harassed and fined by local police and forest officials, the fines usually being used for personal benefit.

It is felt that if the forest guards had been more accessible to the peasants, the latters attitudes would have been different: 'A good forest guard in their eyes is he who is visible at any time and with whom they can share their luck and sorrow as their good neighbor, and from whom they can borrow food in time of emergency'. Ninan (1983) tries to provide some insight into why guards behave as they do in the Indian Forest Service. She attributes it to low

salaries - 'a guard who polices several lakh rupees worth of valuable forest is paid only Rs.300 per month' - and to hierarchies in the service. Also, she notes that while the duties of the guards have changed today, their conditioning has not: 'What used to be a territorial responsibility concerned more with wood than trees, is now far more complex'. Where they were asked to grow commercial timber, they are now being asked to produce firewood, provide employment to tribals, grow 'socially useful' trees and what is more,actively persuade rural folks to raise plantations. Persuasion does not come easily to a force used to keeping people out of forests'. Ninan emphasizes the need to reduce inequalities in the service and to crack down on the culture of blatant corruption. How this can be done in a structure built on hierarchies and privilege is a moot question.

'For whom are these forests reserved? Protected for whom?' All said, both the protection of existing forests as well as schemes undertaken by the government for planting more trees, far from benefiting the rural poor have in fact, in most cases, become the means of further depriving them of their existing rights. Essentially, these projects undertaken in the name of social forestry provide no guarantee that the benefits will flow to the people. This absence of a surety that the benefits of trees planted will go to those who put in the labor to plant them, also underlies the failure of most of the socalled community forestry schemes. The assumption in such schemes is that the community will actively participate in tree planting. Yet a consideration of the schemes on one hand indicates that usually little effort is made by the scheme initiators to actively involve the people in scheme conceptualization and implementation· and, on the other hand, points to the unequal pattern of land ownership and control and power structures operating in the village, which circumvent voluntary participation by the underprivileged. The Ethiopian example cited above, demonstrates this well. The landless laborers who planted saplings upside down, was not because of their ignorance that they could not differentiate between roots and branches. Rather, knowing that given the feudal land tenure system in which they were living, most of the benefits of planting would flow one way or another into the hands of their 'lords'.

In this context, it is noteworthy that the two best known examples of social forestry that may be termed successful on a country-wide basis, and not just in isolated schemes, are South Korea and China, in both of which the schemes were introduced within relatively egalitarian agrarian structures brought about by radical agrarian reforms undertaken in the 1950s. Of course the ability to implement the reforms or to mobilize the people for community schemes cannot be separated from the political systems of the two countries, nor from their cultural backgrounds. In South Korea, since 1973, the landscape is said to have been transformed as a result of the reforestation program begun as a part of the Saemaul Undong or New Community Movement for Rural Development

launched by the government around 1971. The thrust of this Movement has been towards comprehensive rural development through self-help community participation. To promote village participation specifically in reforestation, a concerted effort has been made to establish Village Forestry Associations (VFAs) in every village, and to ensure that each household head joins the Association. An elected male leader is usually responsible for the overall coordination of the VFA's activities and a woman leader for directing and coordinating female participation in village activities. The VFAs are in turn linked to country and national level forestry bodies which provide strong financial and technical support. Most of the land that is chosen for tree planting is privately owned. Through VFAs, the whole community is said to jointly decide on tree species, and to communally plant, tend and harvest the woodlots without pay. The harvested wood is then distributed among the households and the proceeds from surplus become part of a cooperative fund for further community projects. The VFAs also sometimes participate in business enterprises for the processing of forest by-products.

In China again, by one estimate, about 30 to 60 million hectares of new forests have been planted over the past two and half decades, both for environmental improvement and to supply village and industrial wood needs. As in South Korea, in China too the central government is noted to have made a strong political commitment to community forestry and provided technical and other back up assistance for this purpose to the local institutions. Not all the problems have by any means been solved in China: 'To tend trees for posterity, while freezing in the present from lack of firewood, demands an altruism scarcely expected, even in China',and instances are noted of trees being stolen for fuel before maturity. But these do not constitute the general picture, and the promotion of 'forest conservation and education' and mass mobilization of the people 'to protect forests and trees', is a part of China's forestry program.

Most countries in the Third World (specially in Asia), however, have a highly unequal distribution of the ownership and control of land, which usually constitutes the main source of wealth and represents the principal source of economic and political power, especially in the rural areas of these societies. Land in this context is also one of the principal sources of class conflict. Thus, in the absence of redistributive land reform, the bringing about of community involvement in such schemes in most cases is likely to be extremely difficult, if at all feasible. This is borne out not only by the forestry-related examples but also by the vast amount of literature on the failure of efforts to promote cooperative ventures in the Indian subcontinent, as well as elsewhere.

The concept of promoting tree planting by individuals on their private land (farm forestry or tree farming) is in a number of ways similar to promoting a new variety of crop (HYV for example) but it is also different in many ways. It is similar insofar as tree farming has the potential of high profits but involves an initial

financial cost, can be constrained by the availability of land, labor, and irrigation facilities, and carries with it the risk of financial failure. It is different in that the gestation period for trees extends over several years and not just a crop season; hence the benefits cannot be realized quickly, and the element of risk is higher. But precisely due to these characteristics of tree farming it is unlikely to be practiced by other than the better-off farmers, and further in any large-scale undertaking there will be a tendency to obtain quick returns and grow commercial tree species. This is in fact borne out by available evidence.

In fact these schemes can have several dangerous social consequences. First, the shift of large areas of fertile land from food to commercial wood production will reduce the availability of food and fibre in the country. Second, the shift from food crops to trees will reduce employment because tree production is less labor intensive. Third, the noted shifts are likely to be ecologically destructive where the trees planted are fast-growing commercial species noted to deplete the soil of nutrients and water. Fourth, farm forestry will have a particularly adverse effect on the poor due to lower employment opportunities, faster-rising food prices, and less access to crop waste for fuel. In other words, farm forestry is not only unlikely to solve the problem of wood-fuel shortages but will probably accentuate the crisis for the poor.

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Agarwal, Bina, 1986, Chapter V: 'Of Social Forestry and Other Tree Planting Schemes'; in: Cold Hearths and Barren Slopes, B. Agarwal edited, pp. 106-139. Riverdale: Riverdale Company.

c. Social Forestry Program Change in India

Set up in the early 1980s to alleviate a perceived crisis in fuelwood, forestry programs in India have recently come under increasing criticism for failing to realize their primary objective of producing fuelwood for domestic use,even while becoming successful in growing trees. Those participating in the programs - mainly big farmers - are instead growing trees for commercial uses as poles and timbers, it is charged. Both fuelwood and equity seem to be lost. It is argued that, while it is true that the motivations of rural people participating in social forestry are indeed different from those of national level planners, the program is far from a failure. Rather, planners should expand the purpose of the program to take local needs and wants into account. By doing so it should be possible to work toward the goals of both planners and rural populations, and in the way to achieve progress on the social equity front by helping a substantial number of poor landed farmers with otherwise inviable holdings.

The fact is, after all, that planners in India and donors from abroad simply assumed that because at the macrolevel India's forest resources were rapidly being depleted for fuel, therefore at the

microlevel villagers would want to grow trees to help solve the macrolevel fuelwood crisis. If villagers had been consulted, a truer picture of their wants and needs might have emerged to help guide the planners and donors in drawing up these schemes, but as with most other development efforts, this was not done. Even so, social forestry is far from a failure. Rather, it should be seen as a program that has enjoyed significant success in meeting a somewhat different set of goals,but a set which is quite compatible with the original goals. In sum, a rethinking is called for, which might proceed along the following lines:

a) Rural people's needs must be ascertained and must be woven into all phases of social forestry. Even though the project has already been launched, but there is nothing wrong with mid-course adjustments in a development project, and indeed the fact that rural needs and their solutions were not fully understood with respect to forestry should be no cause for embarrassment. If all these things were known, it would probably be because there was no need for social forestry in the first place. Any worthwhile development activity should expect to discover that things do not work out as-planned and should look upon such discoveries as a better project. Social forestry offers a splendid opportunity for such an 'adaptive development administration' approach.

b) In addition to involving local people in project design and redesign, concerted efforts should be made to incorporate them as collaborators in the research side of social forestry. Some and probably many of these endeavors will of course fail, but other farmer experiments will succeed, and their results will be well worth spreading. Farmers, then, will constitute the equivalent of thousands of foresters and agronomists, each with his own field trials. The problem here, of course, is not so much with planners as with the professional foresters, who like their counterparts in the agricultural sciences have tended to believe that villagers know very little about growing plants,an attitude not conducive to viewing villagers as collaborators in building a base of scientific knowledge.

c) The various uses to which trees are put, whether they are grown privately or on public lands, are going to benefit not only the grower but also the public at large, and if those benefits do not come in exactly the same ways (or exactly to same people) as initially intended, the original goals will nonetheless be realized in considerable measure. And in the meanwhile there will be all the 'lops and tops' of trees that will be used for fuelwood and, fodder, even though the tree species planted are basically meant for commercial production and use.

d) Given that both panchayats and individuals growing trees intend to sell a great part of what they are growing, some serious thought should be devoted to helping them do so.

Marketing cooperatives for wood products should be a possibility here and will probably become more so in future as market conditions get increasingly chaotic with more and more wood being sold. Marketing cooperatives could make a real contribution here in helping to keep prices up for the growers by releasing their stocks gradually, a tactic that would be greatly facilitated by the fact that wood unlike food crops does not easily spoil. And even if cooperatives do not prove to be feasible, social forestry officials can do a great deal of useful extension work, teaching tree growers what is the best way to market their crops as individuals. An important related facet here is that as tree growers learn about marketing their poles and small timber, they will also begin to appreciate the possibilities for marketing fuelwood and fodder thereby recovering at least in part that elusive original program goal. It should be added here that assisting growers to obtain a good price for their forestry produce is not going to help those who must buy wood products. The policy dilemma here is similar to that faced by planners in the food sector, in that, the rural poor in large degree do not grow but must buy their food and so are affected adversely by higher incentive prices to growers. The problem is less acute in the fuel sphere, though, because while landless families cannot grow any food, they can and do gather fuel from others' land.

e) Social forestry by itself is not going to transform the male bias that is deeply engrained in village life. Rather, women's coming to have an equal place in household and village affairs will have to be part of an overall socioeconomic, political and cultural change in the Indian countryside. Social forestry should be involved in that overall change and ought to be able to contribute to it, but it cannot produce much change by itself. Some of the ways it can assist are with extension advice to women on homestead agroforestry for fodder and fruit species, processing of the vast multitude of 'minor forest products' such as medicines, oils, leaves for cigarette wrappers, etc. that come from trees, and marketing what they produce and process.

Reference

Blair, Harry W., 1986, 'Social Forestry in India: Participatory Planning and Program Change'; manuscript, 22 pages.

d. The Distribution of Social Forestry Benefits (India)

In India, there was extensive depletion of forests during World War I and II for purposes of war production. After independence too, in spite of the new Forest Policy laying down a minimum area in forests - 33% in the plains and 60% in the hills - about half a million hectares of forest land every year has been lost due to land distribution, land-grabbing and so-called development projects of various kinds. The depletion of the tree cover in the

Himalaya has led to soil erosion, serious floods, silting of dams and severe shortage of fuelwood and fodder for the people. The demand for fuel-wood only is about 133 million tonnes, whereas,the availability taking into account the present and proposed plans will produce only 39 million tonnes, leaving a gap of the order of 94 million tonnes per year. The shortage of fuelwood has pushed fuelwood prices up by 700 to 1000% over the last two decades. The shortage of fuelwood has caused riots in fuelwood depots, black market in the city's crematoria, massive illegal fellings by the contractors, and 'head loading', i.e. selling fuelwood in towns and cities by tribals and other poor to eke out a livelihood. The Sixth Plan document states,"Program of social forestry and economic and industrial plantations have been under implementation for some time in different states with varying degrees of effectiveness". In order to find out to what extent the social forestry program has achieved its objectives in terms of fuel-wood, fodder and small timber for the rural poor, the Planning Commission has asked its Program Evaluation Organization (PEO) to conduct an all-India evaluation and impact study.

The stated objectives of the social forestry program were to provide benefits to the rural poor in terms of fuelwood, fodder, small timber and raw materials for cottage industries. Further, it was supposed to contribute to environmental stability and provide income and employment to the landless and other poor. In terms of actual achievements, the most spectacularly successful part has been farm forestry. The sapling distribution to farmers far exceeds any estimates. The saplings distributed are largely eucalyptus. It is generally believed that these are lifted in large numbers by the well-to-do farmers. The 1983 supervisory mission's report said, "there is poor progress of social forestry in the eastern region (poor part of U.P.) and in the problem of involving small farmers in farm forestry program". The Forest Department provides these saplings free or at a subsidized rate. The market for eucalyptus poles and for paper and pulp industry is so profitable that many farmers are converting part of their agricultural fields to eucalyptus plantations for commercial profits. They mention that profits from eucalyptus are much higher than crops, that need for labor and consequently labor trouble is less. One farmer stated that instead of the 12 laborers he hired, he now hires only three. Then, who benefits in farm forestry? In general, farm forestry has benefited the larger farmers and if reduced employment is taken into consideration, when farms change over from crops to plantations then, some poor may have lost in the process. Other beneficiaries have been the paper, pulp and pole industries.

After farm forestry, the second largest part of the social forestry program is plantations on canal banks, roadsides and railway sides, termed collectively as 'strip plantations'. The canal bank plantations have been disappointing but the roadside and railway side plantations have done relatively. The roadside plantations have a visibility, also accessibility of staff for technical and supervisory inputs is easier. Here again, the species planted are largely eucalyptus, with some ornamental and fuelwood/fodder trees.

The strip plantations, because of the overwhelming numbers of eucalyptus will ultimately find their way to the paper, pulp and pole markets. It is suggested by the Forestry Department that when these markets get saturated then, plantations would be useful to villagers who live close by for fuelwood. Who benefits? The urban construction industry, the paper and pulp industries, contractors and perhaps petty officials. The need of the poor for fuelwood and fodder and small timber is not likely to be met by this component of the program, too.

On a small part of the program (1600 hectares) was to be community self-help plantings in village common lands to demonstrate to the rural people the benefits of afforestation. Unfortunately, this program has not done any good at all. Getting community participation by the Forest Department was difficult and the project has been more or less abandoned. Who loses? The village community, who have to walk several hours in search of fuelwood, twigs and leaves. In the village woodlots program, the Forestry Department entered into an agreement with the village panchayat wherein the plantings and protection was done by the forestry staff whereas the village panchayat was expected to distribute the benefits giving priority to the poorest of the poor families. A variety of species were planted including fruit trees. Who bene-fited? It was found that the distribution of benefits from these village woodlots was to the panchayat leaders and a few others. None of the landless, reportedly, had even heard of the real scheme or received any benefits. Who benefited? a few rich farmers. And the women? The women have no information, no involvement, and no benefit from the program so far. Experience of the three projects discussed above and other development programs indicate that social and economic problems cannot be solved by the governmnet's crash programs and large budgets. Here are some lessons learnt:

a) The government's social forestry program with the aid of the World Bank, is based on a 'top-down' approach with the intention of benefitting rural communities which however did not materialize to any significant extent.

b) The efforts to deal with problems of afforestation and common lands must be comprehensive and long term. It is not just capital but innovative 'problem solving' mechanisms that would make better use of the leverage inherent in available resources.

c) Fuelwood, and fodder and environmental stability are largely women's concerns. The village councils/panchayats are in general not interested in issues of subsistence but in a cash economy. Where the social forestry program is dealing with people at subsistence and below subsistence levels, it is important to give priority to these concerns for getting the women's interest, involvement and participation.

d) Bureaucratic structures on the whole do not know how to get people's participation, a precondition considered essential

in social forestry. Delivery systems for the poor whether in terms of credit, inputs, health or education, do not seem to reach the intended beneficiaries. The poor are either too weak or do not know how to defend their interests. In general, bureaucratic structures as presently constituted are grossly inadequate for tasks calling for solutions at the local level. The institutional alternatives which are more flexible and responsive at local levels need to be considered.

e) And, to sum up: "All the wealth of the world cannot help one little Indian village if the people are not taught to help themselves". Thus, a need for motivation and a 'bottom-up' approach to development programs is of vital importance.

Reference

Chawhdry, Kamla, n.d., 'Social Forestry: Who Benefits?'; in: Community Forestry, pp. 55-66. Bangkok: FAO/East-West Center.

Note: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library.

FOREST SOCIOLOGY

Lecture 14

TEACHER'S OUTLINE

Section C: SOCIAL AND FARM FORESTRY

Chapter 10. FARM FORESTRY IN PAKISTAN: Social Surveys

a. Interest in Tree Planting

(1) Household Level Factors

a) Overall a fairly high interest was found among the farmers for planting trees in their private lands under the FP&D project. However, the tenants were found less interested, presumably because of their lack of access to land itself.

b) A great majority of the farmers who are interested in tree planting, request small numbers of seedlings to plant. However, the farmers with irrigated lands requested higher numbers of seedlings, say 1000 or more. The farmers preferred to plant kikar, shisham, eucalyptus, poplar, toot, dharek, neem, beri, phulahi/palosa, ipil-ipil and serus.

c) Some of them also showed willingness to establish their own nurseries for producing tree seedlings of these species for planting on their own lands and for sale to the FP&D project for distribution among the farmers.

d) The project is expected to achieve, if not exceed, the tree planting targets in the country as a whole, as far as individual interest of the farmers is concerned.

(2) Village-Level Factors

a) The rural people, generally, do like to plant trees in their lands. This interest is found higher in the far off villages than in the suburban ones. But in the villages that are close to a government forest, the people are less interested in planting trees in their own lands.

b) The interest in farm forestry was found higher in the villages that have consolidated lands because of larger land parcels and hence, easier protection of trees; where there is a considerable area of unarable or uncultivated lands; the villages where the tenants are predominantly long-term share croppers than short-duration ones; and where the majority of the male workers are out of the village.

c) The major constraints the villagers perceive on their tree planting efforts are to be the difficulty in protecting, shortage or unavailability of required seedlings, the feared impact on food crops production, lack of experience and know-how and inadequacy of the government assistance.

d) Traditional methods for protecting and curing trees demonstrate that the villagers do care for trees; what they need more is intensive extension and outreach services from the govt.

b. Prospects for Farm Forestry

(1) Rainfed versus Irrigated Lands

a) The farmers having both rainfed and irrigated mixed farmlands have the highest interest in tree planting, but those having only irrigated lands are less and those having only rainfed lands are least interested in doing so.

b) The farmers who already have some or more trees whether planted or naturally occurring, are more interested in planting trees under the project than those who have none.

c) All the farmers having any type of land, face difficulty in protecting their trees, particularly because of abuse and thefts by other villagers and they suspect that the tree-crop proximity may effect their food and fibre crops negatively.

d) The prospects of farm forestry seem very promising in irrigated areas, fairly feasible in mixed irrigated and rainfed areas, and least expected in the rainfed areas.

e) It is recommended that for the greatest impact in farm forestry development, rainfed areas; and for quick success, mixed rainfed and irrigated areas; should be selected; while the selection of the irrigated areas should be in between. Technical advice, extension and outreach strategies and species selection should be separately designed and implemented in the rainfed, mixed and irrigated areas. Finally, forestry research and extension should focus collaboratively on reducing negative effects of trees on food and fibre crops' growth and production.

(2) Wood-Dung Fuel Replacement

a) The use of dung as fuel competes with its use as fertilizer and vice versa. If a farmer reduces his use of dung for fuel, he has to depend more on wood or straw fuel. But by reducing its use for fertilization of crops would certainly force him to bear the heavy costs of purchased chemical fertilizers.

b) Small farmers tend to use less dung for fuel and more crop wastes, and save more dung for fertilizer use than the large farmers do. They also purchase more dung for fertilizer use than big farmers. Moreover, the farmers who have long-term interest in land (owner-farmers) tend to use dung as fertilizer because of its long-lasting impact and those having irrigation water available for most of their farmlands, tend to use more dung as fuel.

c) A well planned program should be initiated for replacing dung-fuel with wood-fuel and increasing the use of dung as fertilizer that seems promising to be successful. The availability of more dung for use as fertilizer will reduce the costs of purchased chemical fertilizer as well as contribute to the long-term improvement of the soils. The program should focus primarily on small owner-farmers having mixed rainfed and irrigated lands and secondly on those who have only rainfed lands; and tend to avoid very large farmers, those who have only irrigated lands, and tenant farmers.

c. The Timing of Tree Planting

a) Most farmers prefer to plant trees only once a year, particularly in the agricultural slack months. The agricultural activities hold the top most priority among all the rural economic activities throughout Pakistan. This means when farmers and their laborers are free to plant trees, the rains may not occur; and when the rains occur, they may be very busy in their agricultural activities. Consequently, the number of trees intended rarely get planted.

b) Nevertheless, most farmers prefer and are free to plant trees in the winter season and secondly during the monsoons. Preference and/or availability of time for planting trees are effected to a great extent by the farmer's tenurial status and the type of his farmland.

c) The timing of tree planting is constrained not only by appropriate climatic conditions, but also by the availability of free time. Therefore, the project must ensure seedling distribution on dates agreed upon with farmers, minimize planting labor by distributing small numbers of seedlings, and assist needy farmers with seedling transport and pit-digging.

d) The annual demand of farmers for tree seedlings is divided by the winter and monsoon seasons on a 60/40 basis in Punjab and 79/21 basis in NWFP; and in Baluchistan on a 58/19/23 basis for winter, spring and monsoon seasons. Moreover, the monsoon planting season is preferred mainly by farmers with small, owner-operated and rainfed land holders. The project should strive for the production and supply of tree seedlings, accordingly.

d. Receptivity to Farm Forestry Outreach

a) A great majority of the farmers do not or cannot respond effectively when their on-farm trees are attacked by pests or diseases. The most common solution to such a problem is to cut down the tree, but if it is a fruit tree, the farmer may try to cure it, depending mainly upon his contacts with the government officials and financial position. Anyhow, the overall degree of seeking tree infection remedies in the country is very low which deserves due consideration.

b) Since farmers have not turned to the Forest Department in the past for assistance with tree cultivation, the first task of forestry extension and outreach should be to make farmers aware that the Department is now willing and able to assist them. The Forest Department should make a special effort to ensure that its extension and outreach programs do reach the farmers, particularly the small, illiterate and tenant farmers, who are likely to show higher receptivity to such technical and financial assistance.

References

A set of eight (8) Social Survey Reports, Forestry Planning and Development Project, GOP/IGF - USAID, Islamabad:

1. 'Household-Level Factors Affecting Interest in Planting Trees and Operating Nurseries:The Punjab'; Michael R. Dove:May'87.

2. 'Household-Level Factors Affecting Interest in Planting Trees and Operating Nurseries:The NWFP'; Michael R. Dove: June'87.

3. 'Household-Level Factors Affecting Interest in Planting Trees and Operating Nurseries:Baluchistan';Michael R.Dove:July'87.

4. 'Village-Level Factors Affecting Interest in Farm Forestry: Punjab, NWFP,Baluchistan'; Michael R. Dove: August, 1987.

5. 'Prospects for Farm Forestry on Rainfed vs. Irrigated Farms: Punjab, NWFP, Baluchistan'; Michael R. Dove: November, 1987.

6. 'Prospects for Wood-Dung Fuel Replacement through Farm Forestry Development: Punjab, NWFP, Baluchistan'; M.R.Dove.

7. 'Farmer Preferences for the Timing of Tree Planting: Punjab, NWFP, Baluchistan'; M.R.Dove, N.K.Aziz, J.A.Qureshi: Jun'88.

8. 'Receptivity to Farm Forestry Outreach: The Punjab, NWFP, Baluchistan (Draft)'; Jamil A. Qureshi: June, 1988.

Note: The whole set of these eight reports is available at the PFI library, Peshawar.

FOREST SOCIOLOGY

Lecture 14

Section C: SOCIAL AND FARM FORESTRY

Chapter 10. FARM FORESTRY IN PAKISTAN: Social Survey

The Forestry Planning and Development (FP&D) Project was launched in Pakistan in 1985, with funds from the USAID and Technical Assistance by the Winrock International. The Technical Assistance (TA) team comprised initially of five disciplinary experts; two of them were social scientists - an expatriate anthropologist (Michael R. Dove) and a Pakistani Sociologist (Jamil A. Qureshi). These social scientists, in collaboration with the Forest Department and through locally hired field sociologists/interviewers, carried out a series of socioeconomic and attitudinal studies regarding farm forestry in Pakistan. The findings were presented in the shape of eight research reports in 1987-88. The same reports are being summarized here to provide you with the latest social situations and prospects for farm forestry in Pakistan.

a. Interest in Tree Planting

The studies carried out on the attitudes of the rural people towards planting trees were presented in four separate reports. First three of these reports were on 'household-level factors' and the fourth one was on the 'village-level factors'affecting interest in tree planting in the Punjab, NWFP, and Baluchistan provinces.

(1) Household-level Factors

Overall a fairly high interest was found among the rural people in the three provinces for planting trees under the FP&D Project. In Punjab 54%; in NWFP 69%;and in Baluchistan 97% of the households interviewed expressed interest in planting trees in their private lands. The interest in tree planting in Punjab and NWFP was found higher among farmers having mixed rainfed (barani) and irrigated lands, larger householdings, some wastelands and whose lands are farmed by tenants.

The tenants, on the other hand were found less interested, presumably because of their lack of access to land itself. In Baluchistan, almost all farmers irrespective of their tribe, land tenure, socioeconomic status, showed a uniform interest in tree planting. Even the tenants were willing to participate in the task, with a hope to sharing the benefits. The greater potential for the project, in terms of both people and acres, lies with the smaller, poorer, less educated farmers, because of their numerical predominance, particularly in Punjab and NWFP. The attitude of educated rural people was not generally found very promising in this regard.

A great majority (83-86%) of the farmers who were interested in tree planting, requested small numbers (varying from 312 to 575) of seedlings to plant. However the farmers with irrigated lands, irrespective of land size, requested higher numbers of seedlings, say 1000 or more. Among the tree species, the farmers preferred to plant kikar, shisham, eucalyptus, poplar, toot, dharek, neem, beri, phulahi/palosa, ipil-ipil and serus. Some of them (6-10%) also showed willingness to establish their own nurseries for producing tree seedlings of these species for planting on their own lands and for sale to the FP&D project for distribution among the farmers. They were mostly the farmers with larger and/or irrigated landholdings and higher educational levels. But the cost/benefit ratios are supposed to be better suited to smaller landowners. Anyhow, the showed interest is considered to suffice the seedlings needs targeted in the PC-1s of the three provinces under this project. Thus, the project is expected to achieve, if not exceed, the tree planting targets in each of the three provinces, and in Pakistan as a whole, as far as individual interest of the farmers is concerned.

(2) Village-Level Factors

Generally, the rural people of the three provinces studied, as mentioned above, do like to plant trees in their lands - farmlands, wastelands and homesteads. This interest increase as the distance of a village increases from a town: that is, the more remote a village is, the more interest is found among the villagers in planting trees. But the villages that are close to a government forest, are less interested in tree planting on their own lands. There was a higher tendency towards tree planting found at the villages that are near to nomad camps but the refugees camps had no effect on such an interest.

The interest in farm forestry was found higher in the villages that have consolidated lands because of larger land parcels and hence easier protection of trees. The villages that have a considerable area of unarable or uncultivated lands are more interested in tree planting for putting such lands to some use. In irrigated villages, however a mixed situation of interest and disinterest appeared. The villages where the tenants are predominantly sharecroppers and traditionally are allowed to cut and utilize trees were found more willing to plant trees than where the tenants are short-duration ones and are not normally allowed to cut the trees. And where the majority of the male workers are out of the village, there is higher interest in tree planting as it is less labor intensive.

The major constraints as perceived by the villagers on their tree planting efforts are to be the difficulty in protecting, shortage or even unavailability of required seedlings, the feared impact on food crops production, lack of experience and know-how, and inadequacy of the government assistance (both technical and financial). Historically, the Forest Department has had focussed its tree planting of protecting activities on only government lands

and large-scale private plantations that kept farmers with smaller lands or plantation at a distance. The FP&D project, on the other hand aims at overcoming all these problems, encouraging all types of farmers to plant trees, and assist them by providing seedlings and sufficient know-how for farm forestry in the rural areas of Pakistan. It will also encourage and assist villagers to establish their own private nurseries and utilize them at the local levels.

Traditional methods for protecting and curing trees demonstrate that the villagers do care for trees and what they need more is intensive extension and outreach services from the government. Moreover, religious views of the villagers are also favorable to planting and tending trees that can support the project activities at the village level. However, as the project focussed on private, household level tree planting efforts, the village level institutions and groups are unlikely to be useful in farm forestry development, except motivating individual farmers to plant trees.

b. Prospects for Farm Forestry

The next two reports (Nos. 5 and 6) dealt with the prospects of farm forestry development in the rainfed and irrigated areas and dung-fuel replacement with fuelwood in the rural areas of the Punjab, NWFP and Baluchistan provinces. What follows is summary of the same reports.

(1) Rainfed versus Irrigated Lands

The farmers having both rainfed and irrigated mixed farmlands posses highest interest in tree planting. But those having only irrigated lands are less and those having only rainfed lands are least interested in tree planting. Almost the same is true with the pre-project and existing tree planting and tending activities in all the three provinces. Most of the trees found are planted rather than naturally grown, in the same order of intensity on the mixed rainfed-irrigated, irrigated, and rainfed farms, respectively. Trees were found scattered almost equally on all types of lands, courtyards and most on rainfed and mixed lands; both planted and naturally grown ones. And,the farmers who already have some or more trees whether planted or naturally grown, are more interested in planting trees under the project than those who have none. This seems contrary to the expectation that the farmers with no are little trees would be willing more to plant trees on their lands to meet their fuel, fodder and small timber needs. But the fact is that the farmers who are keeping planted or naturally occurring trees on their land are doing so because of their interest and felt-need for the same. And farmers who have no trees on their lands may not have felt such a need and cut down even the naturally grown trees, if any, in their lands; or, there might be some physical limitations, such as soil texture, high salinity and/or waterlogging, lack of water or any combination of the same to growing trees there.

