AGRICULTURAL POLICY MANUAL

A Discussion of Agricultural Policies

For Development

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THE ANALYSIS OF AGRICULTURAL POLICIES FOR DEVELOPMENT

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PREFACE

This manual is intended to strengthen the agricultural policy analysis function in Pakistan. It may be used as a training tool, either in relevant short courses or on-the-job training. The manual is also intended to be used as a ready desk reference for policy analysts and their supervisors in the routine performance of their jobs.

The manual makes several contributions to practical, on-going policy analysis. First, it provides a detailed description of the agricultural policy analysis process, with an identification of the various actors involved and discussion of the interrelationships between actors and steps. The intent is to see that important steps are not missed, nor sources of input and feedback overlooked.

Second, the various cause and effect relationships within the economy that determine the breadth and strength of impact of selected policy decisions are described in some detail. One of the important roles of the policy analyst is to ensure that decision makers are aware of the full range of consequences of their decisions and are able to evaluate trade-offs between impacts that might occur at various points throughout society.

Third, necessary types of economic analysis and analytical models are identified and their uses related to the specific policy questions at hand. This manual does not provide statistical or economic detail on how to calculate various economic measures or estimates. The user is asked to consult standard texts on these procedures. Additional chapters discuss elements of process management as seen from the perspective of the supervisor of an analytical unit and principles of communicating policy analysis results. Without effective communication, policy analysis remains an academic exercise.

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CHAPTER 1

AN INTRODUCTION TO POLICY ANALYSIS

1.1 Preliminaries

"Policy" is defined in the Webster's Dictionary as " a principle, plan, or course of action, as pursued by a government, organization or individual." Policy represents a decision or interrelated set of decisions, taken to obtain a particular end. In this manual, we are concerned with a particular subset, agricultural policies, within the overall policy range, and in a particular context, that of economic development. The manual is specifically developed for use in the Islamic Republic of Pakistan.

Agricultural policy analysis is the function of analyzing the economic consequences of policy decisions. Normally, this function precedes, and is used as one of the main inputs to, decision making. The task of policy analysis is to predict consequences of decisions, evaluate alternative choices and provide the quantitative basis for comparisons and choices between options.

Policy analysis is partly an art, in the sense that a considerable amount of sensitive judgement is required on the part of the analyst. Furthermore, the judgments of others such as technical specialists, industry and government leaders is also incorporated. The principal analytical tools and concepts for policy analysis are economic. Thus, agricultural policy analysis is largely a science, resting solidly on the theory and procedures of agricultural and general economics.

Policy making is the primary trust of politicians who are charged with the responsibility of expressing the public will in policies and programs. Thus, ultimately, policy analysis must be responsive to the public will, as perceived by elected or appointed leaders. Their effectiveness in policy formation and implementation is a major part of their success as society's leaders.

The importance of policy analysis lies in the potential problems inherent in the alternative of policy making without economic analysis. In any government policies will be made and programs implemented. Without technical and economic analysis, the principal foundation for such decisions will be the various expressions of need received through political channels.

Political expression is the expression of self interest by individuals, groups, political parties, anyone who has access to appropriate channels of communication. Self interest, however, is just exactly that, self interest, and often ignores externalities and broader impacts on the economy or society as a whole.

Government must remain able to sense the greater social need, to respond to the needs of all parts of society and to develop and implement programs that will maximize social welfare. For this, accurate and thorough economic analysis is essential. This is not to deny the politician's need for intimate political contact. Rather it is to suggest that the best policies will rest on a combination of political and analytical inputs, integrated by the judgement and sensitivity of the decision maker.

The role of policy is to influence decision making in ways that pursue social goals. This influence may be directed at either the public or private sector, at households, corporate directors or government administrators.

Agricultural policy, more than most others, reaches throughout the economy. Farming interests in the United States have adopted the adage, "If you eat, you are involved in agriculture" as a means of showing how widespread the farm "clientele", can be when broadly defined.

In Pakistan the importance of agriculture flows from the fact that most of the population is involved in it directly, as farmers, marketers, processors or workers in any of these agricultural enterprises. In Pakistan, agricultural policy is more or less directly linked to the rate of economic growth, inflation, the level of aggregate welfare of the people, the stability of the government, the level of incomes and the incidence of poverty, and several types of foreign relations, especially those involving trade, balance of payments and donor assistance. Policy must influence, coordinate and direct the decisions of leaders in all these spheres.