All the farmers having any type of land (rainfed, irrigated or mixed) face difficulty in protecting their trees, particularly because of abuse and thefts by other villagers and they suspect that the tree-crop proximity may effect their food and fibre crops negatively. Farmers with rainfed lands perceive that the impact trees is negative on the soil, while those with irrigated land consider it positive, and those with mixed lands consider mixed negative-positive impact. Similarly, the farmers with rainfed lands have a strong belief that trees in the farmlands reduce soil moisture; those with mixed lands do have the same belief too, but not so strong; and the majority of the farmers with irrigated lands also believe the same but to a lesser degree. Another important belief that trees are harmful to crops is strong, medium and weak among the farmers with rainfed, mixed and irrigated lands, respectively. However, some farmers mentioned the problems of poor soils, waterlogging and/or shortage of water with respect to tree planting in their lands. To sum up, the prospects of farm forestry seem very promising in irrigated areas, fairly feasible in mixed irrigated and rainfed areas, and less expected in rainfed areas of the three provinces and hence, in the country as a whole, assuming that similar trends may also exist in the Sind province.

It is recommended that for the greatest net impact in farm forestry development, rainfed areas should be selected; for quick success, mixed rainfed and irrigated areas should be selected; while the selection of irrigated areas should be in between. The initial aim of the farm forestry development should be to provide as many farmers as possible with at least some trees, especially those farmers who have none or a few trees existing in their lands. Technical advice, extension and outreach strategies and species selection should be separately designed for and implemented in the rainfed, mixed and irrigated areas. Finally, forestry research and extension should focus collaboratively on reducing negative effects of trees on food and fibre crops for water and sunlight and for reducing tree vulnerability to water stress and animal predation.

(2) Wood-Dung Fuel Replacement

A great majority of the farmers (82%) burn dung for domestic fuel needs. Most of them burn it along with wood to conserve the later's combustion. Besides, even a higher majority (88%) of the farmers use dung as fertilizer, the use that is considered most appropriately advantageous to crop growth, soil reservation and long-lasting effect. On the other hand, chemical fertilizers are though considered advantageous to crop growth and yields, but are complained by almost all farmers (93%) against their high costs and water requirements, and soil depletion. The average household uses 60% of its dung as fuel and 40% as fertilizer; both are the very basic needs of the rural people, particularly farmers in Pakistan.

Most households have adequate supply of dung for fuel but to a lesser extent, for fertilizer use. The main obvious reason given by farmers for inadequate supply of dung is small number of livestock they can afford to keep. The use of dung as fuel competes

with its use as fertilizer and vice versa. Farmers have to make a possible choice between the two uses. If a farmer reduces his dung use for fuel, he has to depend more on wood or straw fuel which may be owned, collected free, or otherwise purchased. But by reducing its use for fertilization of crops would certainly force him to bear the heavy costs of purchased chemical fertilizers. Most often, he makes the later choice, for obvious reason of obtaining higher yields of food and fibre crops even at the higher costs. Thus, the use of dung for fuel is higher than for fertilizer.

Dung is also sold but by some farmers and mainly for its use as fertilizer by the purchaser. Usually its limited use as fuel and for mixing in mud for plastering is extended free by farmers to the landless villagers who do not have any animal of their own. The balance between the demand for and supply of dung tends to be less favorable on small farms than big ones. As a result, small farmers tend to use less dung for fuel and more straw and crop-stubs, and save more dung for fertilizer use than do the large farmers. Small farmers also purchase more dung than the big farmers, chiefly for fertilizer use in their farmlands.

The farmers who have long-term interest in the land tend to use dung as fertilizer because of its long-lasting impact on soils. Accordingly, the owner-farmers use more dung for fertilizer and less for fuel than tenant-farmers; tend more to feel insufficiency of dung-fertilizer; and, more likely to buy dung for fertilizer use. The farmers who have irrigation water available for their farmlands tend to use most of the dung for fuel; those who have irrigation water but not available to all of their farmlands, use most dung for fertilizer and those farmers who have rainfed farming only, fall in between. Moreover, farmers with irrigated lands have the most adequate supply of and purchase the least dung; those with mixed lands have the least and purchase the most dung; and farmers with rainfed lands fall in between.

It is recommended that a well-planned program should be initiated for replacing dung-fuel with wood-fuel and increasing the use of dung as fertilizer that seems promising to be successful. The extension and outreach strategies of this program should focus on the fact that reduction of dung for fuel use will increase its use as fertilizer that will reduce the cost of purchasing chemical fertilizer on one hand and contribute to the long-term improvement of the soils, on the other. Finally, the program should focus on small owner-farmers having mixed rainfed and irrigated (total: 12.5 acres or less), or, as a second preference, on those who have only rainfed lands; and avoid large farmers, farmers with only irrigated lands and, of course, tenant-farmers.

c. The Timing of Tree Planting

The seventh research report deals with the farmers preferences for timing of tree planting. The farmers responses about their attitudes and activities in this regard are being summarized here.

According to the findings, most farmers prefer to plant trees only once a year, particularly in the agricultural slack months. The agricultural activities hold the top most priority among all the rural economic activities throughout Pakistan. When the farmers and farm laborers are occupied by peak season activities, such as crop harvesting, sowing, ploughing and processing, it is not convenient for them to take up tree planting endeavour. Slack seasons are preferred by farmers for this activity but it rarely coincides with rainfall which is also considered for tree seed and seedling germination. This means when farmers and their laborers are free to plant trees, the rains may not occur; and when the rains occur,they may be very busy in their agricultural activities. Consequently, the number of trees intended rarely get planted.

Nevertheless, in all provinces, most farmers prefer and are free to plant trees in the winter season. There is an important secondary planting season in the Punjab during the monsoons, and less important secondary season during the monsoon in the NWFP, and during the monsoon and spring in Baluchistan. Farmers with large land holdings prefer the winter planting season, while those with small land holdings almost equally prefer the winter and monsoon seasons. Then, large farmers have less time constraints and hence more times during the year in which they are free to plant trees than small farmers. Though most farmers prefer the winter for tree planting, but owner-farmers, in comparison to landlords and their tenants, have a strong secondary preference for the monsoon as well. Landlords and their tenants tend to have more free time than the owner-farmers, if they are willing to plant trees. Farmers with partial or all irrigated lands prefer the winter, while those with rainfed lands equally consider winter and monsoon for planting trees. And, finally, the farmers with all lands under irrigation have the most; those with some land irrigated and some rainfed, less; and those with all lands rainfed, least free time for tree plantings.

As pointed out earlier, farmers, in allocating their time give first priority to their agricultural activities and second priority to tree planting and other activities. The timing of tree planting is therefore constrained not just by appropriate climatic conditions, but also by the availability of free time. In order to minimize this later constraint, it is suggested that the project must: (i) ensure seedling distribution on the dates agreed upon with the farmers and schedule these dates during slacks, not peaks of agricultural activities; (ii) minimize planting labor by encouraging the planting of small numbers of seedlings and where possible by utilizing small pits or direct sowing; and, (iii) assist needy farmers with seedling-transport and pit-digging.

In addition, as it is hardest for farmers with small, owner-operated, rainfed, or mixed rainfed-irrigated lands to find time for tree planting, these types of farmers should be specifically focussed upon in project extension and assistance services by the project officials and workers. The annual demands of farmers for tree seedlings is divided by the winter and monsoon seasons on a

60/40 basis in Punjab and 79/21 basis in NWFP; and in Baluchistan on a 58/19/23 basis for winter, spring and monsoon seasons.

The project should strive for similar patterns of seedlings production of and supply from its nurseries in the different seasons, respectively. And finally, the monsoon planting season is preferred mainly by farmers with small, owner-operated and rainfed land holdings. Thus, in regions with majorities of such farmers, both monsoon and winter plantings are appropriate, but in other regions only winter plantings should be emphasized.

d. Receptivity to Farm Forestry Outreach

The last of this series of eight reports is on the farmers receptivity to the farm forestry extension and outreach services being or to be offered by the project staff and field teams. The farmers traditional responses to problems of on-farm trees provide insight into their potential response to extension and outreach efforts by the Forest Department.

A great majority of the farmers (81%) do not or cannot respond effectively when their on-farm trees are attacked by pests or diseases. This may be attributed to their lack of know-how and responses. Among the minority who do respond to some extent or in some way, the most common step taken is to cut down the tree. This attitude, however, gets different when fruit trees are concerned. Farmers who have got some or more fruit trees are almost equally divided between those who do respond (54%) and who do not (46%) when their (fruit) trees get infected. Among those who do respond, most go to the Agriculture Department and the others go to the market or fellow-villagers for assistance. The degree of these responses to infection of trees, particularly fruit trees, is directly affected by the size of landholding among the farmers. That is, the farmers who possess larger lands tend to respond more and quicker than the farmers who have small land holdings; and most of the small and very small farmers do nothing. Similarly large farmers are more likely to purchase insecticides from the market for using on their trees than the small farmers. However, formal education does not seem to have correlation with the degree of such a response; both act almost in the same way - respond or do not. Similarly, the villages' proximity to or remoteness from towns has no relation with the farmers response, or seeking information from the Agriculture Department or Forest Department.

In all the three provinces, as said earlier, the most common solution for an ailing tree is cut it down. Farmers in Baluchistan are, however, most likely to seek a remedy for tree problems, followed by the NWFP, and then the Punjab. In case of the fruit trees the Baluchistan province, in this regard, again stands first, while the Punjab surpasses the NWFP. Anyhow, the overall degree of seeking tree infection remedies in the country is very low which deserves due consideration.

Since farmers have not turned to the Forest Department in the past for assistance with tree cultivation, the first task of forestry extension and outreach should be to make farmers aware that the Department is now willing and able to assist them. The tenant farmers, illiterate farmers, and farmers with small holdings are found to be the least likely to have sought assistance in the past from any government department and they seemingly demonstrate receptivity to such assistance. The Forest Department should make a special effort to ensure that its extension and outreach programs do reach these classes of farmers. It is seen that the better-off farmers are already purchasing the necessary farm forestry inputs from the market, therefore, the Forest Department is urged to concentrate its own inputs on the poorer farmers who cannot purchase them.

References

The Social Survey Reports, FP&D Project, GOP-USAID, Islamabad:

1 'Household-Level Factors Affecting Interest in Planting Trees and Operating Nurseries: The Punjab'. By: Michael R. Dove (May, 1987).

2. 'Household-Level Factors Affecting Interest in Planting Trees and Operating Nurseries: The NWFP'. By: Michael R. Dove (June, 1987).

3. 'Household-Level Factors Affecting Interest in Planting Trees and Operating Nurseries: The Baluchistan'. By: Michael R. Dove (July, 1987).

4. 'Village-Level Factors Affecting Interest in Farm Forestry: Punjab, NWFP, Baluchistan'. By: Michael R. Dove (August, 1987).

5. 'Prospects for Farm Forestry on Rainfed versus Irrigated Farms: The Punjab, NWFP, Baluchistan'. By: Michael R. Dove (November, 1987).

6. 'Prospects for Wood-dung Fuel Replacement through Farm Forestry Development: The Punjab, NWFP, Baluchistan'. By: Michael R. Dove (November, 1987).

7. 'Farmer Preferences for the Timing of Tree Planting: The Punjab, NWFP, Baluchistan'. By: Michael R. Dove, Nasrullah Khan Aziz and Jamil A. Qureshi. (June 1988).

8. 'Receptivity to Farm Forestry Outreach: The Punjab, NWFP, aluchistan' (Draft). By: Jamil A. Qureshi (June, 1988).

FOREST SOCIOLOGY

Lecture 15

TEACHER'S OUTLINE

Section D: SOCIAL RESEARCH

Chapter 11. RESEARCH METHODS

a. Research Process

(1) Research: Definition, purpose and method.

(2) Process: Initiation and continuation.

(3) Scope: Pure and Applied research.

(4) Procedures: Importance and use.

(5) Major Steps: Purpose, design, methods, results, conclusions and interpretations.

(6) Other Necessities: Budget and availability of funds; allocation and/or training of personnel; selection of site, population of people; and application of the findings (implications).

b. Research Problem

(1) The Problem: Definition, selection and formulation.

(2) Hypotheses or areas of study.

(3) Concepts: Formal and working definitions.

(4) Methodology: Applicability and replicability.

c. Research Design

(1) Study design: Definition, importance and functions.

(2) Study Purpose: Exploration, description, explanation.

(3) Hypothesis: Definition, formulation and use.

d. Research Types

(1) Informal and Formal Studies: Definitions, methods and techniques, and examples.

(2) Census, survey and case study: Definitions, scopes, methods and techniques, and limitations.

(3) Geographical and Historical Studies:Definitions, scope, methods and techniques, and limitations.

e. Research Application

(1) Purpose: Immediate and potential/long-run applications.

(2) Contribution of research to theory and practice.

(3) Immediate Concerns: Problems and objectives; cooperation and participation of potential users; collaboration with concerned agencies; and use of agency personnel, records and facilities.

(4) Researcher versus Practitioner: Knowledge, objectives, functions and responsibilities, danger of friction, division of labor and specialized/complementary skills.

(5) Acceptance/Adoption of the Findings: Discussions with participation of the agency officials and other users, top-officers vs. other personnel, everyone understands and feels sympathetic, and help not criticism.

Reference

Selltiz, Claire, et. al., 1962, Research Methods in Social Relations (rev.ed.). New York: Holt, Rinehart and Winston.

Chapter 1. 'The Research Process', pp. 1-24.

Chapter 2. 'Selection and Formulation of a Research Problem'; pp. 25-48.

Chapter 3&4. 'Research Design I & II'; pp. 49-143.

Chapter 13. 'The Application of Social Research'; pp.455-478.

Note: A copy of this book has been provided to the PFI library.

FOREST SOCIOLOGY

Lecture 15

Section D: SOCIAL RESEARCH

Chapter 11. RESEARCH METHODS

a. Research Process

Research generally means 'search for the scientific truths' through all possible and reasonable ways'. The purpose of research is to discover answers to questions through the application of scientific procedures. These procedures have been developed in order to increase the likelihood that the information gathered will be relevant to the question asked and reliable and unbiased. To be sure, there is no guarantee that any given research undertaking actually will produce relevant, reliable and unbiased information. But scientific research procedures are more likely to do so than any other method known to man.

Research always starts from a question. The nature of the question may vary. Starting from observation of an event or a series of events, one may ask whether events of this sort always follow the same pattern, or whether there are circumstances in which the outcome may be different. Or one may seek an explanation of the process by which certain conditions lead to certain outcomes. In order to be answerable by research, questions must have one characteristic common: They must be such that observation or experimentation in the natural world (including, in the case of 'social sciences', the behavior of human beings) can provide the needed information. The answer depends not only on factual information, it also involves values about individual initiative. However, it is often possible to transform what seems to be question of value into a question of fact.

Many questions can be approached by scientific methods at the present time. This does not mean that research will always emerge with an answer, let alone a definitive answer. Research is oriented towards seeking answers; it may or may not find them. Characteristically, modern science, and especially social science, is an unfinished process. To quote Jaspers (1950): "Whereas the ancient had the appearance of something complete, to which the notion of progress was not essential, modern science progress into the infinite". More often than not, social research results in the raising of new questions or the reformulation of old ones.

The reasons for asking research questions are of two general kinds: 'intellectual', based on the desire to know or understand for the satisfaction of knowing or understanding; and 'practical', based on the desire to know for the sake of being able to do something better or more efficiently. The investigations to which

these two types of questions lead, sometimes at labeled 'pure' (or basic) and 'applied' research, are at times discussed as if they were somehow opposed or mutually exclusive, and frequently as if one were better than the other. Such an approach is misleading. Historically, the scientific enterprise has been concerned both with knowledge for its own sake and with knowledge for what it can contribute to practical concerns. This double emphasis is perhaps especially appropriate in the case of social science. On the one hand, its responsibility as a science is to develop a body of principles that make possible the understanding and prediction of the whole range of human interactions. On the other hand, because of its social orientation, it is increasingly being looked to for practical guidance in solving immediate problems of human relations. The general scientific enterprise, then, must be concerned both with the development of general principles and with practical problems in specific situations.

Even though research cannot provide any final answers to the questions with which it is concerned, there has been a constant effort to devise procedures that will increase the probable accuracy of research answers. Why is it important to be familiar with these procedures? For the student of a social science, the answer is obvious: Research techniques are the tools of his trade. He needs not only to develop skill in using them but also to understand and the logic behind them. But it is not only the student who intends to carry out research who needs to know about research methods. The positions for which social science students are likely to be preparing themselves - teaching, administration, community development, social work, resource management, etc - increasingly call for the ability to evaluate and to use research results: to judge whether a study has been carried out in such a way that one can have reasonable confidence in its findings and whether its findings are applicable to the specific situation at hand. Even if one does not expect to make specific use of research findings in his job, in our scientific age all of us are in many ways consumers of research results. To use them intelligently, we need to be able to judge the adequacy of the methods by which they have been obtained. As a student, for example, you will find that many of the facts presented in your course rest on the results of research. But you may discover that the facts reported by one study are quite different from those produced by another study on the same point. Later sections of this and the next lecture will consider the criteria of good research in detail.

The research process consists of a number of closely related activities that overlap continuously rather following a strictly prescribed sequence. So independent are these activities that the first step of a research project largely determines the nature of the last. If subsequent procedures have not been taken into account in the early stages, serious difficulties may arise and prevent the completion of a study. Frequently these difficulties cannot be remedied at the time they become apparent because they are rooted in the earlier procedures. They can be avoided only by keeping in mind, at each step of the research process, the requirements of

subsequent steps. A mechanically consecutive sequence of the procedures, in which one research step is entirely completed before the next is begun, is rarely, if ever, the experience of social scientists. Customarily, a report on completed research, resembles, with minor modifications, the following model:

i. A statement of 'purpose' is made in the form of formulating the problem.

ii. A description of the study 'design' is given.

iii. The 'methods' of data collection are specified.

iv. The 'results' are presented.

v. Frequently, there follows a section on 'conclusions' and interpretations.

In addition to these steps, related to the scientific requirements of the study, more practical, demands: the budget must be planned; funds must be obtained and administered; personnel must be allocated and, in some cases, specially trained; the setting within which the data are to collected must be explored and cooperation of the people in it must be gained; etc. In addition, if the study is one the designed to solve an immediate, practical problem, the anticipated application of the findings must be considered from the outset.

The manner in which each of these steps influences, or is influenced by, others depends mainly on how they were organized and actually carried out. That is, not only the early steps influence subsequent ones - an obvious matter - but also the interaction of each step with others in a major consideration of preceding ones. Social research is not a deductive process, in which everything follows from some clearly defined premises; it is a continuous search for truth, in which tentative answers lead to a refinement of the questions to which they apply and of the procedures by which they were obtained. The demands of organization require that these steps be discussed separately and consecutively, but it should always be kept in mind that the steps are not so clearly demarcated from one another as an organized discussion makes them appear to be.

Reference

Selltiz, Claire, et. al., 1962, Research Methods in Social Relations (revised edition); Chapter 1: 'The Research Process'; pp 1-24. New York: Holt, Rinehart and Winston.

b. Research Problem

Many considerations, and many difficulties, arise in selecting a research topic and formulating it as a research project. Basically, these processes demand that the social scientist be aware

of the choices open to him and he understand the rules governing problem formulation.

The formulation of a research project proceeds in several steps. First, a problem demanding solution must be perceived within the area circumscribed by the selected topic. Second, the research task must be reduced to manageable size or divided into a number of subtasks, each of which can be handled in a single study. Next come a number of steps which are so closely interrelated that their order cannot be specified. If relevant knowledge exists concerning the research problem, the formulation will contain 'hypotheses', both as a guide to the collection and analysis of data and as a means of relating the study to other studies or to a body of theory. If there is not enough knowledge to provide a basis for setting up hypotheses at this stage, the formulation of problem will indicate the areas in which an exploratory study aims to establish hypotheses.

Whether or not hypotheses are established at this stage, the study will require the 'definition of the concepts' that are to be used in organizing the data. These definitions will include formal ones,designed to convey the general nature of the process or phenomenon in which the investigator is interested and its relation to other studies and to existing social science theory. They will also include 'working definitions', which make possible the collection of data the investigator is satisfied to accept as indicators of his concepts. Throughout these processes, there will be concern with the generalizability of the findings and their relation to other knowledge. This involves careful study of work already done in the field, the formulation of the research problem in terms general enough to make clear its relation to other knowledge and to permit replication of the research. In formulating research problem, subsequent steps in the research process must be anticipated to ensure that the problem can be tackled by available techniques. This anticipation should include both scientific and practical steps.

Reference

Selltiz, Claire, et.al., 1962, Research Methods in Social Relations (rev.ed.); Chapter 2: 'Selection and Formulation of a Research Problem'; pp.25-48. New York: Holt, Rinehart and Winston.

c. Research Design

Once the research problem has been formulated clearly enough to specify the types of information needed, the investigator must work out his research design. A 'research design' is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. The function of research design is to provide for the collection of relevant evidence with minimal expenditure of effort, time, and money. These considerations are important in any study,

whatever its purpose. But how they can best be achieved depends to a considerable extent on the research purpose, that is, exploration, description, or explanation of a certain phenomenon. When the purpose of a study is exploration,a flexible research design, which provides opportunity for considering many different aspects of a problem, is appropriate. When the purpose of a study is accurate description of a situation or of an association between variables, accuracy becomes a major consideration; a design is needed that minimizes bias and maximizes reliability of the evidence collected. When the purpose of a study is to 'test a hypothesis' of a cause-and-effect relation between variables, other requirements are introduced. Based on the purpose, thus, these research studies are known as 'exploratory', 'descriptive', and 'explanatory' studies, respectively; any combination of these can also be made for mixed purposes.

A 'hypothesis' of causal relationship asserts that a particular characteristic or occurrence (X) is one of factors that determines another characteristic or occurrence (Y). Studies designed to test such hypotheses (causal or explanatory studies) must provide data from which one can legitimately infer that 'X' does or does not enter into the determination of 'Y'.

However, it must be kept in mind that research is not simply a matter of experimentally testing well-formulated hypotheses. The development of fruitful hypotheses does not occur in a vacuum, nor is it solely a matter of good fortune or ingenuity. It can be aided by carefully planned exploratory and descriptive studies, which have the purpose of accumulating the background information necessary to a pertinent formulation of the problem. Such studies, particularly in a young science, call for the most imaginative efforts the scientist has to offer and are not to be scorned because they lack the elegant vigour of the experimental study.

Reference

Steltiz, Claire, et.al., 1962, Research Methods in Social Relations (revised edition); Chapter 3 & 4: 'Research Design I & II'; pp. 49-143. New York: Holt, Rinehart and Winston.

d. Research Types

The three basic types of research by the purpose of study, as explained above, are the exploratory, descriptive, and explanatory studies. However, there are some other types of research studies that are defined by the method, technique,and scope of the studies. They are the informal and formal studies; and the census, survey, and case-study.

(1) Informal and Formal Studies

Research can be either informal or formal, depending on its method or technique of data gathering and analysis. An informal

study, though scientifically done, is usually carried out in a casual or random way to explore or to some extent describe a certain phenomenon in general. It is often done as a pre-study, in a short period of time, and in a (usually) small geogra-phical area. The main sources of its information collecting are some published materials, major events and stories, general observation, and key informants; and a diary or a field notebook is used to record such information (data). It aims at achieving an initial insight towards understanding general processes in a certain phenomenon and serves as a basis for a detailed formal study. The examples of informal studies are: 'rapid rural appraisal' (RRA), 'reconnaissance study', 'fact-finding' tour, and 'pre-study'.

A formal study, on the other hand, is carried out in a well defined and precise way and by intensive or extensive sampling techniques. It is a detailed study of a large or small geographical area on a certain phenomenon; but it does not have to be all-exhaustive, or an end by itself. The sources of its information are specific published materials, official and personal records, deep observation, and key and sampled informants; and pre-set formats, schedules and/or questionnaires are used for collecting such data. Its aim is to explore, describe, and/or explain certain phenomenon in some or more detail. The examples of formal studies are: census, survey, case-study; and geographical and historical studies.

(2) Census, Survey and Case-Study

These three kinds of formal studies are mainly differentiated by their 'scope' and hence methods and techniques of data collection and analysis. The term scope here refers to a specified time period, a defined geographical area, and a certain population and/or its certain aspects. A census study is a 100% coverage of a given population in terms of its certain aspects in a specified territory and for a given period of time. The well-known examples of the census studies are: the population, agricultural, livestock, botanical, wildlife, educational, health (e.g., epidemics) censuses. Furthermore, a complete or exhaustive listing of anything regarding any aspect of it, may also be called a census of the same. A census study, thus, may involve heavy resources, such as funds, manpower and time, making it very expensive and often difficult to pursue. Thus, to economize the study, survey techniques are used by representative sampling of the population in question. In socio-economic surveys, a 10% representative sample, chosen by random, stratified, or a combination of both sampling techniques, is usually considered a reliable sample of the population. A survey is an alternate of the census but usually contains more detailed information and covers more aspects of the population under study. It is usually known as an extensive study of a large area. A case-study, on the other hand, is a deep or intensive study of a small area; and usually tends to explore almost every aspect of the population under study. In short, a survey could best be defined as 'a jack of many but master of almost none'; while a case-study is, 'a master of everything but jack of a few'. Both of these methods of

research have their limitations as well as advantages; but are widely used by social scientists and others for 'doing something than nothing' with the available resources - the main limiting multiple factor.

(3) Geographical and Historical Studies

The geographical studies, also known as 'horizontal' studies, usually cover a large area/population in a specific time. Surveys are mostly conducted in this manner and hence are criticized as being 'one-shot studies'. However, resurveys or follow-ups by certain time intervals make surveys geo-historical studies. The Historical studies, also known as 'vertical' studies, cover a long span of time; either by conducting the study continuously on-site or by intervals, or through reconstruction of the historical information from records and memories of the people. Case-studies are mostly conducted in this manner; but they are oftenly criticized for being too local and less generalizable. However, a cross-examination of several case-studies, say a survey of case-studies, will help the researchers in generalizing certain trends in the society.

To sum up, by purpose, a social research may be an exploratory, descriptive, explanatory or any combination of these three types of studies; by methods and techniques, they may be either informal or formal studies; by scope and hence methods and techniques, they may be a census, survey or case-study; and all of these studies by purpose, scope, method and/or technique may be geographical, historical, or both.

Reference

No specific reference could be found that could suffice for this section. Therefore, I have tried to summarize my own knowledge and work experience to provide the students with at least some notion on these types of socio-economic research studies. However, if the teacher can find some more appropriate information on the same, he may prefer to use that instead. (M. Iqbal A. Niazi).

e. Research Application

The immediate applicability of research findings to current social issues is largely a function of earlier decisions in the research process. To be sure, inquiries that have been geared to immediate application from the outset may yield results that have practical significance. In the long run, they may have even greater social usefulness than a study undertaken with the goal of immediate application in mind. It is possible, for example, that modern theories of learning developed in the course of laboratory experimentation may one day revolutionize education, but, if this is to happen, someone must undertake the task of transforming theoretical concepts into realistic and relevant terms that will make possible the testing of their validity for concrete educational situations.

It is largely a question of preference whether a social scientist works with the goal of immediate or potential application in mind, or whether he is completely indifferent to this issue. But the social scientist who is concerned with the immediate applicability of his work must keep this objective in mind at every stage of his study. The selection of the research problem, the choice of setting, the extent to which action personnel are involved, the manner in which the findings are presented - all may affect the likelihood of application.

One of the first things the investigator must decide, for application of his work, is the extent to which the people who may be expected to use the results should participate in planning and carrying out the research. Usually some minimum cooperation is essential. Research intended to have immediate usefulness is frequently carried out at the request of an organization (or dept.) that hopes to solve some problems. In order to conduct research in such a setting, the investigator must enlist the cooperation of the people in authority at least to the extent of securing their permission to go ahead with his plans. Collaboration with an action agency may sometimes be necessary, or desirable, even if the investigator (researcher) is not concerned with the application of his findings. How much the action personnel should participate in the research, beyond the necessary minimum, is a matter for decision. Collaboration with lay people is time-consuming and does not always proceed without friction. Nevertheless, from the standpoint of application of research findings, the advantages of collaboration far outweighs its disadvantages.

The formulation of research for immediate use requires a knowledge of the nature of decisions that are likely to be made by persons concerned in a practical way with the problem under investigation. This knowledge is best acquired in close collaboration with such persons and agencies in the early stages of an inquiry. The final statement of the problem in terms that make it a workable starting point for research is, of course, up to the social scientist. He is the expert in the research process and it is he who must take responsibility for the adequacy of the research procedure. The practitioner has a different kind of knowledge to contribute. Nothing but confusion is to be gained by mixing the functions of the two. Each of them is an expert,with a specialist's knowledge of the research matter, but one is concerned with advancing knowledge of a given phenomenon and the other with improving existing services. Sometimes friction occurs because of these disparate goals and standards. The practitioner may well become impatient with the experimenter's controls, and may wish to put new insights into effect immediately, whereas the experimenter may become exasperated with the practitioner's desire to enact changes when he has no solid evidence of their value.

Each partner makes his best contribution when it is highly specific to the function for which he has been trained. This 'division of labor' is appropriate throughout the research, no matter how close the collaboration is. The social scientist is the

expert on research design, sampling, construction of measuring instruments. But the practitioner knows the specific situation. He can be of inestimable help in pointing out possibilities for natural experiments, such as comparing subgroups within the agency in which different practices are followed, or possibilities for setting up experimental manipulations in such a way that they will appear realistic to the subjects.

The agency personnel can inform the investigator whether data needed for the study are available in records compiled in the course of the agency's regular operations, or they may be able to suggest ways in which the collection of data can be worked out into on-going procedures; and they can advise him whether his proposed design or methods of data collection are likely to be feasible. The action personnel may participate in carrying out the experimental manipulations, in gathering and analyzing the data, and/or in producing (e.g. typing) the study report.

However, collaboration does not always run smoothly, nor are the recipients of research findings always eager to accept and act on them - even though they may have requested the investigation in the first place. Even if the organization (or department) has requested the study, this request may not represent a consensus on the part of all the relevant people or interest groups within the organization. In other situations, the relevant people may have recognized a problem and believe that research can contribute to its solution, but some of them may feel that the specific experimental manipulations or other research procedures are in conflict with the goal of the organization or with its best functioning. Lack of understanding of the relevance of the research to solution of the problem at hand is another source of reluctance to cooperate in a study or to apply its findings. One final source of resistance is especially likely to come into play at the stage of applying the findings: the reluctance to change accustomed ways of doing things. Application of research findings often implies doing something differently, in a way that will presumably be more effective. But ordinarily it is easier to keep on doing things as we have been doing them; inertia may lead to rejection of the research findings or of their implications for action.

The basic principle of achieving successful collaboration with an action agency, is that before a study gets underway, it should be discussed fully with all those who will be affected by the research, either through helping to carry it out or through applying the findings. This process is usually started with top administrators, whose support is normally essential to carrying out research within or for an organization. However, cooperation on the part of other personnel can seldom be assured simply by orders from above, especially if the study makes heavy demands on them or extends over a long period of time. Therefore, the discussions should be extended to include all those who will be to help in the study or in applying its findings. The more active the cooperation

needed, the more essential it is that everyone concerned understand the nature and purpose of the research and be reasonably sympathetic toward it. The threatening aspect of research can often be reduced by stressing the aim of finding better ways of accomplishing the organization's goals - that is,by emphasizing the potential findings as a source of help rather than criticism. It should be made clear that the purpose of the study is not the evaluation of individuals, and that the findings will have no bearings on anyone's prospects for continued employment, promotion, etc.

Reference

Selltiz, Claire, et. al., 1962, Research Methods in Social Relations; Chapter 13: 'The Application of Social Research'; pp.455-478. New York: Holt, Rinehart and Winston.

FOREST SOCIOLOGY

Lecture 16

TEACHER'S OUTLINE

Section D: SOCIAL RESEARCH

Chapter 11. RESEARCH METHODS (cont'd)

f. Data Collection

1) Scientific Observation: Research purpose, systematic planning for and recording of data, relation to more general propositions, and validity and reliability.

2) Interviewing: The subject's verbal report of events, interpretation of situations, account of feelings and perceptions, and willingness and ability to report.

3) Questionnaire: Interview versus questionnaire - advantages, limitations and use in research.

4) Projective Methods: Direct versus indirect techniques; stimulus situation, interpretation of responses, and difficulties in indirect techniques of data collection.

g. Data Analysis and Interpretation

1) Categorization of Data: Grouping the data into a limited number of categories, principles of classification, difficulties with unstructural data, coding and judgement of coder, cross-checking and editing of the data.

2) Data Processing and Tabulation: Marginal or simple count frequencies, cross-tabulations or breakdowns, testing relationships among the variables, hand versus machine tabulation, and analysis planning.

3) Statistical Analysis of Data: More than just counts, description and summary of the data, estimation of generalizations to total population, descriptive statistics and sampling statistics.

   a) Central Tendency: Arithmetic mean/average, medium, mode.

   b) Variability: Range, average, deviation, standard deviation and quartile deviation.

   c) Distribution: Plotting a graph and distribution curve.

d) Correlation: Association or parallelism between two or more variables and logical basis for causal relationship.

e) Comparison: Differences between two or more variables and comparison of groups.

f) Significance of Findings: Statistical significance indicates probability, confidence in interpretation, assured evidence, relation with other studies and social and psychological meanings.

4) The Use of Qualitative Data: Raw data, increases readability of the report, see the whole context, neglected aspects, range of meaning and new insights, explanation of exceptions, refinement of hypotheses for further research, limits to generalizability and discovery of promising leads.

h. Report Writing

1) The Importance: Communication of research findings to others; an unpleasant chore tacked on to the end, not part of it; specialized skills; fit into larger whole; implications, responses and further improvement; and planning for further research and implementation.

2) The Purpose: Communication with audience, struggle for clarification, the type and want or need of the audience, the best way of presentation.

3) Scientific Report: Statement of problem, procedures/methodology, results and implications, and a summary.

4) Professional Report: A few pages, briefly stated relevant basic facts, separate articles.

5) Basic Qualities: Accuracy, clarity and style.

6) Steps: A detailed outline, first draft, style (simplicity and grammatical structure), explanation of technical terms, spelling out abbreviations, good dictionary, handbook of composition and specialized manuals, preparation of tables, graphs and maps, and final report - reading over, editing and final ordering.

Reference

Selltiz, Claire, et.al., 1962, Research Methods in Social Relations (rev.ed.). New York: Holt, Rinehart and Winston.

Chapter 6-8. 'Data Collection I, II & III'; pp. 199-314.
Chapter 11. 'Analysis and Interpretation'; pp. 385-440.
Chapter 12. 'The Research Report'; pp. 441-454.

NOTE: A copy of this book has been provided to the PFI library.

FOREST SOCIOLOGY

Lecture 16

Section D: SOCIAL RESEARCH

Chapter 11. RESEARCH METHODS (Continued)

f. Data Collection

In socio-economic research, the relevant data is collected by observing the physical objects, reading related information, and interviewing the people concerned. The relevant data can be of two main types, i.e.,primary or impirical data collected through direct observation, experimentation, and interviewing and discussions with officials and local people; and secondary data from published material, official and personal records, and life histories and stories about past events and particular situations that depend solely on the memory of the informants.

(1) Observation

We are all constantly observing - noticing what is going on around us. Observation is not only one of the most pervasive activities of daily life; it is a primary tool of scientific inquiry. Observation becomes a scientific technique to the extent that it (a) serves a formulated research purpose, (b) is planned systematically, (c) is recorded systematically and related to more general propositions rather than being presented as a set of interesting curiosa, and (d) is subject to checks and controls on validity and reliability. Many types of data required by the social scientist as evidence in research can be obtained through direct observation. To obtain these and many other types of data,the scientist proceeds best by observing the appropriate situations. Perhaps the greatest asset of observational techniques is that they make it possible to record behaviour as it occurs. All too many research reports depend entirely on people's retrospective on anticipatory reports of their own behavior.

(2) Interviewing

Direct observation of hebaviour is, of course, not the only method by which the scientist can obtain data; interviews and questionnaires, projective techniques, and available records can be substituted for his own observation; and add meanings to his observations. In the interview and questionnaire approach, heavy reliance is placed on the subject's verbal report for information about the stimuli or experiments to which he is exposed and for knowledge of his behavior; usually the investigator has not observed the events discussed. The subject's report, however, may or may not be taken at face value; it may be interpreted in the light of other knowledge about him or in terms of some psychological

theory; inferences may be drawn about aspects of his functioning which he has not reported. Regardless of the amount and kind of interpretation, however, the starting point is the subject's self report. Thus these approaches can ordinarily obtain only material that the subject is willing and able to report. Not only may people be reluctant to report openly their beliefs, feelings, motivations, plans, real activities, and so on; they may be unable to do so. Despite the limitations of self-report, it is frequently both possible and useful to get an individual's own account of his feelings and perception toward an object or a behavior.

(3) Questionnaire

Although both interviews and questionnaires place heavy reliance upon the validity of verbal reports, there are important differences between the two methods. In a questionnaire, the information one obtains is limited to the written responses of subjects to prearranged questions. In an interview, since the interviewer and the person being interviewed are both present as the questions are asked and answered, there is opportunity of greater flexibility in eleciting information; in addition, the interivewer has the opportunity to observe both the subject and the total situation to which he is responding. By its very nature, the questionnaire is likely to be a less expensive procedure than the interview. The impersonal nature of a questionnaire - its standardized wording, order of questions, and instructions for recording responses - ensures some uniformity from one measurement situation to another. The interviewing situation, on the other hand, is rarely uniform from one interview to the next. Not only do the personalities of different interviewers affect the measurement situation differently; each interviewer is bound to vary somewhat from interview to interview. Moreover, in some types of interviews, the interviewer has no standard set of questions to ask. As a result, interviews may be less easily comparable with one another than questionnaires. Another advantage of questionnaires is that respondents may have greater confidence in their anonimity, and thus freer to express views they fear might be disapproved of or put them in trouble.

In both questionnaires and interivews, information is obtained by asking questions. Questionning in particularly suited to obtaining information about what a person knows, believes or expects, feels or wants, intends or does or has done and about his explanations or reasons for any of the preceding. It should be recognized, however, that questions do not always fall neatly into one or another 'content type'. The distinctions among types are a matter of custom and convenience rather than theoretical vigour.

(4) Projective Methods

Techniques that rely on the individual's own report of his behavior, beliefs, feelings, etc., presuppose that the person is willing and able to give such information about himself. But this is not always true. People may be unwilling to discuss controversial topics or to reveal intimate information about themselves.

They may be reluctant to express their true attitudes if they believe that such attitudes are generally disapproved. Or they may be unable to give the desired information, either because they cannot easily put their feelings into words or because they are unaware of their feelings about the matter in question. To get around with these limitations, techniques have been devised that are largely independent of the subject's self-insight and of his willingness to reveal himself. These indirect techniques may be grouped into two broad classes, differing in their degree of structure. The less structured ones are commonly referred to a 'projective methods'; among the more structural techniques we may identify 'disguised methods and substitute measures.

A 'projective method' involves the presentation of a stimulus situation designed or chosen because it will mean to the subject not what the experimenter or investigator has arbitrarily decided it should mean but rather whatever it must mean to the personality who gives it, or imposes upon it, his private, idiosyncratic meaning and organization. The assumption is made that the individual's organization of the relatively unstructured stimulus situation is indicative of basic trends in his perception of the world and in his response to it. It should be noted that the stimuli are capable of arousing many different kinds of reaction; there are no 'right' or 'wrong' answers; nor is the respondent faced with a set of limited alternatives. The emphasis is on his perception of the material or matter, the meaning he gives to it, they way in which he organizes or manipulates it. The nature of the stimuli and the way in which they are presented do not clearly indicate the purpose of the test or inquiry, or the way in which the responses will be interpreted. The individual is not asked to talk directly about himself. However, the responses are interpreted as indicating the individual's own view of the world, his personality structure, his needs and feelings, his ways in interacting with people. These 'indirect methods' are mainly used by psychologists, but with certain modifications, other social scientists also use them for cross-checking and verification of their primary data. Nevertheless, it is a very difficult task and needs sufficient knowledge of and practice in these methods before successfully applying them to the matter in question. The only purpose of mentioning them here is to warn the students of the limitations of the 'direct methods' and informing them that how such limitations can be overcome by the use of these 'indirect methods'. Students interested in details are advised to refer to the below referenced material and similar other publications.

Reference

Selltiz, Claire, et.al., 1962, Research Methods in Social Relations (revised edition); Chapters 6-8: 'Data Collection I,II & III'; pp. 199-314. New York: Holt, Rinehart and Winston.

g. Data Analysis and Interpretation

After the data have been collected, the social scientist turns his full attention to their analysis and interpretation, a process consisting of a number of closely related operations. It is the purpose of analysis to summarize the completed observations in such a manner that they yield answers to the research questions. Both these purposes, of course, govern the entire research process; all preceding steps have been undertaken in order to make their fulfilment possible. Although the extent of early concern with these two subsequent steps will vary from study to study, it is safe to say that no scientific inquiry should be planned without anticipating what will be done when the data are in or without being concerned with the possible interpretation of findings. Otherwise the investigator is likely to discover when it is too late that he cannot perform the analysis he wants because relevant data are missing.

The process and direction of interpretation at various steps of an inquiry will undoubtedly bear the mark of the investigator's knowledge, imagination, and wisdom. No one study can ever plan to follow through on all interpretive ideas that emerge in the course of its conduct. But this situation is hardly improved by postponing concern with interpretation to later stages, when there is little chance for anything but speculation in attempts to circumscribe the meaning of one's results or to discover alternative explanations.

The relationship between analysis and interpretation, and the particular form they take separately and jointly, vary from study to study. Problems of analysis and interpretation differ in different study designs. As a rule, they present difficulties in exploratory than experimental investigations. However, the basic principles involved in analysis - even though not all the specific procedures - apply to studies of every type and kind.

(1) Categorization of Data

Clearly, if several hundred responses are to be organized so that they can be used in answering the research qauestions, they must be grouped into a limited number of categories. In order to decide on the relevant categories, some principle of classification must be selected. The research qustion, or the hypotheses if any have been formulated, provide the basis for selecting principles of classification.

In some situations the establishment of categories is considerably more difficult and more time-consuming than others. Special problems arise in the categorization of unstructured material, such as observational protocols, case histories, speeches of agitators, unstructured interview, etc. In a study using structured instruments (e.g., questionnaires) for gathering data relevant to clearly formulated research questions or hypotheses, the appropriate principles for classification of responses are fairly clearly prescribed by the nature of the stimulus or of the questions and

by the responses. In working with unstructured evidence, however, the first problem is to arrive at decisions about which aspects of the material are to be categorized, that is, what classificatory principles are to be used in establishing sets of categories.

The technical procedure by which data are categorized is known as 'coding'. Through coding, the raw data are transformed into symbols - usually numberals - that may be tabulated and counted. The transformation is not, however, automatic; it involves judgement on the part of a coder. The judgement that assigns a response to a category is often made by someone other than the person who goes by the official title of 'coder'. Frequently, it is the respondent himself who assigns his response to a category. This is true for many pool-type and multiple-choice questions, for example, when the individual is limited to a response of 'Yes', 'No', "Don't know', or to 'Agree', 'Disagree', 'Uncertain', or to indicating by a check mark his position on a rating scale. Or the person who collects the data may categorize as he collects them. This is, of course, what is being done when an interivewer or an observer employs a rating scale to describe a person's behavior. When the interivewer or observer hands in his material, the possibility of eliminating many potential coding difficulties still exist. A careful examination of the data as soon as they collect and, if necessary, a systematic questioning of the interviewer or observer will avert many coding problems. The process of scrutinizing the data to improve their quality for coding is commonly called 'editing'. Moreover, each interview or observation schedule should be checked for its completeness, legibility, comprehencibility, consistency, uniformity, and inappropriate responses thoroughly while the person who collected these data is still around; later such errors may cause a considerable loss to the study in question.

(2) Data Processing and Tabulation

Tabulation is a part of the technical process in the statistical analysis of data. The essential operation in tabulation is counting to determine the number of cases that fall into the various categories. The term 'marginals' is commonly used to refer to simple counts of the frequencies with which the various categories in each set occur in the data; for example, the number of people who have not gone beyond primary school, the number who have attended high school but not taken the board examination. The terms 'cross-tabulation' or 'breakdown' are often employed to refer to the tabulation of the number of cases that occur jointly in two or more categories; for example, tabulation of the number of cases that are both high in education and low in income. Crosstabulation is an essential step in the discovery or testing of relationships among the variables in one's data.

Tabulation may be done entirely by hand, or it may be done by a machine - typewriter or computer (e.g. Lotus 1-2-3, dBase, etc.). Each method has advantages and disadvantages. Briefly, manual tabulation is generally less expensive and less time-consuming when there is only a small or moderate number of cases, when the number

of category sets to be counted is small, and when not many cross-tabulations are to be done. When the number of cases or the number of cross-tabulations increases, the use of machine tabulators (Computers) becomes progressively more economical. The number of cross-tabulation is, perhaps, the most important factor in determining the relative efficiency of one rather the other procedure in tabulation. Generally, the efficiency of hand tabulation tends to be under-estimated. With proper techniques, hand tabulation can be quite rapid and accurate. One of the most efficient techniques uses, for each case, a small 3"x5" code card that can be easily sorted and counted. By use of such devices as colors, heavy lines, etc., the codes can easily be distinguished and the cards efficiently sorted. But nowadays, a wide-spread and ever-increasing tendency is seen towards the 'fashion' of using computers for even small number of cases and simple tabulations that can easily be done by hand.

Both machine and hand tabulation presuppose that the data have been coded and that the coding has been checked. Scores for each individual are usually transcribed onto a card for hand tabulation or onto a sheet from which they are copied or transfered to the computer 'worksheet' or 'spreadsheet'. Machine tabulation actually involves more clerical and specialized programming than hand tabula tion does. The cost of using a machine (computer) is very high if one considers hourly rates. However, if there is a large amount of data requiring complicated statistical treatment, the speed of the machine may more than compensate for the expense; in some cases it makes possible analyses that would not otherwise be feasible. For example, with a few hundred subjects, the computation of all the inter-correlations among a hundred variables is a job that may take a statistical clerk, using an ordinary calculating machine, many months; an electronic computer, once it has been properly set up for the operation, can complete the job in an hour or so. The rapidity of even the simpler machines presents a temptation to 'run wild' and simply cross-tabulate every variable against every other in the hope of finding some relationships rather than to plan the analysis by considering the probable value of each operation. This procedure is most undesirable; economically,as well as,technically.

(3) Statistical Analysis of Data

Let us suppose that we have asked a thousand farmers, who have been selected as a sample of the tree growers on their farmlands, a series of questions to gather information about their practices in tree maintenance and use. Assume that we have developed a number of sets of categories and have coded the responses of each individual. The coding may be considered a method of summarizing the responses of each individual; if we were concerned about each individual (preparing a list or recording only), this might be as far as we would go in the analysis. However, the purposes of our research are broader than this. We wish to know that a farmer in NWFP fells his trees twice a year and that a Baluch lets his camel herd graze over the trees for three months every year. Our inquiry is directed toward providing imformation about overall farmer practices in this regard.

As necessary step in characterizing these farmer population, we must describe or summarize the data we have obtained from the sample of our study. Tabulation is a part of this step. In addition, we must estimate the reliability of generalizations from the obtained data to the total population. Statistical methods are used to fulfill both these functions. The term 'descriptive statistics' is often applied to characterize the methods employed in summarizing the obtained data, and 'sampling statistics' to characterize the methods utilized in making and evaluating generalizations from the data. Since the procedures are described fully in most statistics books, we shall not discuss them in detail here. However, let us briefly indicate what is involved. In giving adequate description of a mass of data, we usually wish to do one or another, or several of the following things:

(a) Central Tendency

To characterize what is 'typical' in the group. In the terminnology of statistics,we wish to get some indication of the 'central tendency'. There are various measures of central tendency, each of which makes assumptions about the nature of the data. If those assumptions are not met, then the measure of central tendency may be misleading. Thus, an 'arithmetic mean or average' implies equality intervals, or an interval scale. It is appropriate to such data as the number of times farmers fell their trees each year, since here the scale is that of number itself, with equal intervals between every two whole numbers. On the other hand, suppose that we had asked the respondents (farmers) to rate each of several species of trees they have on a scale that attempted to gauge preference of the species. If we were to assign the numbers 1 to 5 to the five scale positions and average the rating for each species, the average would have no clear meaning, since there is no reason to believe that scale positions are equally distant from one another. In such a case, it would be preferable to employ 'median'. Or suppose that we had simply asked the respondents which of various tree species he preferred. Here the data would be in the form of a 'nominal scale', since various types of the species have no relation or order to one another. In this case, the only appropriate method for measuring the central tendency would be the 'mode'.

(b) Variability

To indicate how widely individuals in the group vary, we may wish to know, for example, whether the people in our sample are similar in their species preferences, so that most people prefer tree species of a given type, or whether there is great diversity. Or we may wish to know whether there is much variation in the frequency of tree-felling among the sample being studied. There are many measures of inter individual variation. The purpose of each of them is to indicate how similar or how different the individuals are with respect to a given characteristic or practice. Some of the common measures are the 'range', 'average, deviation', 'standard deviation', and 'quartile deviation'. As with measures of central tendency, each of the measures of 'variability' makes assumptions

about the nature of the measurements and gives somewhat different kinds of information. The 'range' shows the extremes of variation in the group; the 'quartile deviation' shows the points within which the central half of the cases fall; the 'average' and 'standard deviations' are measures of the average distance to individuals from the group mean like the means they assume that the data correspond to an interval scale.

(c) Distribution

To show other aspects of how the individuals are distributed with respect to the variable being measured. For example, is the number of farmers who do not have any trees on their lands about the same as the number who have ten trees? Or do relatively many farmers grow ten trees each, while relatively few do not have any trees and relatively few have twenty or more trees? If you plotted the figures on a graph, using the number of trees on the horizontal axis (X-axis) and the number of farmers reporting each frequency (number of trees) on the vertical axis (Y-axis), what would be the shape of the resulting graph? Is it rectangular; or is it a bell-shaped or 'normal distribution'; or is it an asymmetrical curve, with piling up of cases at one side or the other; or does it have more than one 'mode'. Knowing the shape of distribution curve is fundamental to the use of efficient statistical methods, since the more efficient methods make specific assumptions about the nature of the distribution curve. It is common to assume that the distribution curve for any variable is 'normal', but this may not be so. If it is not, one may see whether other known distribution curves fit the data or whether one can transform the raw data by mathematical manipulation to a known distribution.

(d) Correlation

To show the relation of the different variables in the data to one another. We wish to know, for example, whether, within our sample, the number of trees grown or the preference for different species seems related to landholding size, age, education, etc. of the farmers. This is, we wish to know whether a variation in one characteristic is associated with or paralleled by variations in another characteristic. There are several methods of determining the relationship between variables. None of these methods in itself, however, permits the conclusion that an association or correlation between variables in one's data is indicative of a causal relationship. The imputation of causality requires an approximation to the logical model. That is, there must be some logical basis for establishing a cause-and-effect relationship between the variables being correlated.

(e) Comparison

To describe the differences between two or more groups of individuals. For example, we may wish to compare the tree maintenance and use practices of those members of our sample who live close to towns with of those who live in remote villages. This is,

of course, a special case of showing the relationship between two variables. We distinguish it solely because in much social research interest is focussed on the comparison of groups. Although such comparisons most commonly involve measures of central tendency, they need not be limited to this; they may include comparison of measures of variation within the groups or of the relations among variables in the two groups. It might be, for example, that the average frequency of tree growing is similar in the two groups but that there is greater variation among close-to-town than among remote-villagers, or vice versa.

(f) Significance of Findings

Since statistical statements, such as 'statistically significant', are always statements of probability, we can never rely on statistical evidence alone for a judgement of whether or not we will accept a hypothesis as true. Confidence in interpretation of a research result requires not only statistical confidence in the reliability or validity of the presuppositions of the research. This evidence is necessarily indirect. It comes from the congruence of the given research findings with other knowledge about which there is considerable assurance. Even in the most rigourously controlled investigation, the establishment of confidence in the interpretations of one's results or in the imputation of casual relationships requires repetition of research and the relating of the findings to those of other studies.

It is important to recognize that even when statistical tests and the findings of a number of studies suggest that there is indeed a consistent difference between two groups, or a consistant relationship between two variables, this still does not constitute evidence of the reason for the relationship. If we want to make causal inferences - that is, to say that one variable or event has led to another - we must meet assumptions over and above those required for establishing the existence of a relationship. One further point should be mentioned. The fact that a result is 'statistically' significant does not necessarily mean that it is 'socially' or 'phychologically' significant. Many statistically significant differences are trivial. On the other hand, there are cases where a small but reliable difference has great practical importance. One must constantly be concerned with the social and psychological meaning of one's findings as well as their statistical significance.

(4) The Use of Qualitative Data

Every reader of social research publications is familiar with the fact that raw data, in the form in which they were collected, are often used in conjunction with data that have undergone analysis and are on a higher level of obstraction. There can be little doubt that the insertion of such material increases the readability of social science documents. Laudable as that is, increased readability in itself presents no compelling scientific reason for the inclusion of such anecdotes and verbatim quotations.

Our purpose here is to discuss the scientific functions of using such material in the course of analysis.

Raw data can be used in analysis and interpretation whether or not they have been quantified in all aspects. Even if virtually every aspect of a statement has been converted into categories, recourse to the original makes it possible to see the whole context. More frequently, however, not every aspect of the material has been categorized. In these cases, recourse to the raw material has the additional advantage of bringing neglected aspects to the fore. The use of raw data in the course of analysis fulfills two distinct functions: to illustrate the range of meaning attached to any one category, and to stimulate new insights. The search for explanatory concepts through reference to the raw data often becomes the only possible way of dealing with cases that do not show the same trends or patterns of relationship as most of the cases in a study. Such cases, by the very fact that they are exceptions, occur in such small numbers as to preclude a refined statistical analysis. Yet study of the exceptions may make it possible to refine hypotheses so that the frequency of exceptions can be reduced. This process of refinement itself needs to be regarded with caution until it can be checked against new data. 'Explaining away' the exceptions suffers from the weaknesses of all adhoc reasoning.

The examination of non-quantified (or qualitative) material often leads to ideas for further research by revealing aspects of the phenomenon that have not been sufficiently studied in the particular investigation. Recognition of those aspects needing further study may also help to point up limits to the generalizability of findings from the given study. In other cases, suggestions for further research are not so obvious; they must be deliberately sought in the raw data. Although the confirmation or refutation of hypotheses requires that a study be set up with the same in mind, the purpose of discovering promising leads for investigation is often served best by the painstaking inspection of nonquantified data.

Reference

Selltiz, Claire, et.al.,1962, Research Methods in Social Relations; Chapter 11: 'Analysis and Interpretation'; pp. 385-440. New York: Holt, Rinehart and Winston.

h. Report Writing

The research task is not completed until the report has been written. The most brilliant hypothesis, the most carefully designed and conducted study, the most striking findings, are often of little import unless they are communicated to others. Many social scientists seem to regard the writing of a report as an unpleasant chore tacked on to the end of the research process but not really an inherent part of it. To be sure, this stage requires a set of skills somewhat different from those called for by earlier stages

of research; and much of the excitement of discovery may have worn off by the time the investigator shifts the focus of his attention from analysis of his data to preparation of the report. Nevertheless, communication of the results so that they enter the general store of knowledge is an essential part of the investigator's responsibilities, which should receive the same careful attention that earlier stages do. Moreover, if sufficient time has been allowed for preparation of the report (which is seldom true), the investigator may even find himself enjoying the opportunity it presents to fit pieces together into larger whole, to consider the implications of his findings, to mull over the gaps or new questions raised, and to think about what kinds of future research might provide answers.

Perhaps the most important point to be kept in mind when writing a report is its function. 'The purpose of a report is not communication with the audience'. This statement may appear obvious. However, a perusal of social research documents will show that all too many bear the stamp of a struggle for clarification of the author's own thoughts; they are not designed to communicate with an audience about problems that it would find of interest. Emphasis on communication with an audience demands that one be clear about the type of reader for whom a given report is intended. A report directed to fellow social scientists will be different in many ways from one addressed to administrators who may take action on the basis of the findings; both will differ in some respects from a report whose purpose is to inform general public. Whatever the audience, two broad questions should be considered in planning the report: (a) What does this audience want or need to know about the study? (b) How can this information can best be presented?

The social scientist who reads a research report needs to be told enough about the study so that he can place it in its general scientific context, judge the adequacy of its methods and thus form an opinion of how seriously the findings are to be taken, and if he wishes, repeat the study with other subjects. In order to give him the necessary information, the report must cover the following points:

i. Statement of the problem with which the study is concerned.

ii. Research procedures (methodology): the study design, the method of manipulating the independent variable if the study took the form of an experiment, the nature of the sample, data collection techniques, the method of statistical analysis.

iii. The results (or findings).

iv. The implications drawn from the results.

It is customary to conclude with a very brief 'summary', restating in barest outline the problem, the procedures, the major findings, and the major conclusions drawn from them. Frequently, a detailed report such as that pointed out above does not seem

appropriate. The study may not seem important enough to warrant a great investment of time and money in writing and producing the report, or of the audience's time in reading it. In fact, the more usual report is one prepared for professional or academic journal, which must ordinarily be kept to a few printed pages. Such reports must still give the reader the basic facts he needs to know, but in abbreviated form. If the study has two or more aspects that can be discussed independently of each other, it may be advisable to write separate 'aticles' rather than to try to crowd too many different findings into a single article.

The basic qualities of a good scientific writing are 'accuracy' and 'clarity'. A style that is pleasing from literary or esthetic point of view is an 'extra'. The investigator reporting his research has no obligation to be colorful or elegant in his writing, or to hold the reader's interest by a lively style, though there is no reason why he should repel the reader by asking him to wade through long, involved, unclear, or pompous sentences.

The first step - and with it the battle is half won - is to decide just what information you want to convey and how the various points are related to one another. Writing a detailed outline is an invaluable aid at this stage. Preparing a detailed outline allows one to concentrate exclusively, at first, on 'what' is to be said, without worrying about 'how' to say it. One constructs the skeleton of the report; looking at the bare bones, one can more easily see whether any important points have been left out. Moreover, the outline form, with its clear indication of major topics, subtopics, and still further subdivisions, almost forces attention to logical relationships within the material. Once the outline has been written, it is a good idea to go back over it thoroughly, and make necessary logical changes in it. It may be helpful to have someone else read and comment on it. Then, if changes in the basic structure of the report seem to be needed, they can be made before the actual writing starts.

Whether one worries about writing style in the course of producing the first draft is to some extent a matter of individual disposition. At some point, however, attention must be given to style. There is little that can be said about this, except to stress the value of 'simplicity' and 'grammatical structure'. A common fault is pretentiousness. It is, of course, entirely appropriate to use terms that have a technical meaning in any field of study. But, it should be kept in mind that the bulk of readers may not be familiar with such technical terminology; thus, such terms should be explained wherever they occur first. Similarly, the abbreviations should also be spelled out when they first appear in the text or a glossary should be appended for the same purpose.

A good dictionary is an essential part of a writer's equipment. A good handbook of composition may also be helpful. For specific problems in preparing a manuscript for publication, one may need to consult more specialized manuals. The preparation of tables, graphs, etc., also requires care. The title should state briefly

the subject matter of the table; any necessary qualifications or explanations should be given in a footnote to the table. Once the report has been written and tables and graphs prepared, the author should read it over for insuring clarity, correctness, completeness, simplicity, justtification of the conclusions, and the logical sequence of presentation of various items in the report. Removal of all the discrepencies and inconsistencies, if any, and insuring smoothness in reading and ideas will make the research report 'final'.