The function of policy analysis has several roles to play. These include:

a Discovering and articulating emerging policy issues. It is important that government be able to anticipate emerging issues before they become serious problems. Sensitive, forward-looking analysis is one of the more effective tools for this purpose.

b Evaluating alternative choices so that they may be ranked, one against the other, by decision makers and trade-offs between their various consequences clearly spelled out. This is the basis for enlightened decision making.

c Stretching the minds of decision makers by identifying and quantifying economic trade-offs and complimentarities between sectors or groups of the population which affect policy but might not be immediately apparent.

Within the policy analysis process, the analyst has several specific and unique roles to play.

a He brings a unique combination of professional skills and specialized

knowledge to bear on the issues. His job is to use these skills to generate new knowledge that is important for the decision making process.

b The analyst is responsive to society in two ways. First it is incumbent upon him to be responsive to designated societal spokesmen (decision makers), either directly in some cases or more often through appropriate administrative channels of authority. Second, his research should place him in the position to be the first to discover the full range of potential consequences of policy or program actions. The analyst should be expected to bring these insights to the attention of society's decision makers whenever, in his judgement, his findings warrant their attention.

c Impartiality is a key expected role of the analyst. An old adage states that "Figures Lie and Liars Figure", implying that statistics can be used to mislead as well as to lead. The analyst holds a sensitive position. Most national leaders and government administrators do not fully understand statistics or economic models, and in fact, many are suspicious of these techniques because of their potential power to influence. The analyst can only establish and maintain his credibility by rigorously adhering to an ethical code of impartiality, as passionately as medical doctors adhere to the Hippocratic Oath.

Thus the policy analyst is an actor on the political scene, although he should not have a political agenda himself. Nor can he allow himself to be co-opted by those who do. There is a substantial difference between ANALYSIS and ADVOCACY. The later lies in the realm of politics and the former, while it serves the political process, must remain an objective, professional activity.

1.2 Institutionalization

Most policy analysis takes place at two locations in society; in government and in academic institutions. In the developing countries the donor agencies constitute a third source of policy research. There exists some generalizable differences between these three points of action and the roles they play.

The analysis function in government normally should be found just beneath an institutional point of decision making authority. Its function is to support the information needs of those who make decisions. Usually this calls for regular inputs of data and analysis, at frequent intervals and often with little advance notice. Quick response capability is important and must be built into the staff and structure of the analysis unit. To remain current and knowledgeable, the staff will devote considerable time to reading the analyses of others, the technical literature in their fields and keeping abreast of latest data. Institutional structure must

ensure that each major topic area is covered more less constantly.

The closeness of the decision makers is necessary if the policy analysis function is to adequately meet information needs. However, it carries with it a substantial cost. Commonly, the analysis unit becomes caught up in the urgencies of the day as they burst onto the political doorstep. Priorities change on short notice, work schedules readjusted, etc. In the worst case scenario, the analysis unit becomes fractionated, loses its cohesion and long term continuity, loses its purpose and ends up spending most of its time writing speeches for the minister. Fortunately, this end result occurs only in short sighted governments which, through lack of sophisticated process management end up continually in "crisis mode".

More frequently, some advance planning and work load scheduling is possible. However, the need for q quick response capability remains at this level of government. As a result, high level policy analysis units rarely have the time to complete much basic research of their own. Their job becomes one of utilizing the research results and models of others, applying them to the most recent data or to the issue at hand and getting the results to the appropriate person in time.

In the developed countries, it falls largely to the academic institutions or to the special government research agencies such as the Economic Research Service of USDA to do the basic research and develop the models on which policy analysis rests. These agencies are able to undertake longer term assignments of a more general nature.

The objective of this basic research is to establish and keep current the basic economic parameters and models of their interrelationships. These then are the tools of policy analysis.