Reference

Selltiz, Claire, et.al.,1962, Research Methods in Social Relations; (rev. edition); Chapter 12: 'The Research Report'; pp.441-454. New York: Holt, Rinehart and Winston.

FOREST SOCIOLOGY

Lecture 17

TEACHER'S OUTLINE

Section D: SOCIAL RESEARCH

Chapter 12. FIELD WORK: Case Studies

a. Project Design: Land Tenure and Agroforestry (Haiti)

1) Purpose: Possible linkages between land tenure variables and the reasons of the failure of most tree planting projects - to motivate farmers to plant trees.

2) Findings (15 reforestation/soil conservation schemes):

   a) Internal heterogeneity in land tenure.

   b) Land tenure insecurity did not effect the projects.

   c) Wrong tenure categories of plots for tree planting.

   d) The technical choices were not in line with the local situation.

   e) Errors in institutional domains - allocation of resources (funds) to the government ministries.

3) Suggestions:

   a) Emphasize economy, not ecology.

   b) Provide opportunity to farmers to cash-crop wood.

   c) Ownership control and harvest rights of trees be made as they have for their crops; and avoid village woodlot model.

4) New Design: Peasants are increasingly taking interest in tree planting. They now accord the same degree of protection to their trees as they do to their crops. The vast majority of trees are border planted or inter-cropped on privates plots of agricultural land. Marginal collective land is generally used for grazing animals and because of its tree tenure insecurity, is avoided for tree planting. There has been considerable change in the behavior of local institutions.

17

5) Conclusions: The goal of planning should be to target those plots which can produce the same (or higher) economic returns that the farmers have so far been getting from food production. Failing to discover the potential linkages was the fault of the planners, not the land tenure system.

b. Sociocultural Perspective on On-Farm Trials

1) The Scientists and Farmers: They are both engaged, in their own ways, in the same effort: increasing the efficiency of agricultural production. Scientists strive to achieve this because it represents the practical payoff of their research and farmers because it is their livelihood, yet they cope with different worlds; and they see those worlds with different eyes. The trick is to bring farmers and scientists into meaningful communication so that scientists are working on real problems rather than imaginary ones and farmers benefit from the technology produced by science. The farmer must be convinced that the scientist is not just another 'rural development tourist' but honestly concerned with solving farmers' problems - he has to understand the farmers' point of view.

2) Seeing Eye-to-Eye with Farmer: (a) Farmers determine a new technology's level of risk by experimenting on their own, overtime, under their conditions, and in more fields than one. If new practices prove worthy, farmers will accept; they are not traditional or conservative in a negative sense, rather they are simply cautious toward unproven ideas. (b) What farmers say and what farmers think is often at odds. Beware of these eager, ever present professional farm technology testers. (c) On-farm research under farmers' conditions is normally difficult to logistically execute. It is natural at times to be inclined toward elite farmers, only male farmers, locating trials near the best roads and selecting relatively prosperous villages. These biases may not necessarily be negative but if they happen to be, we should find ways to correct them.

3) Farmer Evaluation (7 questions)

   a) To understand small farmers, we should ask them and ourselves: Is the problem important to them?; Do they understand the trials?; Do they have sufficient resources?; Does the technology make sense in their conditions?; Is the mood favorable?; Is the proposed change compatible with the local culture?; and, Do they believe the technology will be long-lasting? In asking these questions, try to think like a farmer.

b) The farmer is the teacher, the expert about local farming practices and you (scientist) are the learner; fight out the urge at this point to be all-knowing adviser.

c) If doubts arise, we must not give up, rather try to alter the technology to fit the farmers' conditions. It is easier to adapt a specific piece of technology to the complex farming system than to ask the farmer to change his farming system to fit our technology.

d) The acceptability of a technology depends on what the farmers actually do, which may not be the same what they have told us. The final step of a new technology's acceptance will occur only then when the farmers themselves take it over and incur all risks, costs and benefits.

c. Farming Systems Research versus Cropping Systems Research (Bangladesh)

1) The Cropping Systems Research (CSR) Model

a) The CSR approach has produced two major findings: (i) small farmers excel at managing scarce resources, scarce labor and limited capital; and (ii) the farmer must be placed at the center of any program aimed at rural economic development.

b) The CSR model emphasizes on cropping patterns but despite its impact on agricultural research, extension and administration, is not adequate to fully meet the agricultural development demands of 1980s. It places too little emphasis on the whole farm.

c) In the farmer's view, a guaranteed poor but predictable crop yield is better than an unpredictable high yield (ref: preset large sized plots for experiment./demonstration).

2) The Farming Systems Research (FSR) Model

a) The FSR/whole farm approach would help the projects' researchers to the realization that their on-farm experimental cropping trials should have been simplified in order to obviate the fears of the farmers and redesigned to accommodate the limited and fragmented land holdings of the farmers.

b) The whole-farm (crops, animals, trees,etc.) and the farmers' perception of the whole-farm within a socio-cultural and natural environment be given the highest priority.

c) The beneficiaries of the FSR approach are scientists, administrators, extension workers, and most importantly, farmers.

d. Rural Development Tourism: Poverty Unperceived

1) Causes and Effects

a) 'Rural development tourism' describes the brief rural visit by a professional from an urban center. This is part of the systems of knowledge of non-rural people about rural conditions and life.

b) The academic researchers do their fieldwork when young and inexperienced, but once older and experienced, they are trapped in towns by family, teaching and promotion. As people get older and more influential, so they move further from rural life and become busier. Such 'core' people see and meet those who are 'peripheral'.

c) Such tourists or visitors are mostly government officials with professional background, living and working in urban areas, wanting to find something out and being short of time. Then there are those who do live in rural areas and yet who tour; those who want to turn a blind eye to failures to achieve targets, those who do not want to embarrass their hosts; and those who do not want to hear people's protests.

d) The rural people, out of their indifference, enthusiasm, amusement or suspicion, try to see how penalties can be avoided and advantages gained. They conceal somethings, pretend others, show yet others. Unless there are frictions or factions, they show each other in a good light, reciprocating past favors from one another.

e) The visitor is encapsulated, first in a vehicle, and later in a moving entourage of officials and local notables. Some of the things the visitor most wants to find out are the things the officials most want to conceal; and the local notables maneuver prudently between the too. When dark falls, life comes back to normal and people talk more freely, the visitor is not there.

2) Field Tactics

a) Offsetting the Anti-Poverty Biases: Go further afield and walk away from roads; visit also non-project areas by stopping at unscheduled places; seek out the poorer people deliberately; try to visit in or ask about the worst times of the year; break away from courtesies and

make it clear what you are really seeking; obtain time series data and on changes overtime; try to widen spans of your professional perception and ask open-ended questions from rural people.

b) Spending Longer Time: In many ways the poorer people are at the end of the line. They take longest to reach, they are the last to speak; least organized and articulate; and most fearful. Try to spend longer time in the village and if possible, stay a night or two.

c) Being Unimportant: Unscheduled visits, walking and asking about things that are seen, planning 'seriously' not to have a special program, and avoiding the impression of having influence over benefits or penalties, will reduce danger of misleading responses and impressions.

d) Listening and Learning: Act as a pupil, listening and learning, to let the indigenous knowledge to be revealed, closed-questions impose meanings; open-ended questions and discussions lead into areas you did not even know to ask about. There is much to be discovered, but arrogance and status all too often prevent professionals from learning.

Reference

Murray, Gerald F. May 1985, 'Land Tenure and Agroforestry in Haiti: A Case Study in Anthropological Project Design'; paper read at ICRAF, 26-30 May 1985; Nairobi, Kenya.

Rhoades, Robert E., June 1982, 'Understanding Small Farmers: Socio-Cultural Perspectives on Experimental Farm Trials'. Lima, Peru: International Potato Center (CIP).

Wallace, Ben J. and Ekramul Ahsan, 1986, Farming Systems Research as an Alternative to Cropping Systems Research: An Example from Bangladesh'; in Jones & Wallace edited, pp. 87-98.

Chambers, Robert, 1979, 'Rural Development Tourism: Poverty Unperceived'; paper read at a conference on "Rapid Rural Appraisal"; 4-7 December 1979; Sussex: Institute of Development Studies (IDS).

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FOREST SOCIOLOGY

Lecture 17

Section D: SOCIAL RESEARCH

Chapter 12: FIELD WORK: Case Studies

a. Project Design: Land Tenure and Agroforestry (Haiti)

The researcher (an anthropologist) was invited by USAID/Haiti in the late 1970s to carry out research exploring possible linkages between land tenure variables and the failure of most tree planting projects to motivate Haitian peasants to plant trees. His investigation of 15 reforestation and soil conservation schemes produced that: (a) the land tenure situation was mostly characterized by internal heterogeneity; (b) the projects did not fail because of land tenure insecurity; (c) the projects had targeted the wrong tenure categories of plots, i.e., the state-land and agriculturally marginal land, for tree planting; (d) most of the technical choices made in these projects were not in line with the local situations, and, (e) the most serious program errors were made in the institutional domains, i.e. the resources were entrusted to government ministries, who had other priorities in their agendas. On the basis of these findings, he proposed that: (a) the economy be emphasized, not ecology; (b) a project be created in which, for the first time in their history, the peasants would cash-crop wood; and (c) their ownership relation to the trees be made the same as their ownership control and harvest rights over the other crops which they plant, thus, the projects should avoid the village woodlot model because peasants would not be sure of fulfilling their personal interests. The new design of the tree-planting project, thus, was changed to contain improved technical, microeconomic and institutional measures that were locally feasible.

The project hesitatingly agreed to plant three million trees on peasant lands in the early 1980s - hesitatingly, because the new project design was founded on untested predictions. The hypotheses have since then been totally validated by the increasing interest of the peasants in planting trees on a country wide basis. Though survival rates of the trees have not been precisely calculated yet, it is clear that in moist areas survival rates are high and in arid areas they are low. What is important is that morality is due, not to human carelessness but to ecological conditions. Peasants are accordingly to the trees the same degree of protection which they accord to their crops which was a central project goal.

Final planting decisions were left to peasants. The vast majority of trees have not been planted on marginal land,but rather border planted or inter cropped on plots where the peasants are simultaneously growing food. Agriculturally marginal land is generally left by kin groups in undivided blocks for common grazing

purposes. This means that the tenure relations prevailing on marginal land are such as to impede clear tree-tenure rights. No matter who plants a tree, any kinsman with collective rights in the land can cut the tree down. Thus land tenure dynamics create a situation in which land whose commercial value could be increased by trees (marginal collective land) will not be planted in trees because of the tree-tenure insecurity that would affect such land.

The impact of this project on the behavior of institutions varies according to the type of institution. The participating private village organizations (PVOs) have changed their approach to tree-planting in a manner that is probably irreversible; it is unlikely that they will revert to the less effective models that prevailed before this project. Public sector institutions, in contrast, cling to old patterns. The behavior of these governmental institutions is to be attributed less to institutional stupidity than to possible attachment of some decision makers to agendas which have little to do with tree output.

Farmer accusations of land tenure insecurity as the major cause of tree-planting failure in Haiti have been rendered untenable. A land tenure system, rather, with its internal heterogeneity,can be seen as a menu. The goal of planning is to target that subset of plots which can serve as the stage for unleashing the same economic energy toward wood cultivation that human populations have for some 12 millennia channeled in food cultivation. If planners fail to discover the potential linkages, it is their fault, not that of the land tenure system. There may be regions where such wood-planting is truly hindered by land tenure. But,it is suspected that many more cases of failure are due more to the mediocrity of the planning and management process than to inadequacies or insecurities of the land tenure system.

Reference

Murray, Gerald F., 1985, 'Land Tenure and Agroforestry in Hiati: A case study in Anthropological Project Design'; paper read at ICRAF, 26-30 May 1985; Nairobi, Kenya.

b. Sociocultural Perspectives on On-Farm Trials

(1) The Scientists and Farmers

The way we perceive our environment, other people, or everyday events varies according to our relationship to them. To most of us a camel is a camel; or snow is simply snow. Not to the nomadic Bedouin Arab,however, who as a camel herder can distinguish between hundreds of types or conditions of camels; or to the Alaskan Eskimo who recognizes and deals with equal variety in states of snow. On another front, even though husband and wife are engaged in the same institution (marriage) and have mutual goals (a successful family) each views the situation differently. Humorous and not-so-humorous

daily misunderstandings arise from this unavoidable 'seeing-the-world-through-different-eyes' fact of life. And so it is,to a large extent,with agricultural scientists and developing country farmers. They are both engaged, in their own ways, in the same effort: increasing the efficiency of agricultural production. Scientists strive to achieve this because it represents the practical payoff of their research and farmers because it is their livelihood. Yet we must be honest and admit that agricultural scientists and farmers cope with different worlds; and they see those worlds with different eyes. Fortunately, farmers the world over recognize the benefits of many kinds of agricultural technology produced by science. The trick, therefore, is to bring farmers and scientists into meaningful communication so that scientists are working on real problems rather than imaginary ones.

This is one basic reason for on-farm trials and actively bringing farmers into the research process. It helps scientists understand if their technology is worthwhile. The farmer, however, must be convinced that the scientist is not just another 'rural development tourist' but honestly concerned with solving farmers' problems. This means he has to put his feet in their shoes (if they have shoes). This is no easy task, especially if status, economic, or ethnic differences stand between. The purpose here, therefore, is to provide some simple perspectives for the applied scientist or practical field technician on how to understand the farmers' point of view, especially in relation to on-farm experiments. These guidelines should be relevant whether dealing with fully commercial farmers or remote, marginal peasants.

(2) Seeing Eye-to-Eye with Farmer

The agricultural systems encountered around the world today are logical outcomes of certain time-tested adaptations; they are, in this sense, rational. Farmers determine a new technology's level of risk by experimenting on their own, over time, under their conditions, and in more fields than one. If new practices prove worthy, farmers will accept; they are not traditional or conservative in a negative sense, rather they are simply cautious toward unproven ideas. Expressing rural values, farmers often will go to great extremes not to offend village guests, for example, visiting agricultural scientists. This is truer in some societies, such as in Asia, than others. What farmers say and what farmers think is often at odds. Also, farmers, especially peasant cultivators, sometimes defer to or are intimidated by educated, urban-based people. Frequently, the element of potential gain underlies what farmers tell the scientists. If a farmer gains prestige by association with scientists, or is hoping for inputs to be paid, his answers may be those he thinks scientists want to hear. Beware of these eager, ever present 'professional farm technology testers'.

As scientists or field technicians, we should also be aware of our own biases in selecting cooperating farmers and locations for trials. On-farm research under farmers' conditions is normally

difficult to logistically execute. It is natural at times to be inclined toward: (a) elite farmers who are economically above the average; (b) cooperating with men only, excluding women; (c) locating trials near the best roads to save us from walking any difficult distance; and, (d) selecting villages that are more prosperous although not necessarily representative of a region. There is no easy way around these biases, some of which may not be necessarily negative. However, if they are restricting the representativeness of our trials, we should seek ways to correct them.

(3) Seven Key Questions for 'Farmer Evaluation'

To help us understand small farmers we can ask them and ourselves the following seven basic questions:

i. Is the problem to be solved 'important' to farmers?

ii. Do farmers 'understand' the trials?

iii. Do farmers have 'resources' (time, inputs and labor) required by the improved technology?

iv. Does the proposed technology 'make sense' within the present farming system?

v. Is the 'mood' favorable for investing in certain crops in the region?

vi. Is the proposed change 'compatible' with local preferences, beliefs, or community sanctions?

vii. Do farmers believe the technology will hold up over the 'long-term'?

In asking these questions - all of which are common sense but often forgotten in the process of on-farm research - try to 'think like a farmer'. If you were in his place, given his circumstances and resources, how would you view the trials and technology being proposed. Remember a simple rule of thumb: the farmer is the teacher, the 'expert' about local farming practices and you are the 'learner'. Fight off the urge at this point to be the all-knowing 'adviser'. It is important to seek answers to these questions continuously throughout the trials. Talk not only with the farmer cooperating in the trial but neighbors as well. Our purpose is to objectively understand and how farmers 'perceive' the trials and the proposed technology. If farmers do not understand the technology or believe it is appropriate, they will not be motivated to use it. Hence, our focus should be on making them understand and believe in the proposed technology.

However, if we have seriously asked ourselves and discussed with farmers and their neighbors the above seven questions and tried to think like a farmer, we should have a good idea about

technology's potential acceptability. If doubts arise because the technology conflicts with these socio-cultural aspects, we must not necessarily give up. We should try to alter the technology to fit the farmer's condition. If it is too costly,try to make it cheaper. If it is too labor and time demanding, try to make it more efficient. If the farmer is rejecting our ideas due to biases (say the variety or species we are introducing has a foreign name, for example, which the farmers reject for national pride reasons, and so on), then we should try to remove the bias (change the name, for example). The point is simple: 'it is easier to adapt a specific piece of technology or practice to a complex farming system than to ask the farmer to change his farming system to fit our technology'. Finally, the acceptability of a technology depends on what the farmers 'actually do'. This may not be the same as what they has 'told us'. We can discover this only in a final stage of farmer testing where farmers themselves take over the new technology and incur all risks, costs, and benefits. Until this final step is taken, all other evaluations remain only suggestive of the technology's potential.

Reference

Rhoades, Robert E., June 1982, 'Understanding Small Farmers: Socio-Cultural Perspectives on Experimental Farm Trials'.Lima, Peru: International Potato Center (CIP).

c. Farming Systems Research versus Cropping Systems Research (Bangladesh)

One of the important lessons learned from the experiences of the 1970s is that small farmers excel at managing scarce resources, scarce labor, and limited capital. It has also become clear that the farmer must be placed at the center of any program aimed at rural economic development. Some of these important findings grew out of the Cropping Systems Research (CSR) model, with its emphasis on 'cropping patterns'. The CSR model, however, despite its impact on agricultural researchers, administrators, and extension agents is not adequate to fully meet the agricultural development demands of the 1980s. Here, we examine a CSR project in Bangladesh and suggest how a Farming Systems Research (FSR) model, with its emphasis on the 'whole farm', has greater relevance for fulfilling the socio-economic needs of the farmer. It is through FSR that the social scientists potentially can make a lasting contribution to the agricultural and economic growth of many developing nations.

The CSR approach, despite its many strengths, especially in the arena of agricultural technology, places too little emphasis on the whole farm. The FSR approach would help the project's agricultural researchers to the realization that their on-farm experimental cropping trials should have been simplified in order to obviate the fears of the farmers and redesigned to accommodate the limited and fragmented land holdings of the farmers. It is not

surprising that most farmers have been reluctant to participate in the CSR project (Choto Kalampur, Bangladesh - Jute maximization) because most farmers in the area are small land owners. Getting more small land owners to participate in the project is dependent on redesigning the experiments. It is unrealistic to ask a farmer of this type to denote a third of his land to an experiment because in 'his view', it may or may not be a good investment. He can not afford to 'risk' a third of his land on an 'experiment'. Even if some of the farmers in the community are already getting higher yields from the experiment, he is apt to be hesitant. In his view, a guaranteed poor but predictable yield is better than an unpredictable high yield. On the other hand, the small land owner might be willing to risk on small plot of his land on an experiment and the hope of a higher yield. This type of risk is not necessarily beyond his resources. If the experiment fails, he can still support his family from his other land and sources of income. If the experiment is successful, he will probably devote a little more of his land to the same cropping pattern the following year.

Bangladeshi farmers may be poor but they are hard working and have demonstrated an ability to rebound from both natural and political catastrophes. But, the future of the rural poor of Bangladesh as well other parts of the world is only as good as the actions of the people responsible for planning, directing, and implementing programs in directed social and economic change. One way for those of us involved with directed agricultural development is to work to ensure that the whole-farm and farmers' perception of the whole-farm within a sociocultural and natural environment be given the highest research priority. The beneficiaries of this Farming System Research approach are scientists, administrators,extension workers, and most importantly, farmers.

Reference

Wallace, Ben J. and Ekramul Ahsan, 1986, 'Farming Systems Research as an Alternative to Cropping Systems Research: An Example from Bangladesh'; in Jones and Wallace edited; pp.87-98.

d. Rural Development Tourism: Poverty Unperceived

Rural development tourism describes the brief rural visit by a professional from an urban center. It is a widespread phenomenon, with perhaps tens of thousands of eases daily. In spite of this, it has not been seriously analyzed. This is astonishing until one reflects on reasons. Yet rural development tourism is part of the systems of knowledge of non-rural people about rural conditions and life. It is set in a global system of knowledge and its generation, with cores and peripheries. In the rich, urban, industrialized, high status cores there is a mutual attraction and reinforcement of power, prestige, resources, professionals, and the capacity to generate knowledge. Both internationally and within the third world countries, centripetal forces draw educated people and resources

in towards the cores and away from poor, rural, agricultural and low status peripheries. An urban trap sucks in professionals and holds them fast with better houses, services (facilities), schools and career prospects. Domestic and career cycles reinforce the flow: young, unmarried officials are sent to remote poor areas, but age, marriage, children, seniority and responsibility draw them in towards larger and larger urban and administrative centers; and academic researchers do their field work when young and inexperienced, but once older and experienced, are similarly trapped in towns by family, teaching and promotion. As people get older and more influential, so they move further from rural life and become busier; the more they become involved in rural development at the policy level, the more likely it is that their only firsthand experience of rural conditions will be through brief rural visits. Further, the more influential and busier they become, the more such visits are likely to be formally structured and selective. They have, of course, other sources of information; but it is through rural development tourism, if at all, that such core people see and meet those who are peripheral. Their brief rural visits can scarcely fail to play a key part in forming their impressions and beliefs and influencing their actions and decisions.

The visit may be for one day or for several days. The tourists or visitors are most commonly, a government officials but they may also be technical specialists, academic researchers, voluntary agency staff, journalists, diplomats, politicians, consultants, or the staff of aid agencies. Differing in race, nationality,religion, professions, age, sex, language, interests, prejudices, conditioning and experience, they typically have four characteristics in common: a professional background; living and working in urban areas; wanting to find something out; and being short of time. However, there are government staff, technicians and researchers who do live in rural areas and yet who tour. There are rural development tourists who want to avoid finding things out: officials who want to turn a blind eye to failures to achieve targets; diplomats who do not want to embarrass their hosts; politicians who do not want to hear people's protests. There are rural development tourists who are not in a hurry: in some more leisurely colonial days officials are believed to have taken time on tour, though the memories of some may be tinged with nostalgia; and although conditions now encourage speed and haste, breakdowns intervene with sudden calm. But these are departures from the rule. Most rural development tourism is urban-based, data-seeking, and time-bound.

Rural development tourism has many purposes and many styles. Technical specialists concerned with physical resources may in practice have little contact with rural people, and there may be little formality about their visits. Others - administrators, politicians, policy-makers or various sorts - in contrast, may be involved in many meetings with people. It is with these latter sorts of visits, which have more influence on views of rural life, poverty and priorities, that here we are primarily concerned. Such visits are usually confused and confounded by the objectives of the

rural actors. The rural people, out of their indifference, enthusiasm, amusement or suspicion, try to see how penalties can be avoided and advantages gained. They conceal some things, pretend others, show yet others. Their fear, suspicion and distrust are well-founded. Those who are better of, are out to please. Unless there are frictions or factions, they show each other in a good light, reciprocating past favors from one another. They receive such visitors with degrees of awkwardness, politeness and pleasure, and entertain them according to their ecology, economy and culture. The visitor is encapsulated, first in a landrover (Pajero/Toyota) or jeep, and latter in a moving entourage of officials and local notables. Some of the things the visitor most wants to find out are the things the officials most want to conceal; and the local notables maneuver prudently between the two. In the end, the visitor gives up and retires to a rest house or hotel for rest. The village returns to normal. When dark falls and people talk more freely, the visitor is not there. To rural people, the visit may be welcome or offensive; but prudence and politeness usually carry the day. Where they do not, hurry (short of time) may prevent complaint. Refugees in a rural camp in Tanzania said of UN and government officials, "they come, they sign the book, and they go", and "they only hold discussions with buildings". Speed, superiority and clear objectives (preset agendas) prevent visitors from learning from villagers; they impose visitors' meanings on the information obtained. At its worst, rural development tourism becomes a primitive way of reinforcing prejudice, of being rapid and wrong.

The discussion so far has been negative, itself a bias. But the point is not to destroy or prevent rural development tourism, but accepting it as necessary, inevitable and widespread, to improve it. It is true that for most of such visitors deep and remote understanding of the real local situation may be out of reach, most of the times. But for rural visits concerned with any aspect of rural poverty, there are tactics which help; a little thought and skill. These tactics will astonishingly improve the information seeking endeavour. They are:

(a) Offsetting the Anti-Poverty Biases

Urban, tarmac and roadside biases can be countered by going further afield and walking away from roads; project bias by visiting not only projects but other areas near them,or by non-scheduled stops; biases of personal contact by deliberately seeking out the poorer people; dry season bias by visiting during the rains, or at least by asking about the worst times of the year; the biases of politeness and protocol by breaking away after the courtesies and making it clear what is sought; sychronic bias by seeking time series data and asking people about changes over time; professional bias by seeking through introspection to see the limitations imposed by professional conditioning, by trying to widen spans of perception, and by asking open-ended questions.

(b) Spending longer time

In many ways the poorer people are at the end of the line. They take the longest to reach; they are the last to speak; they are the least organized, the least articulate and most fearful. They often keep a low profile; some are migrants. In any visit that is rushed, they are the people least likely to be encountered. It is after the courtesies, after the planned visits, after the tourist has ceased to be a novelty, that contact becomes easier. Further, it helps to spend the night, to talk after dark, unhurriedly, and to eat together if it can be done unexploitatively.

(c) Being Unimportant

The cavalcade of ears, the clouds of dust, and reception committee and the protracted speeches of the VIP's visit generate well-known problems. By contrast, the visitor who comes simply, by bicycle or on foot, fits more easily and disturbs and distracts less. Unscheduled visits, walking and asking about things that are seen, planning seriously not to have a special program,and avoiding the impression of having influence over benefits which a community might receive, all reduce the dangers of special or misleading responses and impressions (But this is the most difficult tactics, particularly because of 'status' and 'prestige' of the visitor).

(d) Listening and learning

If the tourist believes that there is nothing to learn from rural people, much is lost before starting. A reversal of roles, with the outsider as pupil, listening and learning, is needed if indigenous knowledge is to be revealed. Closed-questions impose meanings; open-ended questions and discussions lead into areas the visitor did not know to ask about. There is much to be discovered about what rural people know, but arrogance and status all too often prevent professionals from learning.

Offsetting biases, spending longer times, being unimportant, and listening and learning - these can take intelligent tactical tourists further than one might wish to recognize. The inspired and experienced individual may go even further.

Reference

Chambers, Robert, 1979, 'Rural Development Tourism: Poverty Unperceived'; paper read at a conference on "Rapid Rural Appraisal'; 4-7 December 1979; Sussex: Institute of Development Studies (IDS).

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FOREST SOCIOLOGY

Lecture 18

TEACHER'S OUTLINE

Section D: SOCIAL RESEARCH

Chapter 12. FIELD WORK: Case Studies

e. The Tactics and Ethics of Social Survey Research (Haiti)

a) A rural survey in the Third World involves 'the careful collection, tabulation and analysis of wild guesses, half truths and outright lies meticulously recorded by gullible outsiders during interviews with suspicious, intimidated, but outwardly compliant villagers'. No social research strategy can ever guarantee complete accuracy, nor can the unpleasantness inherent in attempts to elicit personal information can ever be completely eliminated.

b) The Field Problems: Logistics, locating the respondents once they are selected, inability of respondents to give ages and dates, and unwillingness to give personal information.

c) The Solutions Adopted: (i) Complete coverage of a single community, using external checks and verification procedures rather than extensive coverage of a broad geographic region; (ii) Complete listing (census) of village adults (men and women) to identify and contact each relevant individual; (iii) Aimed at a general representativeness of the village and irritability and plausibility rather than scientific certitude; and (iv) contacted representatives of all economic, social and religious groups in the village.

d) Accuracy: The expenditure of more resources per respondent; the use of a careful cluster or community approach rather than an ambitious regional approach; making sure that all relevant individuals are carefully interviewed; and application of the external checks to the data collected in the questionnaires.

e) Interviewers: Employed villagers from the research community as interviewers - no special logistic arrangements were needed and their literacy was improved with initial training and through work practice and familiarity.

f) Research Tactics and Ethics: (i) Posing as an 'officer' and with coercive power - "the government is interested in this research"; (ii) arousing 'false hopes'; (iii) eliciting the

respondent's cooperation in interviewing out of his generosity, idealism, respect for science, etc.; and (iv) remunerating him in cash or kind (presents/gifts). The research tactics are, of course, effective tools for the success of the researcher in data collection; but what about the research ethics? The research credibility calls upon the research ethics, too. First two of the above mentioned research tactics are unethical and must be avoided by a good field researcher because such betrayals will create mistrust among the villagers toward the later outsiders/officials to be engaged in research, extension and/or any rural development work.

g) Gift and Favor: The offering of small gift packets, instead of cash money, provoked to be a genuinely appreciated and sought-after and induced many people to be interviewed who otherwise might have refused. In addition, as a general thanks for cooperation, a vaccination team was brought in to vaccinate everybody in the village who so desired.

f. The Art of Informal Survey Research

a) The informal survey is in fact a form of appropriate technology: cheap, practical and fast. Such surveys can produce at minimum cost a rich description of life, an understanding of how farmers, merchants, extension workers, and others perceive their conditions and make decision. And anyone can do it; all you need is a little time, pencil, paper, common sense and a down-to-earth approach.

b) Surveys are only tools - means to an end - to provide information for intelligent decision-making in solving rural development problems. As the springboard of planning, the informal survey places project implementers in contact with their clients for the time and on the client's home turf.

c) Informal surveys can function to provide basic information on the feasibility for beginning a project, reconnaissance for formal surveys or more in-depth investigation, and for directly designing (by skipping formal survey phase) of on-farm experimentation. Most developing countries, out of financial necessity,prefer this approach for their development projects. In case where the informal survey is the only planning investigation, the team should be interdisciplinary, made up of at least one technical person and one social scientist. If this is not possible, team members should try to incorporate the missing perspective, be it social or biological, into the research.

d) The informal survey is more in the vein of 'art' than a set of fixed procedures. And like art, it involves creativity and technique which, if properly applied, make the difference

between success and failure. And there is no substitute for experience as the teacher. It is methodologically simple but usually physically tough, and 'dirty'. It normally cannot be accomplished by driving along main road looking at fields, although a 'windshield survey' may be a way to begin.

e) Getting Ready: Literature review, defining the region, and basic questions and techniques (tentative and general).

f) In the Field: At first, everything will seem a booming confusion in the field. This initial disorientation is inevitable, so do not let it concern you. Just remember three bread-and-butter techniques and before long your region will become comprehensible:observe,converse and record.

g) Interviewing: It is important to decide early whom you want to interview. Interviews with groups of farmers are frequently more lively than with only one person. You must go through the local headman or village leader to gain cooperation. Although be aware that they will selectively introduce you to the people that support their biases. To understand the total farming system (not just on-farm production) is to construct a chain of 'key informants' - the individuals who are accessible, willing to talk and have great depth of local knowledge. Do not believe everything they say but do not pass up the old-timer who enjoys talking.

h) The Approach: Walk as much as possible; two in a team are often best; wherever you find the farmer approach him directly but not jumping abruptly out of your jeep with a note book in hand; try to blend yourself into local context; be sensitive to people's suspicions about you and their working times, seasonal activities and climate for their willingness to talk; interviewing in on-farm atmosphere is often more successful.

i) The Warm-Up: The first interviews may be very simple but soon, as our knowledge of the area increases, questions will become more penetrating and valuable. Do not go directly to the subject at hand. Greet the farmer first, treat him with respect and courtesy throughout the interview, and thank him nicely before your departure. Try to avoid positioning yourself above him; tell him exactly who you are and what you are after; and, if the farmer is busy, do not impose yourself on him, ask him for a later appointment.

j) The Dialogue: The key to the successful informal interview is to be natural and relaxed while guiding the conversation to a fruitful end. Let the discussion flow and mix up your questions. By all means, do not ask too many questions back to back. If your question is not understood by the farmers, rephrase the question by using plain language and admit that the farmers are experts and you are a learner. Observe their facial expressions alongwith noting their verbal responses.

k) The Departure: At the end, close the conversation gracefully and naturally, not business-like abruptly. Thank the farmers for their time and valuable information and depart with proper greetings.

l) Recording of Information: If possible during, otherwise at your earliest after the interview, jot down brief notes on farmers responses, reactions and your observations. Do not postpone, you may forget a lot of good data even though you are sure you will never forget anything. Later, you can expand these notes with full details alongwith comments of your team members - to make summary report.

m) Organizing and Analyzing the Data and Report Writing: Organize the data in some logical way, categorize it by farmer type, agroecological or production zones, etc., quantify simply the material as far as possible, and use qualitative data in writing your research report - on relevant topic and in simple language. Remember that the informal survey is for immediate utilization, not an historical document for shelving and gathering dust; take it seriously and keep it active. Otherwise, farmers will not take you seriously and consider you just another 'tourist'.

References

Chen, Kwan-Hwa and Gerald F. Murray, 1976, 'Truths and Untruths ni Village Haiti: An Experiment in Third World Survey Research'; in: Culture and Natality, Marshall & Polgar ed., pp. 241-262. Chapel Hill: University of North Carolina.

Rhoades, Robert E., March 1982, 'The Art of the Informal Agricultural Survey'. Lima, Peru: International Potato Center.

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FOREST SOCIOLOGY

Lecture 18

Section D: SOCIAL RESEARCH

Chapter 12: Field work: Case Studies (Cont.d)

e. The Tactics and Ethics of Social Survey Research (Haiti)

After carrying out an intensive study jointly at a village in Haiti, the two researchers came up with the following descriptive definition of survey research: "A rural Third World survey is the careful collection, tabulation and analysis of wild guesses, half truths and outright lies meticulously recorded by gullible outsiders during interviews with suspicious, intimidated, but outwardly compliant villagers".

They discuss here a survey research strategy they applied in a Haitian village, devised to minimize the conditions which justify the above definition. The methodological complex which eventually took shape was the product of interdisciplinary collection, in which they (Chen, a demographer and Murray, an anthropologist) remained intent on applying the methods and securing the information (data) to their respective disciplines. Their research design incorporated a series of special features which they felt would achieve a dual purpose: to insure and verify the accuracy of the data, and to alleviate the anxiety-ridden, embarrassing and sometimes offensive social situation that is created for the villager when a briefcase totting socially superior urban stranger appears at his door to ask personal questions. In retrospect, they harbour no illusions that they were completely successful in achieving these two goals. No social research strategy can ever guarantee complete accuracy, nor can the unpleasantness inherent in attempts to elicit personal information ever be completely eliminated. It is their feeling that the model they devised came much closer to achieving these two goals in the Haitian setting than a traditional survey would have.

(1) The Field Problems

In planning the survey, they anticipated serious difficulties. These obstacles, though take a particularly acute form in Haiti, generally apply to survey work in the Third World countries. They include logistics, locating the respondents once they are selected, inability of respondents to give ages and dates, and unwillingness to give personal information.

(a) Logistics

The road to the research area in the Plain is in such poor shape, and so many of the communities are inaccessible to vehicles during much of the year, that the interviewers would have to live

on the site during the survey. This would involve arranging for housing, food, and sanitary and bathing facilities acceptable to outside interviewers.

(b) Locating the Respondents

The interviews would have to be done in the respondents' homes. But on normal work days, men work in the fields and do not come back until dusk. Of course, electric lights are not available in the area. Women spend weeks at a time engaged in commerce in Port-au-Prince (a market town). They rent houses there and make only occasional visits back to the village. Thus, the researchers were afraid that the large number of people might never be contacted.

(c) Inability to Give Ages and Dates

Few people in rural Haiti can give their correct ages or of their children; and few people can make anything but a rough guess concerning the length of time their current husband-wife union has lasted, to say nothing of the dates and timing of past unions.

(d) Unwillingness to Give Personal Information

It would be ingenuous of the researchers to assume that acquiescence to the request of an interview means that a villager will tell the truth once the interview has started, or that the villager's affability is an indicator of the veracity of what he says. On the contrary, the villager has very good reasons not to tell the truth. Secrecy is one of the few survival tactics the Haitian peasantry can use against the outside world. There are strong norms against revealing one's personal affairs and resources to strangers.

(2) The Solutions Adopted

The researchers decided from the outset to give full recognition and high priority to these problems, and to devise a research strategy that would meet them head on. Each of the tactics which they used had been used by some researchers in other contexts, but to their knowledge they had never been joined into a single methodological complex. It was through their combined operation that these methods achieved unusually high accuracy and effectiveness. Complete coverage of a single community, using external checks and verification procedures rather than extensive coverage of a broad geographic region, was the combined research strategy.

Technically satisfactory sampling is very difficult in many parts of the Third World. Survey researchers are frequently unable to locate a large portion of the subjects (respondents) selected randomly, and end up interviewing whomever they happen to find. While one hopes that the interviewers will locate enough of their sample so that the results can be generalized, and that people will report accurately to them, there is little guarantee of either. Thus, the accuracy of the all-important measuring stage is very

much left out of the researcher's hand. This issue of accuracy can only be resolved by devising research strategies which make the occurrence of errors and mis-statements less likely, and in which these errors and mis-statements can be detected and rectified when they do occur, as they inevitably will. Hence, the researchers' first step in this direction was to move away from scattered coverage of a broad geographic region; instead, they opted for an intensive survey in a single community.

From their previous knowledge of area and through discussions with some 'key informants', the researchers found every reason to believe that the village they selected for the intensive survey research, was generally representative of communities in that region. They designed two separate questionnaires, one for each sex. All in all, they interviewed some 420 men and women in a community with a population of nearly 1,100 (38% of the total population; certainly far higher percentage of the adult persons). To assure that every relevant individual would be contacted, they did a presurvey in which they obtain the names of every individual in every house in the village (complete listing or village census). Then, they went through the lists of names, house by house, with four local informants, verifying the household membership and making sure that they knew which individuals had ever had a spouse or a child. On the basis of this elicitation, they created a sublist of everybody in the village who had to be interviewed. Thus, their initial research energy was dedicated not to sampling a broad area of the region, but rather to insuring that each relevant individual within a specific population was identified and contacted.

However objection can still be raised: technically speaking the results of such a survey cannot be generalized to any broad region. But the researchers had already included to the impossibility of doing technically satisfactory random sampling in such an area; what they could do at best was to insure the possible representativeness of the village in the region, and they did that. The researcher must aim for 'irritability and plausibility' rather than scientific certitude. Although it is not possible to guarantee, however, that the village they chose was representative of the entire Plain, they do feel that a careful one-village study is more credible in the long run, because of the external accuracy checks, and because the researchers made sure of contacting representatives of all economic, social, and religious groups in the community. In short, they recommended a method which entails: (a) the expenditure of more resources per respondent to ensure accuracy;(b) the use of a careful cluster or community approach rather than an ambitious regional approach; (c) making sure that all relevant individuals from one well-chosen community are carefully interviewed; and (d) the external checks effectively applied to ensure that the information collected in the questionnaires was reasonably accurate.

Age is probably the control variable most frequently used by researchers to analyze the distribution of other variables, especially in natality studies. Ambiguity in age placement of individuals damages the credibility of subsequent analysis. Demographic survey

in many Third World countries share the problem of trying to record the ages of people who do not know their exact age and are not fundamentally interested in knowing this. The researcher has no way for knowing which answers are correct and which are mere guesses; hence he must view all questionnaire responses as to age with equal suspicion. The researchers adopted a series of methods to get highly certain, externally validated ages for the entire population and in which guessing with numbers, either on their part or the respondent's, was minimized. These methods involved elicitations with informants that were time consuming. But in studies in which age will be control variable, it is unsatisfactory to settle for ambiguous ages when exact ages can be obtained with a bit of work. Thus, the parents' guess of their children was cross-checked with the church baptismal records, sibling placement order, and peer-matching techniques and all the discrepancies in ages and names (real and popular nicknames) were resolved by the researchers through discussions with key informants and the parents, again.

The researcher's decision which most deeply affected the course of the survey was to employ villagers from the research community as their interviewers. This procedure, highly unusual in survey research, has antecedents in the practice of many anthropologists who have used local assistance to help them gather data. The idea of using village interviewers arose only after survey preparations were underway. The researchers had planned to hire and train interviewers from the region's major town, but this was found contemplating with distaste the prospect of having to set up housing, eating arrangements, sanitary facilities, and bathing arrangements in an isolated, poor community where all of these commodities were in short supply. Over and above the logistic problems, there had been other misgivings about those outside interviewers. They were afraid that the villagers would refuse to speak to them, or that would be collecting questionnaires filled with mis-statements, as had occurred in other surveys. In fact,the villagers openly refused to accept strangers into the village. Thus, the researchers eventually decided to use five villagers as interviewers, trusting that their literacy would improve with initial training and work practice and familiarity.

The interviewers were carefully trained and the questionnaires they completed were rigorously scrutinized for omissions and inconsistencies. But they were left with a great deal of leeway to cover the community as they fit. Nobody was assigned any specific sectors of the community; they were free to find his own personal network. They also worked their own hours, adjusting their schedule to the times of day they knew they would be able to locate more respondents. They displayed a skill, far superior than available to outsiders, in locating every villager and arranging for an interview at a latter date if it was not convenient at the moment. As a result, there was not single adult present in the village who was not at least contacted and asked for an interview; in fact, all of them were eventually gotten interviewed sooner or later, even the women who lived mostly in the town.

A final step which the researchers felt to be essential for the success of the survey was the remuneration of the respondents. They explained the connections of their survey with the newly established medical program, but they purposefully avoided giving the villagers the 'erroneous impression' that they were in any way 'obliged', morally or otherwise, to allow themselves, to be interviewed, and the interviewers were on several occasions instructed in this matter. Though the findings of the survey would optimistically benefit the region by permitting the design of more realistic public service programs, the content of the survey was largely scientific. At the moment and even latter, the respondents would be doing a favor to the researchers, rather than vice versa. It would be unrealistic and unfair to expect the villagers to submit willingly and cheerfully to this type of lengthy personal questioning unless they would receive something very concrete in return.

This suggestion provoked negative reactions from several Haitian professionals separately consulted by the researchers. According to them, the villagers should not be given any direct payment. This would ruin the terrain for future researchers; henceforth the peasants would demand remuneration from every one who came to their doors. Furthermore, they said, their reward would come when the findings were used to benefit them; the peasants must be taught to cooperate with people who come to help them.

There are four commonly applied tactics which survey researchers in the Third World may use to induce people to answer their questions: (a) posing as some sort of emissary from the government with the concomitment subtle coercive power, - "the government's interest in this research"; (b) arousing false hopes, is another tactic that actively promulgates the deceptive impression that the study is being run by the people (departments) who have singled out this community or region and have concrete intentions (plans) to introduce a specific economic or social improvement in the community; (c) 'eliciting' the respondent's cooperation to make very clear the basic investigative nature of his interest in the community and soliciting cooperation from the respondents out of generosity, idealism, respect for science, or any other motive which the researcher feels he can call upon; and, (d) remunerating the respondents in cash or kind (presents, gifts, etc.). There may be other strategies that researchers have used, but these, or some combination of them, probably occur with greatest frequency.

The research 'tactics' are, of course, effective tools for the success of the researcher in data collection; but what about the research 'ethics'? The research credibility calls upon the research ethics, too. Therefore, the first tactic would be quite unethical in most surveys and should be avoided in the field. The second alternative must also be rejected with equal vehemence, rather it is the most unethical one. Actually, cooperation in a survey research is a favor of the respondents toward researchers, whether the latter are asking for free help or giving something in return. By offering to remunerate respondents, the researchers simultaneously re-emphasized the voluntary nature of their cooperation,

increased the chances that they would in fact cooperate, and created in effect a contract whereby the researchers could justifiably send the interviewer back in case they discovered omissions or false statements. The offering of small gift packets, instead of cash money, provoked to be a genuinely appreciated and sought-after and induced many people to be interviewed who otherwise might have refused. In addition, as a general thanks for cooperation in the research, a vaccination team was brought in from the health department to vaccinate everybody in the village who so desired. Thus, many adults and children were vaccinated for the first time.

Reference

Chen, Kwan-Hwa and Gerald F. Murray, 1976, 'Truths and Untruths in Village Haiti: An Experiment in Third World Survey Research'; in: Culture and Natality, J. Marshall and S. Polgar, edited; pp. 241-262. Chapel Hill: University of North Carolina.

f. The Art of Informal Survey Research

The idea that we have in research are only in part a logical product growing out of a careful weighing of evidence. We do not generally think problems through in a straight line. Often we have the experience of being immersed in a mass of confusing data. We study the data carefully, bringing all our powers of logical analysis to bear upon them. We come up with an idea or two. But still the data do not fall in any coherent pattern. Then we go on living with the data - and with the people - until perhaps some chance occurrence casts a totally different light upon the data, and we begin to see a pattern that we have not seen before. This pattern is not purely an artistic creation. Once we think we see it, we must re-examine our notes and set out to gather new data in order to determine whether the pattern adequately represents the life we are observing or is simply a product of our imagination.

The informal survey is a form of appropriate technology: cheap, practical, and fast. If properly executed, such surveys can produce at minimum cost a rich description of life, for example in a farming community, an understanding of how farmers, merchants, extension workers, and others perceive their conditions and make decisions. On top of this, a properly conducted informal survey can give an accurate comprehension of local farming ecology and practices. And anyone can do it - agronomists, extension workers, biologists and social scientists. All you need is a little time (one/two weeks), pencil, paper, common sense, and a down-to-earth approach to farm people and their circumstances.

Surveys are only tools - means to an end - to provide information for intelligent decision-making in solving rural development problems. As the springboard of planning, the informal survey places project implementors in contact with their clients for the time and on the client's home turf. In this early phase, the researcher is like an explorer, making a rapid survey of the horizon

before plunging into the thickets from which the wider view is no longer possible. If we observe keenly at the start, the remainder of our journey stands a better chance of success. However, if we gather faulty information we may wander aimlessly throughout the project or lose precious time and funds backtracking.

Informal surveys can function to provide basic information on the feasibility for beginning a project in a region. Then the objective of informal reconnaissance surveys is to quickly obtain basic information specifically for the design and execution of formal surveys or more in-depth investigations which may, in turn, lead to on-farm experimentation. The need here is not simply to get a feel of the area, but to discover important, albeit tentative organizing concepts upon which to base future research. Finally, in the case of informal surveys for the direct planning on-farm agronomic trials, the formal survey stage is skipped and on-farm experiments are designed on the basis of pinpointed farm-level problems. Most developing countries projects will, out of financial necessity, opt for this approach. In case where the informal survey is the only planning investigation, the team should be interdisciplinary, made up of at least one technical person and one social scientist. If this is not possible, team members should try to incorporate the missing perspective, be it social or biological, into the research.

The informal survey is more in the vein of 'art' than a set of fixed procedures. And like art, it involves creativity and technique which, if properly applied, make the difference between success and failure. And there is no substitute for experience as the teacher. It is methodologically simple but usually physically tough, and 'dirty'. It normally cannot be accomplished by driving along main road looking at fields, although a 'windshield survey' may be a way to begin. The successful (informal) survey may require sloshing through muddy fields, scrambling along rocky paths and dangerous slopes, or whiling away for hours in fly-ridden tea shops casually talking with farmers. The surveyors must be field-oriented, grubbing out information in fields, market places, tea-houses, or wherever farmers' daily routines carry them. Those unwilling to face a few village hardships have no business doing informal surveys. Furthermore, the successful informal survey also requires mental and methodological flexibility. It does not proceed like a formal questionnaire survey where predetermined hypotheses are tested. Instead, important questions and the direction of study emerge as information is collected. This is not to say the informal survey lacks logic, but that one must be able to accommodate new information and adjust research plans accordingly.

(1) Getting Ready

(a) Literature Review

Before going to the field, assemble and review any relevant secondary socioeconomic and production information about the general area to be studied. A surprising amount of data can be found if an effort is made to dig it out of libraries, research

stations, and government offices. Secondary materials, especially government statistics, should be taken as suggestive of possible lines of inquiry and not as ultimate truth. Do not forget to consult studies conducted by other disciplines (or departments); it is a mistake for a social scientist to read only social science matters, an agronomist only agronomic studies, or a forester to consult only forestry reports.

(b) Defining the Region

The most difficult decision in the informal survey centers on delineating the geographical region to be studied. This depends of course, on available time, manpower and the project's aim. One must be careful, however, not to define the study region too broadly or narrowly. If the target area is vast, covering more than 300 square kilometers, it will be better to plan mini-surveys in representative areas. In agricultural research, a target region will most likely share common physical and economic characteristics or linkages. The best way to get a rapid overview of a region is to acquire aerial photos, and land-use, relief, or ecological maps. In fact, do not even think of going to an area without at least one map, preferably a topographic map. Contrary to popular belief, excellent maps and aerial photos now exist in the geological or military survey offices of most underdeveloped countries. Satellite imagery already provides excellent coverage for some of the most remote areas of the world.

(c) Basic Questions and Techniques

Before we ever set foot in any farmer's field, we need to go to the drawing board and decide: what kinds of information are we after and for what end? Our general objectives should be clear, even though we may not yet know relevant questions. Draw up a list of tentative topics for investigation:

- What are the agro-climatic zones?
- What are the principle crops?
- What is the cropping (or post-harvest) system?
- What are the types of farmers?
- What are the farmers' practices?
- Why do farmers follow these practices?
- What do they feel are their main problems?

(2) In the Field

Armed with the question you decide are relevant and available secondary material, you are ready to begin. At first, everything will seem a booming confusion in the field. This initial disorientation is inevitable, so do not let it concern you. Just remember three bread-and-butter techniques and before long your region will become comprehensible:

OBSERVE Keep your eyes open for patterns in crop production, land use, and farmer behavior.

CONVERSE Talk 'with' people and 'listen' to their concerns and views.

RECORD Discreetly, write every thing down; try to keep as complete field-notes as possible. This is essential in the early stage to help organize your thinking.

(a) Interviewing

The key to a successful informal survey, especially in terms of understanding how farmers see their problems, is the successful interview. It is important to decide early whom you want to interview. A frequent bias in agricultural development is to think in terms of 'the farmer': Farmers, however, usually do not live in isolation. They belong to groups (Families, communities, nations) and decisions about farming are often made by these groups. You may talk to individuals, place their comments in the context of social pressures and beliefs. However, Interviews with groups of farmers are frequently more lively than with only one person. Be sure that local leaders know what you are doing. Informal does not mean incognito. In fact, in many parts of Asia and Africa you 'must' go through the local headman or village leader to gain cooperation. Although be aware that local leaders will selectively introduce you to the people that support their biases.

One way to understand the total farming system (not just on-farm production) is to construct a chain of 'key informants'. The key informant is an individual (a villager, businessman, or an official) who is accessible, willing to talk, and has great depth of knowledge about the area, certain crops, credit, marketing and other agricultural problems. Do not believe everything key informants say but do not pass up the old-timer who enjoys talking. In any community it would not take long to construct a chain of key informants: banker or money-lender, landlord, ministry official, extension agent, farmer, merchant, and middleman. Each person in the chain may see the problem differently. The mechanics of the informal interview itself can be arbitrarily divided into five stages: approach, warm-up, dialogue, departure, and recording.

(b) The Approach

It is best to keep as low as profile in the rural setting as possible. Over-sized vehicles bearing official looking numbers or other signs, driven by chauffeurs should, if possible, be avoided. Walk as much as possible. Do not go in large numbers; two in a team is often best. Approach the farmer directly. Wherever you find him in the field. However, avoid the 'opinion poll syndrome', where you startle the farmer by driving up to him in his field and jumping out with notebook in hand ready to interview. Try to blend into the local context as much as possible without 'going native'. Be sensitive to the fact that people may be suspicious of you. Then, timing is extremely important. One has to be aware of the farmers' daily work schedule, seasonal activity, work habits, climate, and how these affect farmers' willingness to talk. If one

is willing to take the time and physical efforts to walk to the field, interviewing is often more successful since discussions can center around on-going agricultural activities. If appropriate, lend a helping hand without getting in the way. The slack season is also an excellent opportunity for informal interviewing.

(c) The Warm-Up

Informal interviewing is a dynamic process in which important information develops out of casual conversation. The first interviews may be very simple but soon, as our knowledge of the area increases, questions will become more penetrating and valuable. Do not go directly to the subject at hand. Greet the farmer first, treat him with respect and courtesy throughout the interview, and thank him nicely before your departure. Do not talk to the farmer from a vehicle; try to avoid positioning yourself above him. Tell him exactly who you are, why you want to talk, and the nature of your work. Observe the situation to make sure the context is conducive to an interview. If the farmer is busy, he may not be interested even in a small talk. Ask for an appointment; sometimes farmers can suggest the best time and place for an interview or its continuation.

(d) The Dialogue

The key to the successful informal interview is to be natural and relaxed while guiding the conversation to a fruitful end. Let the discussion flow and mix up you questions. At first avoid sensitive questions. Allow people to stray on to another topic or tell stories. By all means, do not ask too many questions back to back. Intersperse the conversation with personal comments of your own. One method that gains farmer cooperation anywhere in the world is the straight forward, honest admission on your part that the farmer is the 'expert' about farming in his area and you are the learner. If you ask a question that causes silence or it is obvious the farmer can not answer it,do not try the socratic method of suggesting answers to lead to the conversation where your bias thinks it should go; rather, rephrase the question. Always use plain language with farmers. After all, they have a rich vocabulary tied to their profession and area, but they do not understand scientific jargon. Observe facial expressions as they may reveal a great deal about farmers' concerns or reservations. Avoid asking culturally sensitive questions directly; you may get information on such matters through indirect questioning. But always remember that what people say and do may be two different things.

(e) The Departure

After you have covered all relevant topics or exhausted the time the farmer can afford to give you, bring the conversation to an end; but gracefully and naturally, not business-like abruptly. Thank him for his time and depart with the proper local farewell greetings. While departing you may take his photo alongwith his family, animals, crop or trees and do send a copy to him as soon

as possible. Also, most farmers appreciate receiving small packages of seeds or technical brochures written in plain language.

(3) Recording of Information

As soon as possible, after (or if permissible during) the interview jot down memory-jarring notes. Agricultural scientists, in particular, tend not to write what farmers say or their own personnel observations. However, it is amazing how facts, ideas, and important observations that one 'will never forget' quickly slip away. It is estimated that 50% of the details of an interview are lost within 24 hours; and by the end of the second day, 75%. After that, only skeletal notes can be salvaged. Thus, remember during the interview (if not writing at the time) to take mental notes reminding yourself: 'do not forget to write that down'. Jotted notes will serve to aid your memory latter when you write out full field notes on interviews and a day's observation.

Whether one should take notes in front of farmers depends on the situation. Be sensitive to your actions. The best rule is to obtain from using pencil until you feel the situation is truly relaxed. Do not pull out an official-locking questionnaire in any case. This will surely destroy confidence. Test the ground first by interacting with the farmer on paper by drawing a field layout or cropping pattern. Try to get the farmer's name and address unless he prefers not to give it so that you can contact him or if you visit the area again you can make specific personal reference to your previous visit.

(4) Organizing the Data

One purpose of the informal survey is to define relatively homogeneous types of farmers and agroecological or production zones. Technology is frequently locational and group specific: what works for one group of farmers in one ecological zone may not work elsewhere. This fact is complicated through a widespread tendency by technical agricultural scientists to select larger better off or more successful farmers for experimental research since this group is more accessible and has resources to carry out experiments. Also, agronomists have been known to prefer level fields with quality soil near roads rather than perhaps more representative sloping, rocky, fields located far from the main road. Thus, one should be aware of the representativeness of the experimental plot for exploration of research results.

(a) Types of Farmers

Early in the informal survey one can begin to develop a typology of producers. Typically, such groupings are based on a predetermined and quantifiable landholding size (e.g. 1-5 hectares is small farmer, 5-10 hectares is medium, and over 10 hectares is large, or any other suitable grouping). However, care must be taken not to assume size is necessarily correlated with specific cropping patterns or even economic status. Often both large and

small farmers in the same area pursue similar cropping strategies. And it may be that the small farmer with his limited farm size is more efficient or a better farmer because he must be able to subsist on much smaller landholding. Thus, multiple factors have to be considered in developing a typology of producers; e.g. size of landholding, purpose of production and cropping system. However, remember that typologies are merely ways of organizing thinking and that farmers cannot be so easily stereotypes. Do not automatically assume that all farmers in a type will behave the same.

(b) Agroecological Zones

An agroecological zone represents an association between a set of natural conditions (climate, topography, soils) and agricultural activities (farming, herding) utilized to exploit that environment. The usefulness of zones resides in the possibility for extrapolation since conditions within zones are more similar than between zones. Presumably, farmers living in the same zone would have similar problems and technological needs; not the same, however. The problem with this zoning method is that such field observations are time frozen. To gain a long term view of a field or zone, interviews with farmers are necessary. This can be done, however, by having the farmer tell the history of a few parcels as far back as memory and time allow.

(c) Moving Toward Quantification

If the informal survey lasts more than one week, you may feel the need for some degree of quantification, a first step toward a formal survey. It is at this point, that the development of a simple one-page interview schedule (questionnaire) is suggested. The purpose of this is to gather some very basic numbers, perhaps on size of operation, rotations, crops, and farmer opinions on primary production problems. By this simple quantification, it can be seen if patterns emerge in different zones and among different types of farmers. You can also use it as ammunition with colleagues who would not believe you unless they see numbers.

(d) Use of Materials (Data)

Immediately after field work, the team should sit down and quickly write a summary report even if it lacks professional polish. Do not worry too much about grammar and style; rewriting can come latter. It is important to get the information down while still fresh on everyone's mind. The exact format or outline will depend on the purpose of the survey but be sure to write in a language understandable to everyone. If the report is to be used to implement on-farm experiments, summarize only directly relevant material and keep recommendations brief. Copies of the summary and final reports should be sent to all concerned offices, institutes, and interested people, especially those who assisted you in the research. This final reciprocity is only fair; the people have given you their time and most of the information you have now, the least you can do is to give them a copy of the study report.

It is important not to let the report be shelved away only to gather dust. Take it seriously: it should be your guide throughout future activities but constantly upgraded as you progress. The informal survey is for immediate utilization, not as an historical document. It should serve to keep us honest, or at least caution against slipping into our prior biases - without reason. Unless we take seriously our findings and what farmers have told us, we are likely to discover that farmers will not take us seriously either. We have to be sensitive to their needs, opinions customs and capabilities. Otherwise we may fall victim to what is called the 'which way to little Rock Syndrome?' - Farmers will not take us seriously and consider us just another 'tourist'.

Reference

Rhoades, Robert E., March 1982, 'The Art of the Informal Agricultural Survey'. Lima, Peru: International Potato Center.

Note: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library.