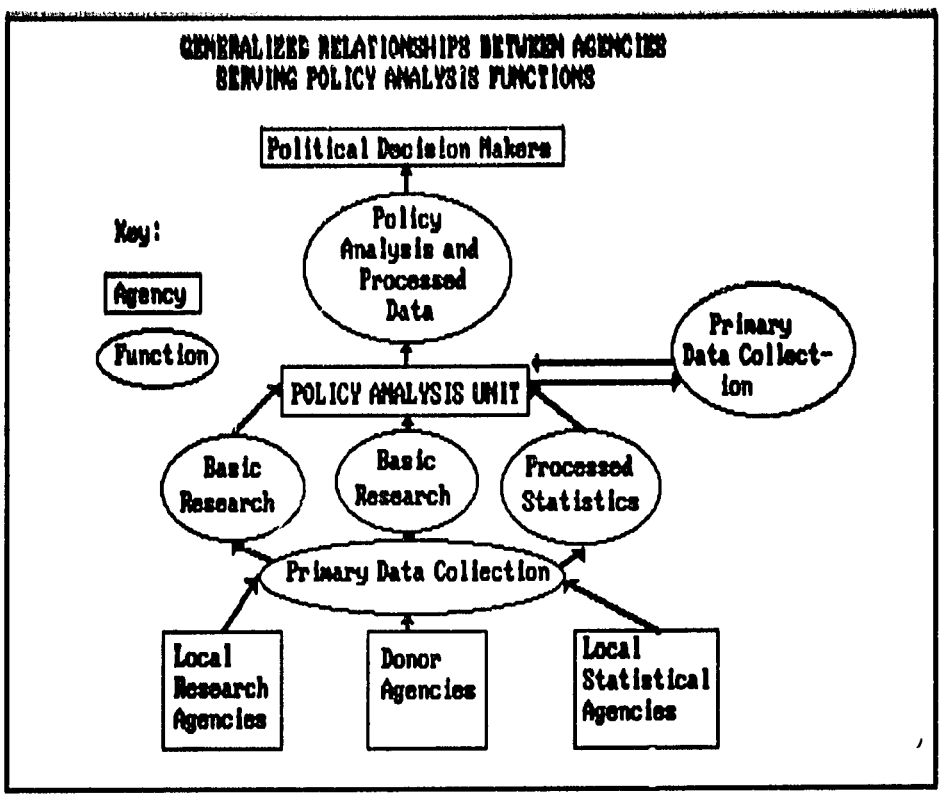
In most cases, basic economic parameters do not change rapidly. Many of these date need to be updated only every five to ten years. Population and industrial censuses, national input-output tables, income and expenditure patterns, supply and demand elasticities for agricultural products are examples.

Operationally, Third World academic institutions face many constraints to their basic research function. Pakistan is no exception. Research budgets are limited to nonexistent from normal sources. Research is thus restricted to ad hoc guided student surveys or to efforts funded by outside agencies. Professional staff are not always fully trained. Computers are absent or outdated. But perhaps most important teaching loads strain faculty resources, often to the extent that there is little time remaining for research.

This gap is often filled by donor agencies, partly to assist the local government with better data and analysis and partly because the donors expect solid quantitative analysis to underpin their own project decisions. For example, during the 1980's the international debt crisis and its effects on the stability of nations have caused the World Bank and IMF to undertake (or sponsor) a vast array of country-specific

macroeconomic studies to get the data necessary to support sweeping policy reforms in many nations. The fact that USAID has mounted several new projects with the approximate title of "Agricultural Planning, Policy and Data Systems Project" in just the last 2-3 years is a second example. These USAID initiatives are largely in Africa and flow from a perception in the United States that Africa's agriculture is stagnating or collapsing as a result of poorly designed and implemented micro- and macro-policies.

FIGURE 1.1



We see this combination of agencies to be interrelated as shown in Figure 1.1. Of course, there will be variations, but this structure is fairly generic.

In addition to its analysis functions, the policy analysis unit receives and coordinates research and data from each of the other agencies. Primary data may be collected at several levels including by the analysis unit itself. It is not uncommon for a policy analysis unit, such as a Planning Division, Ministry of Agriculture, to have a statistics and field survey wing responsible for either special policy oriented surveys or assembly and processing of raw data on the agricultural sector.

CHAPTER 2

SOCIAL GOALS AND PUBLIC POLICY

Policy formation is the first step in translating social goals into action. Policies elaborate the goals of society and provide a framework within which public and private decisions are taken. As noted in the previous chapter, policy provides the steering mechanism through which government influences events in pursuit of national goals.

Pakistan is a developing country and agriculture is the largest sector in it's economy. Economic development is an urgent priority, its urgency derived from rapid population growth and the country's relative poverty in comparison to the world community of nations. With vast agricultural resources, it is logical to look to the agricultural sector as one of the driving forces in the development process. And given the relatively low productivities currently being wrested from Pakistan's agricultural resources, the potential for further contribution from this sector is substantial.

Appropriately, the goals of economic development become the goals of agriculture, and thus the framework underlying agricultural policy. A select, though not complete, list of the most important goals toward which agricultural development is normally expected to lead is discussed below.

2.1 Common National Goals

2.1.1 Efficiency

To an economist, efficiency means allocating resources in such a way as to obtain the maximum possible national output and income. In a theoretical sense, an efficient resource allocation is one where there is no possible reallocation that can achieve greater output. All resources are employed in their most productive use and thus welfare is maximized. The level of technology is assumed constant when calculating efficiency. Resources are allocated within the existing limits of technological knowledge or availability.