FOREST SOCIOLOGY

Lecture 19

TEACHER'S OUTLINE

Section D: SOCIAL RESEARCH

Chapter 13. Project Evaluation: Case Studies

a. The Process of Agricultural Development in Pakistan

a) Changes in the agrarian economy, referred to as the 'green revolution', are the cumulative result of a number of independent developments, events, and responses of large landholders to the opportunities that arose. There is no all-embracing scheme that could be described as a 'strategy' of agricultural development in the country.

b) A crucial aspect of the green revolution consists of its 'secondary effects', which are not apparent if attention is focussed exclusively on the agrarian economy. Such effects arise through changes in the patterns of expenditures associated with the changes in incomes. Although the green revolution has increased the prosperity of some, it has impoverished many.

c) The structure of the agrarian economy of each region (as determined by the distribution of landownership, farm size and water resources) vitally affects the prospects and problems of development. Regional differences in the structure of agrarian economy are also derived from the historical development of the regions, conditioned mainly by their respective physical environments (topography, soils, climate, surface or ground-water availability), as well as, by population pressure, land use patterns, and power to hold, claim and/or exploit the land.

d) Tractors: Owners of larger land-holdings have traditionally let out small portions of their lands to share croppers, who usually relied on bullock power. Tractors, on the other hand, call for much larger farms, and one of the inevitable consequences of their introduction has been the eviction of share-croppers by land-owners in order to resume sufficient land for tractor cultivation.

e) Farm Size: The second parameter is the size of farm required to yield a 'surplus' over subsistence needs, that is, a farm size that would provide resources for investment and development as well as raise consumption above a minimum. Needed size of farm would vary with the number of family members as well as with differences in farm productivity. Nevertheless,

a crude 'average' figure for an average family is practically possible. Those whose farm holdings are too small for subsistence must look for alternative or supplementary means of livelihood.

f) Education: Until recently the principal significance of education in the rural areas was that it was regarded as a passport for employment outside the village. By contrast, in the prosperous agricultural areas, sons were needed to work the farms and thus, education was not looked upon with favor. However, these attitudes have now begun to change. Innovation is a function of economic feasibility and not simply that of education and attitudes toward modernization.

g) Tubewells: Tubewell development in Pakistan is highly concentrated in irrigated areas of the Punjab. Higher costs of mining ground-water and the preponderance of small farms in other areas (barani) and provinces would appear to be a major obstacle to the expansion of private tubewells. Under these circumstances, a public tubewell development might be very successful. But the lack of political influence to allocation of resources for this purpose is another obstacle.

h) Political Power: At the national policy-making level, it is the landed aristocracy who leads the legislative institutions and bureaucratic establishments. The pattern of their alignment is subject to pressures generated by the green revolution because of disaffection of various strata of the rural population whose interests are not articulated through the existing political structure. But such disaffected groups are not the rural middle class, rather real disgruntled groups are the very small, peasant landholders and share-croppers who are deprived of their livelihood as a result of green revolution.

i) Indirect Consequences: The impact of the additional purchasing power in the hands of the rural elite on the demand for and the prices of manufactured consumer goods, has indirectly affected the rural poor. Despite the adverse changes in the terms of trade, the rural elite enjoy considerably enhanced real incomes, as indeed do the urban entrepreneurs whose profits multiply as a consequence. But other sections of the community, both urban and rural, have suffered as a consequence of the inflation in price due partly to the changed rural income distribution.

j) Taxes and Subsidies: The rich farmers who have prospered most have also had the 'lion's share' of the government subsidies; and have fairly successfully resisted proposals to tax agricultural incomes, to reduce subsidies, or to lower the high support prices for certain agricultural commodities. As a whole, they have successfully defended their interests by their influence on public policy.

k) Conclusion: The present course of the green revolution appears to have brought about a deterioration in the conditions of life of a majority of the population, and further progress of farm mechanization is creating a situation in which a very large number of the rural population will be faced with the prospects of having no viable means of livelihood.

b. The Impact of Food Production Development in India

a) Third World countries are concerned about increasing food production for at least two major reasons: (i) feeding the hungry (rural and urban); and (ii) enabling landholders to make an adequate income. Despite successful food production programs, widespread hunger and malnutrition persist there.

b) The 'Green Revolution' has been widely criticized for its uneven distributional effects, its inapplicability to local conditions in certain areas, and its restricted focus upon a limited number of grain crops. The effects of the increased production on different strata of society show that although the new agricultural strategy has succeeded in its ostensible goal of producing more food, it has failed to meet human needs.

c) The strategy of the green revolution in Kerala (India), as elsewhere, has emphasized hybrid grain varieties, commercial fertilizers and pesticides, tractors, and large food processing mills. These practices have resulted in much higher yields, but also have produced widely documented social consequences, particularly an increase in the socio-economic gap between the larger holders and their laborers.

d) The land-owners' motivation now is not simply an economic saving on labor costs, but also a desire to reduce their dependence upon laborers. In some situations, capital can be substituted for labor.

e) The industrial lobby in India, concerned about cheap food for their workers, has traditionally supported radical agricultural programs based on large-scale food procurement, cooperative farming, land reform, and taxation of agricultural income. However, despite pronouncements of these matters from the Central Government in Delhi, the programs are usually not implemented at the local level due to the opposition of powerful rural elites. The present agricultural policy is intended to make peace between these groups by providing food at a low price for the urban workers without disrupting productive relations in the rural area. As such, it combines the interests of the rural elite and the industrial lobby.

f) Most poor farmers have to sell their produce (mainly rice) to particular shop-keepers, and in the long run they would do

better to have a low price all year round, since later in the year as less grain is available, the price they have to pay goes up. They are unable to keep the paddy not for lack of storage facilities, but because of the cycle of borrowing which requires them to make immediate payment at harvest time.

g) The question 'Food for Whom?' is not academic. If the purpose of food production is to eliminated hunger, then maximizing production can only occur in a situation in which the actual producers of food are able to fill their stomachs each day.

c. **The Influences of Physical and Socio-Political Factors on Soil Conservation Policies**

a) It is realized now that soil conservation is as much about a social process as a physical one, and that major constraints are not technical, but social. However, these 'social factors' are not subjected to the same systematic analysis as the technical ones, and they remain unconnected, irksome and somehow immovable under prevailing analytical frameworks. Appealing to rather different sentiments, there are strong grounds for arguing that the scientists should take social responsibility for the technology they develop. Thus, soil conservationists of all kinds should be able to take a social view of conservation techniques.

b) The problem of soil erosion is identified as primarily an environmental problem with environmental solutions. It is so, then the degrees of freedom and policy options which derive from concomitant changes in the social sphere are thereby closed. Therefore, there is a logical tendency to preclude from view of the social reasons why people are using the land in such a way as to cause excessive soil erosion, so most conservation policies do not address them at all.

c) The problem is blamed on the land-users themselves, who are seen to have mismanaged the environment because of lack of environmental awareness, ignorance, apathy and just plain laziness. When pure environmentally-dictated policies do not work because the social context has been analyzed insufficiently and 'force' is often contemplated. This frequently ends up with the state attempting to protect the environment from majority of the people who use it.

d) Another problem identified in the classic approach is that of over-population. The whole issue of the politics of population growth rates in relation to natural resources and production technology is a highly complex one. However, it is enough to point out that there are similarities between the overpopulation view and the view that farmers and pastoralists should be educated out of their ignorant, lethargic and traditional

ways. Both identify the cause of the problem as beginning and ending with the land-users themselves: they should change their habits of production and reproduction, and the problem of soil erosion would be solved.

e) The last problem identified in the classic or colonial model is that cultivators and pastoralists causing soil erosion are insufficiently involved in market economy. The policy implication of this view is a program to help those who can help themselves to grow cash crops.

f) There was an attitude of mind of the colonial rulers towards the ruled, varying between paternalism through uncomprehending distaste to outright racism. The native people received laws, fines and even imprisonment for certain agricultural and pastoral practices, while the European settlers received physical infrastructure, loans, and an agricultural extension service backed by research stations which researched commercial crops for commercial farmers.

g) Though most farmer in colonial countries have regained their independence, but their conservation policies still retain many of the assumptions of the colonial model, and many structures of appropriation of surpluses from peasantries and pastoralists by the colonial rulers still exist. While political independence is a contemporary and important fact of life in all but a handful of countries, the economic incorporation of their economies into world economic system continues.

h) Many conservation programs in less developed countries have been initiated, financed and partly staffed by foreign aid donors. Given the fact that soil conservation as a government policy was a colonial phenomenon, it is perhaps not surprising that in post-colonial Africa at least, foreign aid tended to move into the vacuum left by the colonial administration. Also the foreign aid donors exported their experience with trying to deal with their own soil erosion problems, as part of foreign policy to their spheres of influence in the lesser developed countries, even where there had been an almost complete lack of government concern over soil erosion.

i) It is argued that the foreign aid tends to serve narrow donor interests and those of the classes in recipient countries that will most benefit; incorporate the less developed countries into dependent relations with industrialized nations; and that special interests and general bungling, frequently do harm not good. Moreover, the elements which are essential in most conservation policies are often contradicted by the limitations and objectives of the foreign aid.

j) Many soil conservation policies fail,and recently there has been some attempt to find out why and how. Still, many of

the most fundamental social factors behind the conceptualization of the causes of soil erosion and the role of government have not been analyzed coherently, and remain at best labelled and hidden in a number of black boxes. Some of the reasons that are commonly found in contemporary documentation for failures in conservation programs are: (i) technical failures through inadequate or misapplied research; (ii) techniques do not fit into agricultural and pastoral practices; (iii) conservation is hampered by existing land tenure conditions; (iv) a lack of participation by land-users; and (v) institutional weaknesses.

k) Even a rudimentary enquiry into the problems presented under item (j) above shows that they are connected in obvious ways. Local participation is achieved because, and as a result of, appropriate conservation measures which do not cut across existing practices and irreducible means of earning a livelihood. Effective program formulation and implementation by government to provide external inputs to appropriate skills is essential for local participation and implies effective and coordinated administration, and so on.

l) Community participation in conservation can occur under a variety of different circumstances, but one can identify some that make it easier. Also, there should be an effective and widely respected authority which can solve disputes and give penalties in the case of infringement of mutually agreed codes of practice. Finally there should be a trusting two-way communication between the externally provided skills and local land-users; incorporating the technical aspects collaboratively with the conditions and interests of the local people from the survey, through planning and implementation, to benefit obtaining and maintenance activities.

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NOTE: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library, Peshawar.

FOREST SOCIOLOGY

Lecture 19

Section D: SOCIAL RESEARCH

Chapter 13. PROJECT EVALUATION: Case Studies

a. Agricultural Development in Pakistan

The rural elite versus small farmers changes in the agrarian economy, referred to as the 'green revolution', are the cumulative result of a number of 'independent' developments, events, and responses of large landholders to the opportunities that arose. There is no all-embracing scheme that could be described as a 'strategy' of agricultural development. However, the term is not altogether inappropriate, in the sense that an underlying logic gave some coherence to the separate and independent decisions of the various authorities and farmers. That logic, it may be argued, was derived from the demands and pressures of the big landholders whose operations are at the heart of the dynamic of agricultural development that was set in motion. For the authorities, it turned out to be 'policy', ex-post facto. It was an elite farmer strategy because it rested on the economic power of large landholders who were its principal beneficiaries.

A crucial aspect of the green revolution consists of its secondary effects, which are not apparent if attention is focused exclusively on the agrarian economy. Such effects arise through changes in the patterns of expenditures associated with the changes in incomes. The resultant expansion in demand for manufactured consumer goods and imported commodities has generated inflationary pressures of an unprecedented scale. This has brought about an erosion in the real incomes of those farmers who have not directly benefited from the green revolution, as well as in those of wages and salary earners in the towns. Therefore, although the green revolution has increased the prosperity of some, it has impoverished many.

The regional distribution of gains and burdens of the green revolution also has greatly exacerbated interregional tensions. It would be naive to assume that these issues will be readily perceived by the authorities and that a totally new approach will be introduced into the sphere of agrarian development, because the class which has profited most from the present pattern of development holds a powerful position in Pakistan's political system. It would be safer to assume under the political realities that the strains being generated will not disappear. Far from having established a new political equilibrium, the green revolution has generated forces that have been at the center of the successive crises Pakistan has experienced.

Interregional differences in the structure of Pakistan's agrarian economy originate from ecological differences and consequences of differences in patterns of historical development. However, in past discussions, interregional comparisons have focused almost wholly on natural differences and have tended to obscure the underlying differences in the economic and social structures. Because such an approach emphasizes 'given' natural conditions, the problems of each region appear to be specific to each region. We have no framework in which the problems of the different regions could be interrelated. But, in fact, the efficiency of agriculture reflects the influence of varied physical, economic, social and historic factors.

The most critical variable in such a study, perhaps, is the provision of 'water'; also a natural resource but human-managed. An important additional variable in examining the regional impact of the green revolution is farm size. The structure of the agrarian economy of each region - as determined by the distribution of landownership, farm size and water resources - vitally affects the prospects and problems of development. Furthermore, it has the advantage of showing that explanations of regional disparity lie primarily in the structure of the agrarian economy and cannot be explained purely by reference to provincial political influence.

Punjab is the largest and richest of the provinces of Pakistan, in this regard, and politically the most influential because it holds over 50% of all the population of the country. Regional differences in the structure of the agrarian economy are also derived from the historical development of the regions, conditioned mainly by their respective physical environments (i.e. topography, soils, climate, surface or ground water availability) as well as by population pressure, land use patterns, and power to hold, claim and/or exploit the land.

Two parameters are of special importance when considering the structural implications of farm size. One is technology, which determines the upper limits of the farm area that can be cultivated with a pair of bullocks and two men. The other is the minimum farm size for family subsistence. Owners of larger land-holdings have traditionally let out small plots of their lands to share-croppers, who usually relied on bullock power. Tractors, on the other hand, call for much larger farms, and one of the inevitable consequences of their introduction has been the eviction of share-croppers by land-owners in order to resume sufficient land for tractor cultivation. One tractor is estimated to displace a dozen (or more) bullock-drawn plows. The amount of land available for sharecropping depends, therefore, on the degree of concentration of landownership and the method of cultivation employed.

The second parameter relevant to the set of problems, being examined here, is the size of farm required to yield a 'surplus' over subsistence needs, that is a farm size that would provide resources for investment and development as well as raise consumption above a minimum. Empirically, there are obvious difficulties

in determining the level of subsistence that can be considered a necessary or tolerable minimum level. Needed size of farm would vary with the number of family members that must be sustained as well as with differences in farm productivity. Nevertheless, a crude 'average' figure for an average family is not without practical value in dealing with the problem. Those whose farm holdings are too small for subsistence must look for alternative or supplementary means of livelihood.

The regional differences in the levels of education may be explained by studying the role education plays in the lives of the rural people. Until recently the principal significance of education in the rural areas was that it was regarded as a passport for employment outside the village - in the government, armed forces, or urban employment. By contrast, in the prosperous agricultural areas (irrigated areas in Punjab and Sind provinces), sons were needed to work the farms. Education was not looked upon with favor because it carried the threat of alienation; educated sons were likely to leave their villages and family farms, attracted to jobs in towns. Attitudes towards education have begun to change in recent years in these areas, especially among the prosperous big farmers. The revolution in mechanical and chemical technology now employed in agriculture is making new demands upon the capabilities of farmers. They are becoming increasingly aware of the value of education in terms of their own situations, namely for better farming and coping with new technologies. However, the new purpose education must now serve also raises questions about the relationship between education and development. Recent findings show that progress in agricultural technology did not make great strides in the region that had the highest level of education. On the contrary, it was in areas of much lower levels of education (where the economic and ecological conditions were conducive for introduction of new technology) that progress has been the greatest. But the latter has created a new demand for education, and a demand for a new kind of education.

Innovation is a function of economic feasibility and not simply that of education and attitudes toward modernization. The differences in the structure of the agrarian economy of regions of the Punjab, as well as those of other provinces of Pakistan, are reflected in the degree to which they have shared in agricultural prosperity. Wide disparities in the agricultural prosperity of the various regions can be seen by comparing the share in production of the principal crops with the proportion of the rural population for each region. The prosperity of the Punjab is marked in contrast to the poverty of Baluchistan and NWFP. In the poorer regions, more of coarse cereals are produced relative to wheat and cash crops such as cotton and rice. But the NWFP's very large share of the production of maize must be viewed in the light of the fact that total acreage under maize in the whole of Pakistan was only 3% of the cropped area as compared with 33% of the cropped area under wheat. Punjab and Sind together, which have 76% of the rural population of Pakistan, accounted for no less than 91% of wheat, the staple food crop; all of cotton, the principal cash crop; and over 98% of rice.

The green revolution was the cumulative result of series of independent developments. The most important of those was the installation of tubewells. Tubewell development in Pakistan, however, is highly concentrated in irrigated areas of the Punjab. It is sometimes argued that the relatively small number of tubewells in other areas (including 'barani' areas of Punjab) is due to the absence of adequate groundwater supplies. But there is physical evidence of considerable potential for tubewell development in many parts of these regions. However,the relative costs would be greater because the water-table is lower and the groundwater more difficult to mine. In addition to higher costs, the preponderance of small farms in these areas would appear to be a major obstacle to the expansion of private tubewells. Under these circumstances, a public tubewell development program might be very successful. But the lack of political influence to effect the allocation of resources for this purpose is another obstacle in the way of development in these regions. Thus, as tubewell development is closely related to concentration of land in large farms, the green revolution tended not only to intensify already large disparities in wealth, but it has also widened disparities between different regions.

Some benefits have percolated to smaller farmers, at which level there has extensive tubewell development, insofar as big farmers sell surplus tubewell water to neighbors. The latter, however, are at a considerable disadvantage not only because of the higher cost of water, but also because they cannot always have it at a time of their own choosing. This introduces a factor of uncertainty, which increases their risk and inhibits innovation. Big landowners, very often, are only too eager to buy the land of poorer neighbors. Hence, diffusion of benefits through purchased tubewell water is limited and is fraught with uncertainty.

There is a high degree of concentration of landownership in Pakistan, a fact reflected in persistent demands for land reform and repeated promises of successive governments to introduce land reform measures. The resettlement had the effect of dispossessing very large numbers of small landholders and transferring land to large landholders. Ayub Khan latter called it "a perfectly ridiculous formula: it meant that if a person could produce two witnesses who deposed that he owned half of India, then the Government of Pakistan would have to accept this!" Ayub Khan characterized the Refugee Rehabilitation Policy as creating "a new class of Nawabs".

The terms 'feudal', 'semifeudal', or 'landed aristocracy' often are used rather loosely to describe an arrangement by which a small class of landowners appropriates one-half or more of the crop grown by sharecroppers. It is argued that the feudal structure is giving a way to a 'capitalist' structure as a result of self-cultivation of land by middle-class landowners who hire labor and invest in modern technology. Smaller landowners share with owners of very large tracts not only a privileged position in the rural economy, but also participation in the rural political power structure. Thus big and small land owners are different segments of a single continuum,on which they are placed according to differences in their

wealth and share in political power, without any structural criterion differentiating their interests for setting them apart into separate classes.

At the village level, economic power is a major factor in the establishment of political leadership positions. In Pakistan, few villages were/are owned by a single family. In a typical village of about 1,200 acres, there are usually a few big land-owners, plus a large number of small peasant proprietors, as well as members of other classes. Political power in such mixed villages is typically organized by factions. The faction leader, typically a big land-owner, organizes support by a variety of means. Such landowners rely on a core of supporters, namely their economically dependent sharecroppers, who have little option but to follow their master. The core of the faction would probably include their close relatives, who might also be big landlords in the neighborhood having their own economic dependents. The faction leader enters into alliances with fellow landlords, who bring their economic dependents. Economic power, by that token, is the aggregate power of members of a landowning class in close alliance with each other, rather than the power of a single individual or family. Because economic dependents are tied up to landlords in factional politics as they are tied to them in the economic field,political cleavages are not horizontal along class lines but vertical across class lines. The transformation of the factional mode of politics into class politics is just beginning to manifest itself.

With the power of his core behind him, the faction leader sets out to recruit a following from among other sections of rural society, principally the independent, small, peasant proprietors. Individually, the latter are weak, but often they are organized under the authority of their 'biraderi panchayat'. Action leaders enter into alliances with biraderis, for which they use a variety of means of persuasion. A powerful factor is the ability of a faction leader's relationship with the administration and his access to official favors is of special importance. Another way to secure support is by threat or coercion. Big landowners who have influence at high levels are protectors (rassagirs) of small bandits (goondas) through whom they operate.

At the level of national policy-making,it is such a leadership that participates in legislative institutions, and the members of the landowning class proliferate in the bureaucratic establishment. This pattern of political alignment is subject to pressures generated by the green revolution because of disaffection of various strata of the rural population whose interests are not articulated through the existing political structure. But such disaffected groups are not the rural middle class, who are well entrenched in the existing factional structure, in alliance with rather than in opposition to big landlords. The disgruntled groups, rather, are the very small, peasant landholders and sharecroppers (tenants) who are deprived of their livelihood as a result of the green revolution. This is a compressed outline of a complex pattern of organization of political power in the rural areas of Pakistan.

Under the British colonial rule, articulation of power between the village and the colonial regime was achieved by appointment of locally powerful men to the hereditary office of 'lambardar'. Similarly, appointments were made to higher offices such as 'zaildar'. Formally, his function was to collect land revenue for which he was allowed to retain a commission called 'pachotra'. But actually, that was the least important of his functions; he was not a servant of the state, but the holder of a quasi-political office. He represented the village before administration and administration before the village. To be effective, it was essential that he be a power holder in the village. The appointment was, therefore, always from the leading landlord family of a village, or the head of a biraderi (lineage) of peasant proprietors where such a biraderi was large. By virtue of his role as a mediator between the people of the village and the administration, the lambardar was in a position to bestow favors and patronage, which further reinforced his power. Because the power at the village was assimilated into the political system of the colonial regime, through the administration, the lambardari system consolidated the power of the administration against political challenge, especially as posed by national politicians.

One aspect of the struggle for democracy in Pakistan was the disaffection of political leaders who were isolated from the bases of their power. But, by that token, we cannot infer that it was the landed aristocracy that was dislodged from power. That class was represented at every level in the structure of power of the new regime (Ayub Khan's)symbolized best by the Nawab of Kalabagh, the powerful governor of (West) Pakistan.

Finally, there is one further aspect of the green revolution that merits attention, for it poses some central issues of policy. That aspect is the indirect consequences that follow from the changes in rural incomes. The gross provincial product from agriculture in West Pakistan almost doubled in the decade of the sixties. But the unequal distribution of the income from agriculture has brought about a manifold increase in the incomes of rural elite. On the other hand, the incomes of small farmers have failed to improve or have not improved in the same measure. The indirect consequences of the green revolution for the latter follow from the impact of the additional purchasing power in the hands of the former on the demand for and the prices of manufactured consumer goods. The main thrust of inflationary pressure derives primarily from the greatly increased incomes in the total national incomes accounts is very large. Despite the adverse changes in the terms of trade, the rural elite enjoy considerably enhanced real incomes, as indeed do the urban entrepreneurs whose profits multiply as a consequence. But other sections of the community, both urban and rural, have suffered as a consequence of the inflation in prices due partly to the changed rural income distribution.

An example of the secondary effects is that the incidence of agricultural taxation and subsidies has served to accentuate disparities between different strata of farmers and different regions.

This is because land revenue is levied on the basis of a flat rate per acre and is borne equally by all classes of farmers, whereas benefits from agricultural subsidies are distributed in proportion to the use of the subsidized inputs. The rich farmers who have prospered most have also had the 'lion's share' of the government subsidies. The rural elite has, however, fairly successfully resisted proposals to tax agricultural incomes, to reduce subsidies, or to lower the high support prices for certain agricultural commodities. As a whole, they have successfully defended their interests by their influence on public policy. The present course of the green revolution, however, appears to have brought about a deterioration in the conditions of life of a majority of the population,and further progress of farm mechanization is creating a situation in which a very large number of the rural population will be faced with the prospects of having no viable means of livelihood. Far from having established a new political equilibrium, the green revolution has set in motion a dynamic that makes the existing position untenable.

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b. The Food Production Development in India: Who Benefits?

Food for whom? Need one ask such a question in a world full of hungry people. Third World countries are concerned about increasing food production for at least two major reasons: (i) feeding the hungry - the rural poor (landless and mini-landholders) as well as the urban poor; and (ii) enabling landholders to make an adequate income (be they small cultivators or large producers for the market). Despite successful food production programs, widespread hunger and malnutrition persist in these areas.

The 'Green Revolution' has been widely criticized for its uneven distributional effects, inapplicability to local conditions in certain areas, and its restricted focus upon a limited number of grain crops. In many rice regions, on the other hand, the green revolution has been extremely successful, and Kerala (India) is certainly no exception. However, the effects of the increased production on different strata of society show that although the new agricultural strategy has succeeded in its ostensible goal of producing more food, it has failed to meet human needs.

The strategy of the green revolution in Kerala, as elsewhere, has emphasized hybrid grain varieties, commercial fertilizers and pesticides, tractors, and large food processing mills. It also has concentrated mostly on the owners of larger landholdings, successfully motivating the larger farmers to invest more on inputs in order to obtain a greater cash return for their product. These

practices have resulted in much higher yields, but also have produced widely documented social consequences, particularly an increase in the socio-economic gap between the larger holders and their laborers. Production costs have increased rapidly in recent years since the oil crisis in the mid-1970s, have severely affected the price of chemical fertilizers required for some of the new high-yielding varieties. Labor costs have also gone up markedly in Kerala over the past ten years, as a result of militant labor union activity. Surprisingly, the living standards of laborers have not improved significantly, though their working conditions are somewhat better.

The landowners' motivation now is not simply an economic saving on labor costs, but also a desire to reduce their dependence upon laborers. In some situations, capital can be substituted for labor. In fact finding ways, for example, to control weeds through improved water management and chemical herbicides is generating a great deal of interest among farmers. Notwithstanding the increased costs, larger farmers are still doing quite well financially. Many manage to buy cars and tractors, send their children to boarding schools and colleges, and build large new houses. The middle-sized farmers are in a more genuine plight, or will be, if costs increase and prices (of their produce) stay down. In a sharp contrast, the rural poor and especially the landless agricultural laborers suffer severe malnutrition most of the year, even with rice prices falling. It is seen that some families are living far below any reasonable norm for adequate nutrition. Most of these are families with limited numbers of adult (men or women) working members due to poor health, old age, or recent childbirth, or worse, are families with no other source of cash, living in semi-starvation condition in order to pay off debts. Despite increased production and greater food availability, too many people still go hungry. Local village shops are well-stocked, but the poor have little money with which to buy food. Many of them only eat a full meal once a day, and at other times would have only black tea or a bit of rice gruel.

The industrial lobby in India, concerned about cheap food for their workers, has traditionally supported radical agricultural programs based on large-scale food procurement, cooperative farming, land reform, and taxation of agricultural income. However, despite pronouncements of these matters from the Central Government in Delhi, the programmes are usually not implemented at the local level due to the opposition of powerful rural elites. The present agricultural policy, which stresses hybrid grain varieties, commercial fertilizers and pesticides, tractors, and food processing mills is intended to make peace between these groups by providing food at a low price for the urban workers without disrupting productive relations in the rural area. As such, it combines the interests of the rural elite and the industrial lobby.

Whenever there is a bumper crop of rice, the price tends to fall. Some argue that the poor also want a high purchase price, because they sell paddy from their own plots or crop shares. Most poor producers, however, have to sell to particular shop-keepers,

and in the long run they would do better to have a lower price all year round, since latter in the year as less grain is available, the price they have to pay goes up. Landless laborers often complain about having to sell at one price and buy at another, not about having a generally low price. They are unable to keep the paddy not for lack of storage facilities, but because of the cycle of borrowing which requires them to make immediate payment at harvest times.

The question 'Food for Whom?' is not academic. If the purpose of food production is to eliminate hunger, then maximizing production can only occur in a situation in which the actual producers of food are able to fill their stomachs each day. This is not possible today in Kerala and in similar regions throughout the world, especially the Third World.

Reference

Mencher, Joan P., n.d., 'More Food for Whom?'; in: Culture and Agriculture; volume 13, pp. 3-7.

c. Physical and Socio-Political Factors Influencing Social Conservation Policies

Why do most soil conservation policies fail? An analysis of the mode of explanation itself is helpful since it makes explicit many unstated assumptions on which the explanations rest. However, most still fail to state explicitly their political value judgements and are unaware of their ideology.

One of these promising directions has been the realization that conservation is as much about a social process as a physical one, and that major constraints are not technical, but social. However, these 'social factors' are not subjected to the same systematic analysis as the technical ones, and they remain unconnected, irksome and somehow immovable under prevailing analytical frameworks. Appealing to rather different sentiments, there are strong grounds for arguing that scientist should take social responsibility for the technology they develop. Some scientists would still maintain that science is neutral, and it is the politicians who select and implement their inventions in particular ways and who should therefore shoulder the blame for undesirable consequences. In a less dramatic and analogous fashion, soil conservationists of all kinds should be able to take a social view of conservation techniques.

It would be an unjust and simplistic generalization to claim that most conservation policies and official reactions to soil erosion followed a single set of assumptions. However, it is possible to identify a syndrome of implicit assumptions in many lesser developed countries' conservation policies and in more academic and general commentaries on the subject, and to follow them through to particular elements in explicit policy. Few actual

conservation policies contain all these elements and it is difficult to attribute them in every case to implicit value judgement. A 'classic approach' implies a static, long-established, well-recognized and high valued approach on which particular policies in the future may be based. Both the theory and practice of soil conservation are in a process of change, albeit rather slowly, and in the opinion of the author often in directions that are not very promising. In spite of this caveat, the implicit assumptions on which policies are based have only slowly evolved from a colonial, Euro-centric messianic intellectual frame of reference which has endured the waning of empire and the regaining of political independence of most former colonies. The classic approach identifies four major problems in rectifying soil erosion.

(1) Environmental Problem/Solution

The problem is identified as primarily an environmental problem with environmental solutions. If soil erosion is principally identified as an environmental problem, then the degrees of freedom and policy options which derive from concomitant changes in the 'social' sphere are thereby closed. Therefore, there is a logical tendency to preclude from view of the social reasons why people are using the land in such a way as to cause excessive soil erosion, and so most conservation policies do not address them at all. Problems of lack of alternative sources for fuelwood for poor people, unequal landholdings, political constraints placed upon the pastures of nomads, poor prices imposed by the state for produce of rural areas and so forth, tend to lie outside the terms of reference of most conservation policies. When purely environmentally-dictated policies (e.g. forest closure or forcible destocking of pastures) do not work because the social context has been analyzed insufficiently, force is often contemplated. This frequently ends up with the state attempting to protect the environment from majority of the people who use it.

(2) Mismanagement of the Environment

The problem is blamed on the land-users themselves, who are seen to have mismanaged the environment because of lack of environmental awareness, ignorance, apathy and just plain laziness. The policy implications of this view of the problem are spread across a continuum from agricultural extension to educate farmers into new and more modern farming practices at the one end, to compulsory erosion works and outlawing practices at the other. Again the root of the problem was perceived to be the cultivators or pastoralists themselves, and that blame originated from land use by them under their own free will. If 'they' can be made to change by education or compulsion, then the problem of soil erosion and pasture degradation would be solved.

(3) Overpopulation

Another problem identified in the classic approach is that of overpopulation. The whole issue of the politics of population

growth rates in relation to natural resources and production technology is a highly complex one. However, it is enough to point out that there are similarities between the overpopulation view and the view that farmers and pastoralists should be educated out of their ignorant, lethargic and traditional ways. Both identify the cause of the problem as beginning and ending with the land-users themselves: they should change their habits of production and reproduction, and the problem of soil erosion would be solved. The policy implication here is that family planning programs are linked strongly with conservation programs (as in Kenya or India, including both family planning and reforestation programs).

(4) Involvement in Market Economy

The last problem identified in the classic or colonial model is that cultivators and pastoralists who cause soil erosion are insufficiently involved in market economy. Involvement in the production of surpluses for sale in the market implies modern methods of cultivation and improved productivity, so alleviating the population problem, and the awareness of financial inducements, and incentive to undertake soil conserving agronomic practices and/or erosion works. The policy implication of this view is a program to help those farmers who can help themselves to grow cash crops.

Of course, a set of policies on soil conservation was not simply determined by a few major economic and political interests of colonial powers alone. For one thing, they varied enormously from place to place, and between Anglophone and Francophone Africa and Asia. They varied through time, and there were also important contradictions between local governors and/or administrators who understood well these deleterious effects upon cultivators and pastoralists, and their paymasters both in the colony and metropole. Last, but not least, there was an attitude of mind of the rulers towards the ruled, varying between paternalism through uncomprehending distaste to outright racism. The natives received laws, fines and even imprisonment for certain agricultural and pastoral practices, while European settlers received physical infrastructure, loans, and an agricultural extension service backed by research stations which researched commercial crops for commercial farmers.

What evidence is there that these overt policies and covert assumptions have outlived the political and economic structures which brought them into being? After all, most countries which were colonies in the past, have regained their independence. There a two lines of argument here. The first is that the conservation policies themselves still have many of the assumptions of the colonial model. The second argument is that many structures of appropriation of surpluses from peasantries and pastoralists which were established during the late colonial period still exist. While political independence is a contemporary and important fact of life in all but a handful of countries, the economic incorporation of their economies into the world economy continues and deepens.

Briefly, the incorporation of an economy into the world economic system involves an extension of the market mechanism between producers and consumers in the lesser developed country with other countries or trans-national companies, and thereby a closer political relationship between other trading partners and national or international financial institutions. Incorporation is both affected by the effects of the internal class structure of the lesser developed country and, as it deepens, becomes a determining process of social development or retrogression. To expose the contradictions of the world economic system by identifying soil erosion in lesser developed countries is like expecting the tail to wag the dog. Soil erosion is one of its many contradictions, and for reasons discussed here, it is one of the most diffuse and complex areas of analysis. It is not one to rally the world's peasantries, pastoralists and other land-users to change the social conditions which bring about soil erosion in the first place.

Many conservation programs in lesser developed countries have been initiated, financed and partly staffed by foreign aid donors, both multilateral and bilateral. Given the fact that soil conservation as a government policy was a colonial phenomenon, it is perhaps not surprising that in post-colonial Africa at least, foreign aid tended to move into the vacuum left by the colonial administration. Also, the foreign aid donors exported their experiences with trying to deal with their own soil erosion problems, as a part of foreign policy to their spheres of influence in the less developed countries, even where there had been an almost complete lack of government concern over soil erosion (as USA in Latin America). Foreign aid has received a number of critical analysis. In a sentence the kernel of the criticism is that foreign aid tends to serve narrow donor interests and those of the classes in recipient countries that will most benefit; that it incorporates the lesser developed country into dependent relations with industrialized nations; and that though a series of bureaucratic filters, special interests and general bungling, frequently does harm not good. Soil conservation programmes, by the nature of their objectives and the distribution of personal rewards are immune from many of the more trenchant criticisms of foreign aid policies and programmes. However, the fact that soil conservation and other related programs are delivered through foreign aid institutions poses additional problems for their success. The elements which are essential in most conservation policies are often contradicted by the limitations and objectives of foreign aid.

Many soil conservation policies fail, and recently there has been some attempt to find out why and how. Although this effort has been piecemeal and has occurred in widely differing contexts, the direction in which it is moving can be identified. Still, many of the most fundamental 'social factors' behind the conceptualization of the causes of soil erosion and the role of government have still not been analyzed coherently, and remain at best labelled and hidden in a number of black boxes. Here are some of the reasons that are commonly found in contemporary documentation for failures in conservation programmes:

i. Conservation techniques do not conserve in practice because of technical failures through inadequate or misapplied research. These range from the collapse of concrete-walled and widened terraces (Israel) to repeated failure of inflexible concrete check dams (or gabions), breached bunds, inadequate storm (flood) channels and inadequate knowledge of the requirements and performance of grasses and trees.

ii. Conservation techniques do not fit into agricultural and pastoral practices and therefore are not applied by farmers and pastoralists.

iii. Conservation is hampered by existing land tenure conditions. In many countries with very unequal land holdings, land reform is considered an essential prerequisite to a successful soil conservation program.

iv. A lack of participation by land-users in government sponsored conservation. This explanation clearly overlaps the previous one where conservation cuts across existing agricultural and pastoral practices. Presumably preliminary consultation by conservation agencies and institutional involvement of local people in plan formulation and implementation would avoid these clashes. However, it goes further than that and implies a lack of awareness of the need for conservation, of future private benefits for individual households and the village or region as a whole, leading to a failure to mobilize people to give their labor for construction (even if it is to be paid for), for maintenance work, and for enforcement where discipline is required for its preservation.

v. Institutional weaknesses. These causes of failure are attributed to 'problems at the top', although of course these must be linked to problems further down, particularly of lack of participation of local people, inappropriate conservation measures,local enforcement and so on. It perhaps seems easiest problem to tackle if the viewer also is located somewhere near the top. This perhaps explains the predominance of recommendations for institutional reform, compared with the other deeper seated changes in civil society. A commonly recognized problem is lack of coordination in conservation policy which comes about because the wide-ranging issues implied in brief are traditionally dealt with by separate 'line' ministries or departments. Here soil conservation does not stand alone in this, and rural development in general suffers from the same problems which have generated a large literature in the improvement of planning and administrative systems.

The response to these five perceived difficulties has been various. At the most analytically simple, the difficulties remain as unexplored discrete entities or black boxes, which then have to be removed or steered round in the formulation of a conservation project or policy. In rather the same way as in some Basic Needs Strategies, a checklist of desirable attributes of a good strategy

can be compiled. A drawback to this response is that merely bearing a desirable attribute in mind does not necessarily remove the problem. Its advantage is that it is at least problem-oriented and gives the impression (which is sometimes justified) that one has the means to solve it. The more abstract the mode of analysis of the problem and therefore the more connected the items on the checklist become, the less likely that one can solve them alone. However, even a rudimentary enquiry into the problems discussed above shows that they are connected in obvious ways. Local participation is achieved because, and as a result of, appropriate conservation measures which do not cut across existing practices and irreducible means of earning a livelihood. Effective programme formulation and implementation by government to provide external inputs to appropriate skills is essential for local participation and implies effective and coordinated administration, and so on. Furthermore, all the items on the checklist themselves, such as local participation, effective administration by government and consonance between conservation measures and existing agricultural and pastoral practices, require deep-seated political economic preconditions. Community participation in conservation can occur under a variety of different circumstances, but one can identify some that make it easier. Also, there should be an effective and widely respected authority which can solve disputes and give penalties in the case of infringement of mutually agreed codes of practice. Finally there should be a trusting two-way communication between externally provided skills (i.e. engineers, foresters, agronomists, planners, etc.) and local land-users; incorporating all technical aspects collaboratively (interdisciplinary team of officials) and the local people's conditions and interests (participatory approach to development) from survey, through planning and implementation, to benefit obtaining and maintenance activities. These three facilitating conditions are predicated upon the nature of local political economy - who has power and how it is exercised; upon the nature of state; and, the interests and ideology of the people who serve in government.

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Note: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library.

FOREST SOCIOLOGY

Lecture 20

TEACHER'S OUTLINE

Section: SOCIAL RESEARCH

Chapter: PROJECT EVALUATION: Case Studies (Cont'd)

d. Research on the Impact of Reforestation

a) Reforestation is generally defined as the natural or artificial restocking of an area with forest trees, including measures to obtain natural regeneration as well as tree planting and seeding. Common usage has tended to restrict the term 'reforestation' to the artificial seeding and planting situations. Where the land has not previously or in recent history grown tree crops, the act of tree planting or seeding is known as 'afforestation'. In both the situations, they are man-made forests which range from large industrial plantations to the small plots of farms and villages. This tree planting and seeding activity is an important component of many agroforestry and social forestry projects at a modest level, and of large energy farms or dendrothermal plantations on a grander scale.

b) Such reforestation schemes are often carried out by government for rehabilitation of watersheds, obtaining a productive crop from the land, reducing erosion and sedimentation of streams,and restoring the hydrological regulation to the watershed. In addition, many of such schemes have been initiated for preventing floods and restoring undependable water supplies.

c) It is argued that almost all of the above anticipated benefits of reforestation are not supported by sufficient evidence and research findings. Therefore,a lot more indepth and water-organized research is needed to provide a strong scientific base for such expectations. A quotation: "Surveying this scattered experience, it is clear that forest should neither be felled nor planted on a large scale without a study of the potential hydrological changes which may be expected".

e. Evaluation of Woodfuel Diffusion Programs

a) The evaluation of woodfuel diffusion programs, in broad terms, can be carried out at two stages: (i) feasibility and planning stage, termed as 'ex-ante' evaluation;and (ii) after launching of the scheme (mid-term or later), termed as 'ex-post' evaluation. It is argued here that effectiveness of either aspect (or stage) of evaluation will depend on the approach by which it is depend and by whom; the method by which the information is collected, interpreted and so on.

b) Ex-Ante Evaluation: To make the most appropriate choice among and the mix of various fuel energy sources, land use, tree species, fuel use practices, organizational institutional aspects, availability of funds, etc. would be the subject matter of the feasibility and planning for a woodfuel diffusion scheme. These choices acquire complexity not merely because of the range of alternatives which need to be considered but also because the choice between two options implicate larger issues which are not always apparent at first-sight. These considerations may have to be made both at macro and micro levels with regard to technical, economic and socio-political aspects of such innovations. How the end product by a scheme would be distributed is again an issue that must be an integral part of the prescheme evaluation of alternatives. Unfortunately, most schemes are selected without considering the whole range of options and possibilities and often in isolation of other development projects and schemes. The weakness of a 'piecemeal approach' is often manifest in scheme failure.

c) Ex-Post Evaluation: To pinpoint the possible causes for it success or failure, after a project or scheme has been running for some or more time, is the purpose of this evaluation. It may be carried out on-going along the project (monitoring), around the middle of the project period (mid-term), and/or towards the end of the project or scheme (final evaluation). The on-going monitoring and mid-term evaluation are usually carried out on very specific aspects and can be utilized to correct the path or speed of the program. The longer-term appraisals (final evaluations) are much more wide-based and comprehensive assessments of all facets of the program, in terms of its overall impact on the society - economic, political, and socio-psychological. The more common approach is to try to gain wisdom after the event (scheme, project, program) for future use in planning and implementing similar programs in the same or other areas.

d) Monitoring can supplement but not substitute for a broader-based appraisal. However, in both the monitoring and long-term appraisal of rural woodfuel related programs, a significant common feature would need to be asking the question: 'is it reaching and benefiting the poorest and most under-privileged sections (in terms of, say class, caste, gender, etc.) of the rural population who are likely to experience the woodfuel crisis most acutely?'. If answer is 'no', it would be necessary to locate the constraining factors: technical, economic, socio-political, etc. And if the answer is 'yes', it would be important to ask what are the enabling factors in its success.

e) The quality of an evaluation can depend crucially on 'who' does it and the 'approach' he/she uses. Technically it is possible for evaluation, whether ex-ante or ex-post, whether in the form of continuous monitoring or long-term appraisal, to be carried out by 'outsiders', or directly by the people for whom the scheme is meant, with limited outside involvement. Further, the approach followed in evaluation may either be top-down or participatory. Whether or not the evaluation procedure is participatory and the

degree to which it is participatory, can crucially affect not only the accuracy of the evaluation but also often the success of the scheme itself. Ideally, monitoring of schemes needing group action or consensus should be done by the beneficiaries themselves as a group, or through a close interaction between the scheme implementers and the beneficiaries. However, in long-term appraisal, it may be advantageous to supplement self-appraisal by the group with appraisal by someone who is a complete outsider to the project, although not a stranger to its social, economic or cultural context. Evaluation by an outsider can be helpful for getting an objective assessment and for bringing a macro perspective and a wider-ranging experience to bear on the subject.

f) For any type of evaluation, one of the crucial inputs is the availability of accurate and wide-ranging information (data) on a variety of aspects. The nature of information would usually contain several components, such as, technical (including physical), socio-economic and cultural informations, both quantitative and qualitative. The participation of local people in data gathering would also help increase their interest and involvement in the project.

g) Socio-Economic Data: The most common method of eliciting socio-economic information in rural energy surveys has been through a questionnaire, especially of the closed-ended type. However, such an approach could well impose preconceived notions and ideas on the situation observed, restricting the scope of the evaluation. Also it can miss out on a range of complex qualitative information. Thus, a questionnaire can supplement but not substitute for other methods of data collection: open-ended questionnaire-interviews, formats for group discussions and traditional village games (or indirect methods), participant observation, informal discussions, etc.

h) The very term 'data collection' implies that researchers conceive of 'data' as if it were an object having a 'concrete' existence and the job of the field worker is to go and 'collect' it. Such a conception ignores the simple truth that socio-economic data emerge out of a relationship between the field worker and another human being. Thus, for an outsider, establishing a 'rapport' with the villagers is a key to the successful data collection endeavor and it requires special effort to gain the respondents' confidence, particularly if they are poor and under-privileged ones in the village. The way in which a person is received in the village would be affected by his/her objective situation (status, gender, rural/urban, etc.), attitude towards and sensitivity to the villagers. However, for the researcher to be able to establish a rapport with the villagers would depend on his/her approaching them as 'people' from whom he/she can and wants to 'learn', rather than someone who already has the answers. And, establishing a dialogue with them would need both sensitivity and sensibility or his/her political consciousness.

i) No single method of evaluation and data gathering can be deemed appropriate under all circumstances,and usually a 'mix' of different types of evaluation exercises, different techniques of data gathering and different analytical tools would be needed to arrive at an adequate assessment. In fact, evaluation involves subjective judgments at many levels; hence 'who' does to becomes a crucial consideration.

f. Sustaining Afforestation strategies in Social Forestry (Azad Kashmir)

a) In the conventional type of forestry development, large corporations or government agencies hire workers to establish or expand plantations on large tracts of land the business or the agencies control; the wood is harvested for use in industry or construction. The new approach, social forestry, is to induce a large number of small farmers systematically to plant trees on their own lands. The social innovation of these social forestry programs appears formidable indeed in the light of the long history of the traditional, patterned behavior it is supposed to change.

b) Several social conditions are necessary if these innovations are to be succeed. Central among these social prerequisites is the existence of a unit of social organization or a structure capable of sustaining an innovation. Financial inducements along, however important, are not sufficient and their impact is not automatic. Other social factors that require special consideration, in this regard, include: (i) purposeful patterns of social organization for conservation and/or production of the (forest) resources; (iv) authority arrangements of the (tree) resources; (iv) authority mechanisms for collective decision-making and actions; (v) social perceptions and attitudes; (vi) political power in distribution of benefits; and (vii) influence of the external change agents.

c) The case of social forestry component of multifaceted hill area development program of the World Bank in Azad Kashmir, demonstrates that sociological factors are salient and work tenaciously under the thin layer of the new reality, temporarily constructed with the financial inducements of the program. Such factors were, the existing land tenure system, the usufruct system, and the absence of social structures for collective action.

d) The lack of a sociological analysis when this project was appraised paved the way for false assumptions about land tenure. The strategy predicted on these assumptions back-fired. The socio-logical analysis at the project mid-point revealed the array of unanticipated consequences that had built up during the implementation process. This analysis suggests why seeing the people behind the trees should be the first commandment in social forestry.

e) In the absence of a sociological field analysis, the project

appraisal report relied on explanations given by local officials and identified 'shamilat' land 'as generally left uncultivated, owned jointly by a number of families'. It was considered to be community land, for which villagers had decision-making authority as well as rights to share in its use. But, contrary to the expectations, shamilat land appeared to, for the most part, not truly community land: in real life, it is operated and used as private land, and susfruct benefits from this land accrue to individuals, rather than to the whole community.

f) Most of the smaller farmers were found willing to offer small plots of their private lands for project planting, provided they could be assured that the Forest Department would not alienate their lands and that they would be able to cut grass for their cattle. In contrast, the larger landowners, being confident of their political power, did not regard tree planting by the Forest Department as a threat to their ownership of land and trees, and tended to manipulate available project opportunities and resources to their own benefits. The absence of a contract left a huge loophole that enabled the large landowners to avoid making contributions.

g) The findings of the sociological analysis led to immediate changes in the project and generated several lessons of broader validity. The project's management was asked to reconsider the areas identified for fuelwood planting and to limit immediately the planting of fictitious shamilat lands. The intent was to prevent turning the pilot project into a full 'give-away' program, until a cost sharing system could be designed.

h) The practical failure proved more convincingly than intellectual arguments that the social analysis should have been carried out at the time of preparation and appraisal (ex-ante), when it could have steered the pilot project on a different path, consistent with the local social landscape. Though done relatively late, it was instrumental and consequential.

i) When the follow-up development project in Azad Kashmir was appraised in 1983, an attempt was made to avoid the earlier errors with regard to forestry. The new orientation was toward overcoming the social constraints to a systematic hill development program. Most hillsides are a mix of various social tenure systems, and each hillside is a separate ecosystem that must be treated as such. Consequently, the new project was oriented toward integrated hill management plans, based on agreement between the individual owners in each catchment area, the communities were relevant, and the government, with some cost-sharing and benefit-sharing arrangements.

j) The sociological analysis discussed above brought three sets of social variables into limelight: (i) the complex land tenure system and the processes affecting it at deep structural levels; (ii) the community unit with its internal interactions, nonhomogeneous groups, and inability to act consensually; and

(iii) the behavioral patterns of individual farmers. All these gave rise to an alternative method of reforestation, termed as Farm Forestry - tree planting by villagers on their own private lands.

k) The concept of community forestry was at a certain point loosely defined as 'including any situation which intimately involves local people in a forestry situation'. Contrary to this overly encompassing definition, the operational challenge is to disentangle the broad term 'people' and to identify precisely 'who' and 'how': what social units of organization among the people can and will do afforestation, and which social units and definable groups can act as sustaining social structures for long-term production activities.

l) The range of structurally different social actors in forestry development projects is quite broad: communities, villages, village governing bodies, farm families, groups of farmers, cooperatives, schools, private companies, public institutions, and so on. Accordingly, some of the social factors relevant to forestry work can be: community woodlots; small group, association, age group, women's group forestry plantations; watershed forestry; and so on. Such alternative social forms can be conceived and actually organized in real life. They are 'social inventions', or purposeful social arrangements for the performance of definite productive and distributional functions. A continuous 'learning process' should accompany the process of organizing such units and improving their structure and operation.

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FOREST SOCIOLOGY

Lecture 20

Section D: SOCIAL RESEARCH

Chapter 13. PROJECT EVALUATION: Case Studies (Cont'd.)

d. Research on the Impact of Reforestation

Reforestation is generally defined as the natural or artificial restocking of an area with forest trees, including measures to obtain natural regeneration as well as tree planting and seeding. Common usage has tended to restrict the term 'reforestation' to the artificial seeding and planting situations. Where the land has not previously or in recent history grown tree crops, the act of tree planting or seeding is known as 'afforestation'.

The man-made forests resulting from such activity range from large industrial plantations to the small plots of farmers or villages. This activity is an important component of many agroforestry and social forestry projects at a modest level, and of large energy farms or dendrothermal plantations on a grander scale. It is often carried out as a government activity in the interests of rehabilitation of watersheds, and the anticipated benefits involve not only obtaining a productive crop from the area, but reducing erosion and sedimentation of streams and restoring the hydrological regulation to the watershed. Unfortunately, in anticipating hydrologic benefits, many planting schemes are initiated with the expressed or implied purposes of preventing floods and restoring undependable water supplies. For the sake of convenience, the term 'reforestation' will be used hereafter unless there is a clear evidence that 'afforestation', as defined above, is the term that should be used.

Reforestation of open land usually leads to decreased water tables, with effects most pronounced in the dry season. The additional evapotranspiration demand from a developing plantation as its rooting depth increases will reduce the amount of soil moisture available to recharge groundwater. While intuitively one might think the increased evapotranspiration loss would be more than compensated for where compacted and degraded lands had their infiltration rates substantially improved by virtue of reforestation, there are no experimental data to support this conclusion. Nevertheless, in many tropical developing countries, citizen support for expanded reforestation programs is being at least partly marshalled by unfounded claims that such programs will restore unreliable springs and raise water levels and yields in wells. No research results are yet available about whether reforestation in fog or cloud areas could add to groundwater.

Similarly, in much popular writing and political pronouncements, reforestation or afforestation is being advocated to make more water available in streams for human use. In fog or cloud areas, planting trees can increase the effective moisture reaching the ground and might more than compensate for increased water use by the forest. Unfortunately, no stream yield data are available for this situation. In all other cases following reforestation, research results show a decrease in total water yield. The evidence suggests that this decrease in water yield is greatest during the low flow period. However, there may be some other variables involved for which there is little data available at present.

A major reason for undertaking reforestation or afforestation is to reduce erosion rate that prevail under some existing non-forest land use. Both practical and research experience have shown that once forest tree plantations have been established on formerly open land, erosion rates show significant reductions. Most research studies have actually measured stream sediment yield from an area and suggested that this indicates the extent of erosion due to some treatment. There is some validity in the suggestion that sediment yield rates are indicative of erosion rates; though there are also some shortcomings. Moreover, sediment yield from the catchment does integrate soil movement from various activities associated with the land-use treatment. For instance, associated with reforestation there may be cultivated fire-lines and roads for access that are susceptible to erosion but would not be included were one to simply measure on-site erosion in the plantation. There is no question but that gullies have been stabilized and sheet erosion dramatically reduced by reforestation, once a leaf litter has become established. Grass cover also is undeniably effective in minimizing erosion, but where there is grass, there is grazing (and often fire), and erosion rates are therefore usually higher than under forest plantations. Re-establishment of trees can again provide root shear strength to minimize shallow soil slips on areas prove to mass movement following storm events.

Moreover, nutrient outflows from reforested catchments, or even plots, compared with those from agricultural cropland or grassland, have not been researched extensively. It is thought that nutrient outflows would be reduced, particularly if fertilizers had been part of the previous land-use system, or where there had been active erosion that found its way into watercourse as sediments. The use of nitrogen-fixing trees in reforestation may alter the situation. Short-rotation tree harvesting would likely speed up the outflow of nutrients compared with long-rotation trees, unless it was a coppicing system or seedling regeneration immediately obtained by natural or artificial means.

In summary, it is appropriate to quote Sir Charles Pereira who quite aptly stated in 1973: "Surveying this scattered experience, it is clear that forest should neither be felled nor planted on a large scale without a study of the potential hydrological changes which may be expected".

Reference

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e. Evaluation of the Woodfuel Diffusion Programs

How do we evaluate woodfuel diffusion programmes? A consideration of this issue is integral to evolving appropriate directions and means of alleviating the woodfuel energy crisis. In broad terms there are two aspects to such an evaluation. First we need to evaluate 'ex-ante' the relative appropriateness of alternative ways of achieving a set objective (in this case reducing the burden of the woodfuel crisis) in order to make the most appropriate choice. Second, having identified a scheme (or a set of schemes) we need to evaluate 'ex-post' (that is, after the scheme has been launched) whether or not it is being implemented effectively, and pinpoint the possible causes for its success or failure. It is argued here that the effectiveness of either aspect of evaluation will depend on the approach by which the evaluation is done (top-down or participatory), by whom it is done (the local people or outside evaluators), the method by which the information needed for evaluation is obtained (questionnaires, group discussions, etc.), by whom the information is gathered, how it is interpreted, and so on. These aspects are not entirely separable: for example, a participatory approach also implies the involvement of local people in evaluation and in some measure the use of group discussion methods.

(1) Ex-Ante Evaluation (Feasibility & Planning)

Any attempt at seeking 'solutions' to alleviate the woodfuel problem is likely to involve a set of choices between alternatives by whoever is making policy decisions - say, the government of a Third World country, if it is willing to do so. The problem may be that of deciding between the correct 'mix' of woodfuel innovations - for example, whether to devote more funds to the development and promotion of improved wood-stoves or improved charcoal kilns, or to the establishment of fuelwood plantations; or it may mean deciding between woodfuel and other renewable energy sources (say, biogas); or between renewable energy sources (woodfuel or other) and non-renewable energy resources (kerosene, etc.); or between providing energy for domestic use or energy for irrigation (which could increase crop production and so the availability of wastes for fuel);or between a program for alleviating the woodfuel problem directly (through woodfuel innovations) and a programme for income generation (which could make an impact on the poverty status of people and hence their ability to spend on fuel), and so on. These choices acquire complexity not merely because of the range of alternatives which need to be considered but also because the choice between two options implicates larger issues which are not always apparent at first sight. For example, consider a choice

between different sources of energy for domestic use, such as firewood, oil and electricity. Investment choices relating to these could also imply a choice between indigenous and imported sources of energy and/or between indigenous and imported technology, and hence have implications for these countries in their degree of dependence on, and vulnerability to, the vagaries of the pricing and supply conditions of such imports in the world market.

Again in planning tree-planting schemes, among other things a choice is involved between alternative uses of land - some of the important alternatives, apart from tree-planting, being crop cultivation, cattle grazing and industrial and urban construction. This would have differential implications for people dependent on particular occupations for their livelihood. Also involved in the choices would be decisions that are both financial and non-financial in nature; and underlying these decisions can be a complex set of explicit and implicit choices relating to a wide range of connected policy issues, including (at the macro-level) issues such as land reform or other measures that affect the structure of the economy. In other words, every choice made would involve not only technical considerations but also economic and socio-political considerations, and would have a range of possible implications, including the gains made or losses suffered by different sections of the population. The more explicit and detailed the spelling out of these implications is, the more comprehensive can the decision-making process be. Many of these considerations also arise at a somewhat more micro-level, say in the planning of energy use by and for a village community. For effective and adequate planning in fact all aspects of energy use as well as broader aspects of poverty, development and distribution need to be considered. Energy shortages are not suffered in equal measure or for the same uses by all households in a village; landless households may need priority in energy for cooking while landed households may need energy essentially for irrigation or other agricultural uses. How the end product by a scheme would be distributed is again an issue that must be an integral part of the pre-scheme evaluation of alternatives. Unfortunately, most schemes are selected without considering the whole range of options and possibilities and often in isolation of other development projects and schemes. The weakness of a 'piecemeal approach' is often manifest in scheme failure.

(2) Ex-Post Evaluation (Mid-Term & Final)

A useful distinction in programme evaluation is that between continuous 'monitoring' which essentially implies on-going assessment, possibly of very specific aspects of the programme, and a 'longer-term appraisal' which would imply a much more wide-based and comprehensive assessment of all facets of the programme, after it has been going on for some period of time. The more common approach is to try and gain wisdom after the event, that is to understand say why stoves have not been accepted or a forestry programme has failed. However, continuous monitoring can prove essential for pin-pointing weakness in the immediate functioning of specific aspects of the programme, in order to correct them

where possible. This becomes especially important where the program involves diffusing a technology which requires adaptation to the user's needs as, for instance, in the case of wood-stoves: here close monitoring would need to be an essential part of the stove adaptation process to resolve problems as they come up, especially in initial stages of the project. Such interaction also reduces the distance, in time and space, between technology design and its diffusion.

At the same time, monitoring can be seen as complementing but not substituting for long-term appraisal. Monitoring is essential for identifying and resolving problems located in the specific and somewhat quantifiable aspects of the scheme,but long-term appraisal would also be necessary: (a) to identify the macro-impact of the scheme (say, the effect of stove-promotion on overall fuel saving in the area, on nutritional patterns, and so on); (b) to bring to bear on the evaluation the experience of schemes undertaken elsewhere; and (c) to relate the experience of the specific (this) scheme to the wider developmental issues and aspects such as the social structure or land use patterns, etc. which have evolved through a historical process of change. Such analysis cannot be done on the basis of monitoring alone, which is why the latter can supplement but not substitute for broader-based appraisal. However, in both the monitoring and the long-term appraisal of rural woodfuel related programs, a significant common feature would need to be asking the question: 'is it reaching and benefiting the poorest and most underprivileged sections (in terms of say class, caste, gender, etc.) of the rural population who are likely to experience the woodfuel crisis most acutely?'. If the answer is 'no', it would be necessary to locate the constraining factors: technical, economic, socio-political, etc. And if the answer is 'yes', it would be important to ask what are the enabling factors in its success. An understanding of the reasons for both failures and successes would be important not only for improving the implementation of the particular program being evaluated but also for planning such programs elsewhere.

(3) Who Evaluates and by What Approach

The quality of an evaluation can depend crucially on 'who' does it and the 'approach' he/she uses. Technically it is possible for evaluation, whether ex-ante or ex-post, whether in the form of continuous monitoring or long-term appraisal, to be carried out by 'outsiders' (this is, by those who are not the potential beneficiaries), or directly by the people for whom the scheme is meant, with limited outside involvement. In the case of long-term appraisal the outsiders may even be those who have not been associated with the planning or implementation of the scheme at any stage, but who may have 'specific expertise'. Monitoring, however, would require that the outsiders are insiders at least in the sense that they have been directly involved in scheme implementation.