No nation ever achieves full efficiency and many miss the mark by large margins. In the developmental sense, a primary economic goal is often to increase efficiency throughout the economy as a means of raising incomes.
Free market economists believe, and have theoretical proof, that an open, competitive market will achieve the most efficient allocation of resources. It is important to note, however, that the assertion of a competitive market carries with it conditions of perfect knowledge by all parties, completely free trade, no concentrations of economic power and other assumptions that do not prevail in the real world.

In market oriented economies, therefore, much policy attention is devoted to creating and preserving conditions of a competitive market or to removing or preventing market imperfections. In the mixed economies of the Third World, governments often rely on direct government intervention, substituting government itself for the private sector at points in the allocation process. Procurement agencies, ration shops, and government supply depots for inputs are but a few examples.

2.1.2 Productivity and Growth

A relatively high efficiency level within the limits of available technology is not a sufficient achievement in the context of development priorities today, especially for the poorer countries. Every country's resources are limited, populations continue to grow and expectations continue to rise. One of the most widely held values of the Twentieth Century is that one should be able to expect an improvement in welfare over time and that one's children ought to be able to look to a better life than that of their parents. This perspective is particularly valid in Pakistan where the average man in the street knows full well that his lifestyle could be improved.

Thus, increasing the productivity of national resources through technological progress becomes, efficiency, the second major strategy for increasing aggregate welfare. The goal of growth is most often sought through the strategy of technological change. Government has two approaches to stimulating this process. First, is the collection of policies that create incentives for the private adoption of more advanced technology and even for private investment in research and development to discover new technology.

Second, is government's approach to its own investments in technology development and transfer, often referred to a public investment policy. While the range of existing technology around the world is vast, it often requires modest or extensive adaptation to local conditions before it has any impact upon domestic welfare. Many governments assume that this type of research is a social good, one that they should provide on public account.

2.1.3 Stability

Stability has emerged as one of the essential prerequisites for economic development. Stability in the economy is important, in the long run, to stability in government. And continuity in government and in its policies is needed if development programs are to have a chance to achieve their full potential. There are three basic sources of variability that can, at times, create unmanageable problems for the Third World. First are the natural "environmental risks" associated with variations in climate and with natural calamity. In an underdeveloped country few institutions such as crop insurance or futures markets for agricultural commodities exist to offset this source of variation.

Second, institutions such as those involved in marketing contribute to the overall variability facing agriculture. In the early or middle stages of agricultural development, agribusiness and government agencies alike can be expected to function erratically or unpredictably, adding "institutional risk" to the total.

Finally, developing countries often find themselves as weak partners in the world economy. Larger, more nations, take policy decisions for reasons of their own that can affect Third World economies in major, unsettling ways. For example the single decision by the United States to sell 10 million tons of wheat to the Soviet Union could and did upset the careful calculations of many smaller countries that had priced their domestic wheat based on border prices. It is not uncommon that a measure of insulation from these external influences is adopted as policy in the interests of national economic stability.

2.1.4 Equity

Income maldistribution becomes a social concern for two slightly different reasons. The first perspective is one of relative deprivation, the view by the have-nots that they are somehow the victims of discrimination. The technological revolution in communications has meant that the influence, affluence and lifestyles of the rich are no longer obscure but are quite visible to everyone. The poor, facing a continual dearth of opportunities for self advancement, depressed incomes and a constrained quality of life, become frustrated, angry and restive. Thus, even in developed countries with high average levels of income, relative deprivation arising from income maldistribution can be an explosive issue.

The second perspective is one of absolute poverty. A useful concept in development economics is that of the "poverty line", an approximate level of income below which the supply of basic needs for sustaining life (simple food, shelter, health) is threatened. People who are at risk in this sense are said to be in absolute poverty. Some one-quarter of the world's population is estimated to be in this condition, a large share of them in the South Asian subcontinent.

In low income countries, income inequality can push people below the poverty line.

Humanitarian ethics alone are sufficient to raise equity to the fore among national development goals. In addition malnutrition and disease that accompany absolute poverty debilitate the individual's productivity as a worker, with negative consequences to the incomes of both his household and the nation.

Third, is the view that to the extent incomes are seriously maldistributed, there is a segment of the population that is prevented by their relative poverty from being full participants in the economy and in society. This group, which can be large in many countries including Pakistan, is unable to play their full role as consumers, investors, and entrepreneurs. In this sense, the poor can be seen as a resource which, for reasons of relative deprivation, is not contributing its full potential economically. Overall economic growth and dynamism is constrained as a result.