Further, the approach followed in evaluation may either be top-down or participatory. If the potential beneficiaries have been

involved in the project as a group and the decision to launch a particular scheme, be it for social forestry or the promotion of stoves, is taken by the group jointly through discussions etc., then implicit in this is a participatory approach to (in this case ex-ante) evaluation. On the other hand, if evaluation is done by outsiders, then the evaluation may be either top-down (with no involvement of the potential beneficiaries) or participatory. However, there are also different degrees to which such an evaluation can be participatory. Participation could range, for instance, from outside evaluator merely speaking to the potential benef[illegible] before arriving at an assessment or deciding which direct[illegible] project should take (this latter if the evaluator is also a project implementor), to the outside evaluator merely serving as facilitator to help the group of potential beneficiaries self-appraise the project as a group. Whether or not the evaluation procedure is participatory and the degree to which it is participatory, can crucially affect not only the accuracy of the evaluation but also often the success of the scheme itself.

In the case of projects where the adoption of a technology is a matter of individual choice and involves the use of individual resources (land or labor), a limited ex-ante participation of the beneficiaries in terms of consulting them on specific aspects may perhaps suffice. But where the use of communal land, or a communal contribution of labor and a commercial sharing of the products of that land or labor is involved, such a limited participation would be inadequate. Here the group concerned would need to be an active participant in the choice between alternatives. In the case of ex-post evaluation again, the success of the scheme often depends closely on how the evaluation is attempted. For instance, effective monitoring will require a close interaction of any evaluator with the user, to understand why, for instance, the technology is not being used, or is not working as desired. Through such participatory monitoring, appropriate design modifications can be made; it can also serve to acquaint the user with different aspects of repair and maintenance. Participatory monitoring may thus prove to be a crucial component is diffusion. Unfortunately, most projects are monitored or appraised in a largely top-down fashion. Ideally, monitoring of schemes needing group action or consensus should be done by the beneficiaries themselves as a group, or through a close interaction between the scheme implementers and the beneficiaries. However, in long-term appraisal, it may be advantageous to supplement self-appraisal by the group with appraisal by someone who is a 'complete outsider' to the project, although not a stranger to its social, economic or cultural context. Evaluation by an outsider can be helpful for getting an 'objective' assessment and for bringing a macro-perspective and a wider-ranging experience to bear on the subject. In such evaluation, too, participatory techniques such as group discussion can be used effectively. Also, the feasibility of group self-appraisal and group interaction depends on the existence of some degree of initial cohesiveness and homogeneity among group members. Group cooperation for action and evaluation is found to work best where the group is small and relatively homogeneous in terms of class, caste, gender, etc.

(4) Gathering Information needed for Evaluation

Whether for making an appropriate choice between different types of schemes and programs or evaluating the working of specific schemes, one of the crucial inputs is the availability of accurate and wide-ranging information on a variety of aspects. The nature of information would usually contain several components, such as: (a) technical (including physical) information say regarding the amount of different types of fuel, including woodfuel, consumed by different households for various purposes in different seasons of the year, or information on energy consumption for all purposes in the household or village, or on the time taken to gather fuel; (b) socio-economic information such as on property, land or tree ownership patterns in the village, or the nature of interpersonal relationships in the village (based on class, caste, political or kinship affiliation, etc.), or on decision-making patterns within the household; (c) cultural information such as on cooking practices, religious beliefs; and so on. Such information would need to be collected both ex-ante and ex-post. A baseline survey prior to the initiation of any scheme would be needed for the selection of appropriate schemes, for working out details of the schemes selected, and for providing a point of reference for any ex-post evaluation of the effects of the scheme launched. A re-survey on selected aspects would help to identify the impact of the project. In gathering data on aspects such as the consumption of firewood or time allocation, the involvement of the local people can be either as a team working along with the evaluator or even in collecting specific aspects of information on their own. The participation of local people in data gathering would also help increase their interest and involvement in the project.

In the collection of information on socio-economic variables the issue of how it is collected is again crucial. The most commonly-used method of eliciting information in rural energy surveys has been through the questionnaire, especially of the closed-ended type. However, such an approach could well impose preconceived notions and ideas on the situation observed, restricting the scope of the evaluation. Also it can miss out on a range of complex qualitative information. Thus, a questionnaire can, in this context, supplement but not substitute for other methods of data collection. Among the more imaginative and participative techniques used by researchers in specific cultural contexts has been that of adapting the format of traditional village games to generate information and stimulate discussion among the villagers. Such games or other methods which relate to the villagers' cultural experience could supplement the more conventional methods such as questionnaires. This could be helpful, for example in eliciting more frank answers from the economically and socially underprivileged, regarding their relationships with the large landowners, especially in cases where the former are tied in economic and/or extra-economic coercive relationships with the latter, and would therefore hesitate to speak openly against the landlords. The process of playing can lead to an objectification of the concept of 'fate' and a discussion on 'why' one person owns land and another does not. 'Participant observation' is also important for gaining greater familiarity with

the way in which the local community classifies and categorizes information, which may be quite different from the way a researcher unfamiliar with the area may do so. Whether initiated through games or through informal meetings with the potential beneficiaries of the scheme, 'group discussion' has been found to be an extremely effective method for obtaining various types of socio-economic and cultural information and promoting participatory evaluation.

Basically, information on a project affecting people that would need to be gathered from the affected (or likely to be affected) people and the scope and quality of information obtained can depend crucially on the reaction of these people to the evaluator. As one researcher with field experience in rural areas of Pakistani Punjab points out: "the very term data collection implies that researchers conceive of data as if it were an object having a concrete existence and the job of the field workers is to go and collect it. Such a conception ignores the simple truth that socio-economic data emerge out of a relationship between the field worker and another human being" (Hussain, 1980:281). For an outside investigator, establishing a 'rapport' with the villagers is therefore essential, and where the desire is to understand the situation from the viewpoint of economically and socially under-privileged, it requires special effort and care to gain their confidence. The way in which a person is received in the village would be affected by: (a) the person's objective situation - for example, by the researcher's gender and whether he/she is an outsider or insider and (b) his/her attitude towards and sensitivity to the villagers. However, for the researcher to be able to establish a rapport with villagers, whether through games or otherwise, would require his/her approaching them as people from whom he/she can and wants to learn, rather than someone who already has the answers. Establishing a dialogue with them would need both sensitivity and sensibility. These are the factors which would reflect his 'political consciousness'. It is this which would determine whether the evaluator even bothers to speak to the people affected, or likely to be affected by the innovation - to speak, for example, to the actual users of woodstoves or to the participants of forestry programs for finding out what they perceive as immediate problems.

The identification of conflicting interest groups within the community where the project is on-going, and the spelling out of the implications of a project for these groups, itself is not a simple task. To gather information on social structure requires an understanding of how people relate to one another within the village and within the household, and much depends on the political consciousness and sensitivity of the evaluator. In evaluations carried out by outsiders, the interpretation process can also be sharpened by feeding back, where possible, the information and the results of the analysis to the potential beneficiaries of the project. This could help to enrich and increase the accuracy of the interpretation by bringing to bear on it the experience of the people concerned, as well as to widen the understanding and consciousness of the people regarding their own situation.

In conclusion, both ex-post and ex-ante evaluations of woodfuel related schemes are an integral part of effective scheme choice and implementation. No single method of evaluation and data gathering can be deemed appropriate under all circumstances, and usually a 'mix' of different types of evaluation exercises, different techniques of data gathering and different analytical tools would be needed to arrive at an adequate assessment. It is nevertheless clear that evaluation involves subjective judgments at many levels; hence, who does the evaluation becomes a crucial consideration. It is also apparent that in the context of woodfuel technologies, a participatory approach, with the maximum involvement of the local beneficiaries, would increase the effectiveness of the evaluation as a tool for improving the performance of the project in question and of subsequent projects.

Reference

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f. Sustaining Afforestation Strategies (Azad Kashmir)

In the everyday jargon of development practitioners the term 'social' is almost never used to describe sectoral agricultural programs. The one conspicuous exception is 'social forestry development'. Who introduced the term 'social'? And 'why' this unexpected exception? In other words, what is 'social' in 'forestry'?

The many references to 'social forestry' programs explicitly recognize that these projects are designed to trigger cultural change in the behavior of large numbers of people with respect to the planting and protection of trees. In other words, such programs are deliberately directed (or are assumed to be directed) not merely toward the ultimate end of growing more trees, but also toward influencing a crucial intervening variable: people's behavior toward trees.

Successful social forestry development, however, cannot result from behavioral change and individual initiatives alone. Social and behavioral aspects should be understood in a broader sense, including collective action, institutional development, and the establishment of enduring social structures that will activate and organize the behavior of individual actors. A clear sociological understanding of what type of social organization can act to sustain specific silvicultural strategies is mandatory. Such social structures or units may already exist and need merely to be strengthened and mobilized, or they may have to be established and organized.

(1) A Social Innovation and its Premises

Although commercial and industrial forestry projects are not a recent invention, social forestry projects are. In the conventional type of forestry development, large corporations or govern-

ment agencies hire workers to establish or expand plantations on large tracts of land the business or the agencies control; the wood is harvested for use in industry or construction. The new approach, social forestry, is to induce a large number of small farmers systematically to plant trees on their own lands. The social innovation of these social forestry programs appears formidable indeed in the light of the long history of the traditional, patterned behavior it is supposed to change.

Several social conditions are necessary if these innovations are to succeed. Central among these social prerequisites is the existence of a unit of social organization or a structure capable of sustaining an innovation. Financial inducements alone, however important, are not sufficient and their impact is not automatic. Other social factors whose functions must be recognized include purposeful patterns of social organization for conserving natural resources or for producing new resources, existing land tenure systems that are either conducive to or restrictive of the given innovation, ownership rights to and distributive arrangements for the newly developed resources, authority mechanisms for collective decision-making and for mobilizing group (or even individual) action, social perceptions and attitudes, political power that affects distribution of generated benefits, and the influence of external change agents. It is often not properly realized in the planning of financially induced social forestry programs that consideration of these factors has to be woven into the very fabric of such programs. The penalty for ignoring them is failure. This is not to say that the recipe for how to incorporate them is readily available. It has yet to be produced. Both practitioners and action-oriented social researchers have to cooperate, search, test, predict, verify, monitor, learn, redesign and retest. But this does not mean that there is no knowledge whatsoever about these factors or processes and that everything is still to be discovered. Much of existing sociological know-how can be mobilized and used as stepping stones to action, to testing,and to knowledge. Therefore, there is no reason for 'sociologically illiterate' social forestry programs.

(2) The case of a Social Forestry Program

To illustrate some of these issues, we will first describe a specific project in which good social intentions proved to be no substitute for the missing social knowledge - a case which demonstrates that sociological factors are salient and work tenaciously under the thin layer of the 'new' reality temporarily constructed with the financial inducements of the program. Such factors were, in this case, the existing land tenure system, the usufruct system, and the absence of social structures for collective action.

The specific case is the pilot forestry program, a component of the Azad Kashmir Hill Farming Technical Development Project (HFTD) co-financed by the World Bank between 1978 and 1983. The lack of a sociological analysis when this project was appraised paved the way for false assumptions about land tenure. The strategy predicted on these assumptions backfired. The sociological analysis

at the project mid-point (or mid-term evaluation) revealed the array of unanticipated consequences that had built up during the implementation process. By contrasting the complexity of the local social context with the uninformed and simplistic approach of the project, this analysis suggests why seeing the people behind the trees should be the first commandment in social forestry.

This project was started in 1978 as a pilot exercise to test several new approaches with a view to replicating the successful ones in a subsequent, large scale project. The forestry component financed fuelwood plantations, testing of new tree species under local conditions, and the establishment of nurseries for supplying seedlings. This component was included in view of the alarming prospects of rapid deforestation, a fuelwood crisis, and environmental deterioration. Indeed, both the demographically and culturally driven fuelwood shortage and the answer devised through the project were rather typical for circumstances in many other places. Under the circumstances, far-reaching changes were required, both to improve the management of existing forests and to reforest depleted areas, if the need for fuelwood was to be met.

When the pilot project was prepared, it was thought that social support for the program (contributions from private users) could be blended with public support (government financing). Accordingly, the strategy was designed to experiment with both the technical and the social aspects of developing forestry and to involve local people in planting and maintaining the reforested areas. Community acceptance of the obligations of replanting and protecting the new blocks was regarded as crucial for the project's success. The government was to finance the establishment of four nurseries scattered in the area to produce seedlings for sale at a low price to the farmers. Initially the government was also prepared to finance the costs of planting trees on community-owned (Shamilat) lands in order to experiment with a model that could be replicated by farmers themselves and to provide benefits primarily to the small farmers, who make up the majority of these communities.

(3) Land Tenure and the Anatomy of a Project's Failure

The project design was based on a set of sociological assumptions about the tenure of the land to be reforested, about community processes, and about farmers' willingness to participate. In hindsight, these assumptions appear rather naive and surprisingly uniformed. A sociological assessment of the area's land tenure system was not made during the project's preparation. In the absence of a sociological field analysis, the appraisal report relied on explanations given by local officials and identified 'Shamilat, land as 'land generally left uncultivated, owned jointly by a number of families'. It was considered to be community land, for which villagers had decision-making authority as well as rights to share in its use. Therefore, it was planned to finance the planting of 3,000 acres of fuelwood mainly on shamilat land. The basic assumption was that the community would be the social unit which would stand behind the program. It was expected that the community

consent would be necessary to make shamilat land available, and that the project would elicit direct community participation in planting and protecting the tree plantations and would eventually generate tangible benefits for the communities involved.

The features of 'social forestry' were obvious in the design of the project. The communities were to be social units supporting the reforestation of community woodlot, and the farmers' use of nonarable areas was to be changed by converting some nonarable and grazing lands to fuelwood plantations. In sum, the project was setting objectives that required a modified productive behavior. The question was, would the target communities and individual farmers respond as expected?

The physical accomplishments of the forestry component were initially quite satisfactory. As reported by the project staff, the owners and users of the private and community land agreed to allocate the land for fuelwood plantation, although no formal contract was signed. The farmers response, during the first two years, seemed to suggest that significant tracts of private and community land could be incorporated into the fuelwood production circuit.

But, the social assessment of the on-going project identified significant differences between the legal or formal status of the land and the de facto situation. Contrary to expectations, shamilat land appeared to be, for the most part, not truly community land. Significant changes over time in most of Azad Kashmir had caused a dual, divergent status to evolve. Although shamilat continues to be considered in principle community land, in real life it is operated and used as private land, and usufruct benefits from this land now accrue to individuals, rather than to the whole community. The sociological analysis thus invalidated some basic assumptions made when the planting of shamilat was initially planned, and revealed that unanticipated consequences of the planting program were likely to distort the intended flow of benefits to various social groups. Thus, the community forestry component, based on inaccurate assumptions and leaking from the outset a social structure to sustain it, failed in the early stages of the project.

Further analysis of the farmers who offered their private ('malkiat') land for project reforestation and of the farmers who were in control of the nominally shamilat plots revealed that the larger landholders tended to take advantage of the project. The wealthiest landowners, who have the resources to contribute to the costs of establishing and protecting tree stands, had not done so, nor did they intend to do so in the future. The smaller farmers hesitated to accept project planting on their lands. They were fearful of losing possession or control over their land to the government once it was planted by the Forestry Department, or of being deprived of rights to collect fodder and graze their cattle. Most of them were willing to offer small plots for project planting, provided they could be convinced that the Forest Department would not alienate their lands and that they would be able to cut grass for their cattle. In contrast, the larger landowners, being

confident of their political power, did not regard tree planting by the Forest Department as a threat to their ownership of land and trees, and tended to manipulate available project opportunities and resources to their own benefit. This attempt was facilitated by the absence of a legal framework that defined the obligations, not merely the rights, of the large farmers whose land was being reforested through government contribution. The absence of a contract left a huge loophole that enabled the large landowners to avoid making contributions.

(4) Lessons from the Social Analysis

The findings of the sociological analysis led to immediate changes in the project and generated several lessons of broader validity. The project's management was asked to reconsider the areas identified for fuelwood planting and to limit immediately the planting on fictitious shamilat lands. The intent was to prevent turning the pilot project into a full 'giveaway' program, until a cost sharing system could be designed. More important than these short-run adjustments were other benefits of the sociological analysis. It prevented the extrapolation of the pilot project on a much larger scale, as initially intended. The practical failure proved more convincingly than intellectual arguments that the social analysis should have been carried out at the time of preparation and appraisal, when it could have steered the pilot project on a different path, consistent with the local social landscape. Though done relatively late, it was instrumental and consequential.

When the follow-up development project in Azad Kashmir was appraised in 1983, an attempt was made to avoid the earlier errors with regard to forestry. The new orientation was toward overcoming the social constraints to a systematic hill development program. Most hillsides are a mix of various social tenure systems, and each hillside is a separate ecosystem that must be treated as such. It is of little use to design production and conservation measures on one part of the hill when runoff from the other part is not checked at the same time. Consequently, the new project was oriented toward integrated hill management plans, based on agreement between the individual owners in each catchment area, the communities where relevant, and the government, with some cost-sharing and benefit-sharing arrangements. Since strong sustaining structures within the farming communities were neither identified nor established in the available time, the hill development programs were to be implemented mainly by government departments in a rather paternalistic, top-down manner. At the same time, a different approach to forestry development received prominence in the follow-up project: 'Farm Forestry'. Substantively, the sociological analysis discussed above brought three sets of social variables into limelight: (a) the complex land tenure system and the processes affecting it at deep structural levels; (b) the community unit with its internal interactions, nonhomogeneous groups, and inability to act consensually; and (c) the behavioral patterns of individual farmers. Ironically

needs repeating that no social forestry project can be conceived and prepared without in-depth and timely treatment of at least these social variables.

(5) Alternative Units of Social Organization

The three cluster of variables that were crucial to the failure of the Azad Kashmir project have in fact a more general relevance, since such variables are intrinsic to many forestry projects. Therefore, it is argued that sociologists and foresters together should turn around such findings and translate them into methodologies for future action. Information about past social processes should be distilled into forward-looking strategies. This is the substance of 'social engineering' at its best. The call of sociological analysis is not only to analyze and to explain, but also to assist in transforming the status quo. Speedy feedback from sociological analysis for the sake of short-run corrections, important as it is, should therefore be further enhanced by the formulation of sociologically substantiated operational strategies.

Perhaps the most important factor in designing the social strategy of forestry programs is the adequate identification of the 'unit of social organization' likely to undertake the program and to able to do so successfully. For a while, various forestry projects have lumped together, under the broad umbrella of social or community forestry, various objectives and different approaches. Contributing to this insufficient clarity was the fact that the concept of community forestry was at a certain point loosely defined as 'including any situation which intimately involves local people in a forestry situation'. Contrary to this overly encompassing definition the operational challenge is to disentangle the broad term 'people' and to identify precisely 'who' and 'how': what social units of organization among the people can and will do afforestation, and which social units and definable groups can act as sustaining social structures for long-term production activities. Such social units of organization can be either natural (existing) social groupings, such as the family household; or groups organized specifically to plant and protect trees. Creating such social units - organizing them - is, however, a task that requires both correct social understanding of what is to be done and appropriate methods for social organization. The need to establish social units introduces a clear sociological dimension in forestry development projects and in the work of the forestry departments.

When forestry programs are designed, it is essential to realize that there are a number of different potential 'social actors', but that they are not equally fit for different technical (silvicultural) approaches to forestry. The appropriateness of various tree-planting technologies to one or another situation is not neutral to social structure. The proper fit between the technical elements of afforestation and the social units around which an afforestation strategy can be built is at the core of the cooperation between forestry experts, planners, and sociologists.

The range of structurally different social actors in forestry development projects is quite broad: Communities, villages, village governing bodies, farm families, groups of farmers, cooperatives, schools, private companies, public institutions, and so on. Accordingly, some of the social actors relevant to forestry work can be: community woodlot; family, small group, association, age group, women's group forestry plantations; watershed forestry; and so on. Such alternative social forms can be conceived and actually organized in real life. They are 'social inventions', or purposeful social arrangements for the performance of definite productive and distributional functions. A continuous 'learning process' should accompany the process of organizing such units and improving their structure and operation. There is no single 'best' social strategy available as a universal key to all development approaches in forestry; such strategies span a broad spectrum, and alternatives are available or can be devised. Sociological perspectiveness and knowledge are therefore instrumental and indispensable for conceiving, designing, and implementing any effective approach to forestry development.

Reference

Cernea, Michael M., 1985, Chapter 9: 'Alternative Units of Social Organization Sustaining Afforestation Strategies'; in: Putting People First, Michael M. Cernea, edited; pp. 267-293. Washington, D.C.: The World Bank/Oxford University Press.

Note: If you are interested in more details, please refer to 'Selected Case Studies in Rural Sociology for Forestry Students', available at the PFI library.

FOREST SOCIOLOGY

APPENDIX - A

SYLLABUS FOR M. SC. FORESTRY

A. INTRODUCTION TO SOCIOLOGY

1. Sociology and Forest Sociology

   a. Sociology: Definition and Scope, Sociology as a Scientific Discipline, and Sociology and Other Social Sciences.

   b. Forest Sociology: Rural Sociology and Forest Sociology, and Definition and Scope of Forest Sociology.

2. Basic Concepts of Sociology: Definitions & Brief Explanation

   Society, Social Structure, Community, Culture, Social Stratification, Social Group and Grouping, Social Institution, Social Interaction, Social Mobility, Social Change, Social Organization, Voluntary Associatins,and Collective Behavior.

B. RURAL SOCIETY AND DEVELOPMENT

3. Rural Pakistan

   a. Rural Society and Change.
   b. Rural Ecological Regions of Pakistan.
   c. Rural Social Institutions in Pakistan.

4. Rural Social Structure: Case Studies

   a. Social Organization: Water Management (Punjab, Pakistan).
   b. Political Organization: Energy Use, Tree Cutting, and Land Occupancy (Bangladesh).
   c. Role of Women in Resource Management (Cross Cultural).

5. Rural Belief System: Case Studies

   a. Experience and Perceptions of Droughts (Rajasthan, India).
   b. Agronomic Knowledge and Practices (Punjab, Pakistan).
   c. The Cultural Ecology of India's Cow.

6. Rural Economic Behavior: Case Studies

   a. Risk and Uncertainty in Subsistence Farming (General).
   b. Diffusion of Innovations: Improved Stoves (India).
   c. Trees as Savings and Security for the Rural Poor (General)
   d. Ecological Implications of Change: Demand for Fuel (Iran).
   e. Conservation at the Local Level:Individual vs. Group(Iran)

7. Land Tenure System: Case Studies

   a. Culturally Relevent Categories of Rural Landholders (Bangladesh).
   b. The Use and Productivity of Commonly Owned Rangeland Resources (Baluchistan, Pakistan).
   c. The Tragedy of the Commons and 'Morality' (General).
   d. The Impact of Decline in Common Property Resources (Rajasthan, India).
   e. Common Resource Management: Forests of Pakistan.

C. SOCIAL AND FARM FORESTRY

8. Trees and Crops: Case Studies

   a. Farmers' Perceptions of Tree-Crop Proximity (Thailand).
   b. Farming Systems Research Approach to Agroforestry (India).
   c. Replanting Trees in Improved Water Management Areas (Pak).

9. Social Forestry Development: Case Studies

   a. Socio-Economic Constraints in Tree Planting in Homesteads (Kerala, India).
   b. Social Forestry and Other Tree Planting Schemes (India).
   c. The Social Forestry Program Change in India.
   d. The Distribution of Social Forestry Benefits (India).

10. Farm Forestry in Pakistan: Social Survey

   a. Interest in Tree Planting.
   b. Prospects for Farm Forestry.
   c. The Timing of Tree Planting.
   d. Receptivity to Farm Forestry Outreach.

D. SOCIAL RESEARCH

11. Research Methods

   Brief Explanations of: Research Process, Problem, Design, Types and Application; Data Collection, Analysis and Interpretation; and Report Writing.

12. Field Work: Case Studies

   a. Project Design: Land Tenure and Agroforestry (Haiti).
   b. Sociocultural Perspectives on On-Farm Trials (General).
   c. Farming Systems Research vs. Cropping Systems Research (Bangladesh).
   d. Rural Development Tourism: Poverty Unperceived (General).
   e. The Tactics and Ethics of Social Survey Research (Haiti).
   f. The Art of Informal Survey Research (General).

13. Project Evaluation: Case Studies

a. The Process of Agricultural Development in Pakistan.
b. The Impact of Food Production Development in India.
c. The Influence of Socio-Political Factors on Soil Conservation Policies (Third World Countries).
d. Research on the Impact of Reforestation (General).
e. Evaluation of the Woodfuel Diffusion Programs (General).
f. Sustaining Afforestation Strategies (Azad Kashmir).

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FOREST SOCIOLOGY

(For M. Sc. Forestry)

APPENDIX - B

MODEL QUESTIONS FOR EXERCISE AND EXAMINATION

1. How and to what extent Sociology is a scientific discipline?

2. What is Forest Sociology and how can you relate it to Sociology?

3. Define and briefly explain any two/three of the following sociological concepts?

   Society, Culture, Social Structure, Social Stratification, Social Interaction, Social Group and Grouping,Social Change, Social Mobility, Social Institution, Voluntary Associations, Social Organization, Collective Behavior and Community.

4. What is Sociology and how it is related to the other Social Sciences?

5. Explain why Sociology is important for a Forestry student?

6. What is Social Institution? Describe any two/three rural social institutions in Pakistan (or at your own village)?

7. What is Social Structure? Illustrate how it affects resource management at a village level?

8. What are the common beliefs and actual facts regarding the Role of Women in resource management?

9. Illustrate the Role of Women in agricultural and forestry activities based on your readings and/or own observation in a rural area?

10. What is rural Political Organization? How it affects the use and distribution of natural resources, particularly forestry products?

11. Are the people ignorant? Support your answer with examples?

12. What is Culture? Do the rural people have any culture? Illustrate?

13. What is indigenous knowledge and how does it differ from or is similar to the scientific knowledge? Provide examples?

14. Write an essay on subsistence farming with special emphasis on risks, priorities and practices?

15. What is Diffusion of Innovation? What are its enabling and restricting factors in a rural society? Illustrate?

16. How and to what extent trees can be utilized to meet contingencies? Explain?

17. What are the Socio-Economic factors which cause desertification and how? Support your answer with examples?

18. Enumerate and discuss, in the socio-economic context, some of the ecological implications of deforestation?

19. What are the culturally relevant categories of rural landholders and how they affect production activities?

20. How do various social economic factors affect the use and productivity of common rangeland resources? Elaborate?

21. How does land reform program affect the common property resources and their use? Provide examples?

22. How can you improve forest resource management in your area of assignment, particularly in the socio-economic context?

23. What are advantages and disadvantages of Tree-Crop proximity as viewed by the farmers?

24. Contrast between the Farming Systems Research and Cropping Systems Research approaches, and state which one of these approaches is better for application to agroforestry and why?

25. Write a dialogue/debate a rich and a poor farmer on any one of the following topics?

    a. Trees are dependable assets.
    b. Trees versus Crops: productivity and use.
    c. Dung use as fuel versus fertilizer.
    d. Traditional versus Commercial species of trees.

26. Explain any one of the following statements to a villager?

    a. Trees do not compete with crops if planted carefully.
    b. Trees are savings and security for the bad times.
    c. Trees removed from the watercourses be replaced.
    d. Trees compensate for the loss of moisture to crops.

27. Discuss the social, economic and political changes brought about by various forestry development programs?

28. What are the factors which influence the interest of farmers in tree planting and how?

29. What are the prospects of Farm Forestry and its extension and outreach programs in Pakistan?

30. Debate with a Forester in favor of any one of the following statements?

    a. Farmers' participation in an agroforestry scheme/project right from the planning stage to obtaining the benefits.

    b. Farmers possess sufficient knowledge of their local situation and practice accordingly.

    c. A forester must incorporate the local interests into his plan for an agroforestry scheme/project.

31. What are the major constraints in Farm Forestry in Pakistan and what would you suggest to relax them?

32. What are the potential attitudes of the Pakistani farmers towards tree planting and protection and how can you motivate them successfully for the same?

33. Explain any two/three of the following concepts and methods?

    Research Process, Research Design, Research Types, Research Problem, Research Application, Collaboration in Research.

34. What are the data collection methods in social research? Explain?

35. What are the major steps in data analysis, interpretation and report writing?

36. Which statistical techniques are usually used by the social researchers, to what extent and for what purposes?

37. What are the functions of and major steps in report writing in social research?

38. Comment on any three of the following?

    a. The use of qualitative data in report writing.
    b. Scientific versus professional research reports.
    c. Statistical significance versus logical interpretation.
    d. Basic qualities of a good social research report.
    e. The importance and use of the field notes.
    f. How to interview villagers?

39. What are the major factors that influence agroforestry projects and how?

40. Prepare a design for implementation of an agroforestry scheme and state how and why for each aspect therein?

41. What is 'rural development tourism' and what limitations do you foresee in such visits? How would you make your rural visits real effective?

42. Write an essay on 'the art of informal survey research', explaining its purposes, benefits and field techniques?

43. Explain scopes, uses and limitations of any two of the following pairs of research methods or techniques?

    a. Rapid rural appraisal and detailed survey research.
    b. Field tactics and ethics of social research.
    c. One community study and a regional coverage.
    d. Informal and formal survey research.

44. Discuss the direct and indirect socio-economic affects of the green revolution on different regions, and particularly on rural societies, in Pakistan?

45. Discuss the socio-economic and socio-political affects of the increased food production on the rural societies in India, Pakistan or any other developing country?

46. What are the socio-political factors that have so far been influencing the soil conservation policies in the third world countries and how?

47. Prepare an operational plan for a soil conservation scheme, with special emphasis on socio-cultural aspects?

48. What is project evaluation? Explain various stages of evaluation, with their respective purposes and methodologies?

49. Criticize the first phase of the social forestry project in Azad Kashmir and suggest improvements, sociologically?

50. Write an essay on any one of the following topics, using examples from your readings in Forest Sociology?

    a. The 'green revolution' has prospered some but impoverished many.

    b. The soil conservation policies are not in line with the prevailing agricultural and pastoral practices.

    c. The foresters must see men behind the trees.

Note: The above 50 questions are just suggestive as a model. They can be used by the students in their exercises and preparation for the examination. But, the examiner is not bound to select out of the same questions; he may come up with quite different questions or restructure the same.

GOOD LUCK!