2.1.5 Nutrition

Nutrition and hunger are two closely related, but not identical terms. Hunger tends to suggest a quantitative deficiency and leads immediately to a discussion of inadequate consumption of calories or protein. Indeed, PCM, or protein/calorie malnutrition, is a frequent term in the literature on hunger. Nutrition suggests a broader set of issues, including qualitative as well as quantitative concerns.

Nutrition problems are primarily distribution problems. The aggregate world food supply is considerable greater than what is needed for survival and health of the total world population. At the most aggregated level, the problem is that the food is not in the same place as the people. This observation can be made both within and between nations. The principal causes of this distributional problem are the distribution of agricultural resources, vast differentials in the productivity with which agricultural resources are used and individual and national poverty.

Again, removing hunger and malnutrition is an important national goal for a combination of humanitarian, economic and political reasons. The humanitarian reason should be obvious. A nutritionally adequate diet is a sin qua non of an acceptable lifestyle. As far back as the early 1940s, before economic development had been invented, U.S. President Franklin D. Roosevelt listed freedom from hunger as one of the four basic freedoms that Americans should be able to expect. The basic economic justification was mentioned above. Full participation in the economy, either as a worker or in other roles requires that the individual be free from debilitating hunger. The political rationale is also quite simple. More countries have been destabilized and more governments fallen from food crises than from ideological conflict.

2.1.6 National Autonomy

A final, but frequent national goal is a measure of autonomy, particularly in the arena of food supply. The national conscience is not well served when a nation is

dependent on handouts or even commercially purchased food to feed its people. This type of dependency is not only degrading psychologically but also makes the country vulnerable to those surplus producing nations that may wish to use food as a policy weapon. It is not surprising, therefore, that food self-sufficiency is found as a national goal in country after country, even where such a goal flies in the face of efficiency logic.

2.2 Goal Statements in Pakistan

Recently, two national level goal statements have appeared in Pakistan. Each expresses several of the general goals discussed above. Each also includes goals in the social-political-cultural realm that express Pakistan's emerging role as a leader among Islamic nations.

2.2.1 Prime Minister's Five-Point Program

On December 31, 1988, on the eve of the lifting of Martial Law, the Prime Minister delivered a major address to the nation, in which he outlined a five-point program for progress. The five points are very broadly stated and serve simultaneously as goal statements and political rallying points. Many goal statements serve these dual purposes. Couched in terminology of the Five-Point Program can be found the general goals of equity, national autonomy and strength, and prosperity, and efficiency based on increased use of science and technology.

The five points as stated by the Prime Minister are as follows:

a The establishment of a strong Islamic democratic political system based on the ideology of Pakistan;

b Promotion of an equitable economic order, eradicating unemployment and ensuring the prosperity of the people;

c Preparing the nation for the modern scientific age after removing illiteracy from the country;

d Putting an end to bribery, injustice and other evils in society and giving a sense of security and justice to the people;

e Consolidation of national integrity and prestige through strong defence and nonaligned and balanced foreign policy.

2.2.2 Seventh Plan Goals

The draft of the Seventh Five Year Plan also contains a succinct statement of national objectives (goals) which guided the preparation of the plan itself. In these objectives one finds equity, basic needs, national strength, economic growth, stability and technical change. The Prime Minister's five points are embodied in the five year plan objectives. The five year plans objectives statement reads as follows:

a to promote national solidarity through a fundamental restructuring of education and information policy, which should be based on a well defined concept of national culture;

b to implement a concrete programme of poverty alleviation, especially in the rural areas, to attain full employment, and to ensure continued growth with stability;

c to prepare uplift programmes for the advancement of all sections of society, particularly women and youth;

d to formulate specific, monitorable targets for increasing national self-reliance, supported by legislative safeguards, as necessary, especially in the areas of Government finance, food, defence, export-oriented manufactures, high technology products and energy;

e to formulate and implement a cogent policy on the implementation of technological change.

CHAPTER 3

AN OVERVIEW OF THE AGRICULTURAL POLICY ANALYSIS PROCESS

3.1 Introduction

Agricultural policy is formulated at several levels of government, involving different types of issues, different levels of specificity and different collections of participating individuals and agencies. This is complicated in Pakistan, where agriculture is a designated "provincial subject", yet many types of policy that directly affect agriculture (agricultural research, trade, agricultural prices) are left to the Federal government.

For purposes of discussion, we have separated the policy range into three tiers; macro-policy, micro-policy and implementation policy. Admittedly boundaries between these classes of decisions are not distinct. And any single issue is likely to be resolved in a series of decisions involving all three. But for purposes of description, these categories illustrate important differences.

Macro-policy can be defined as an operational specification of national social goals. Policies at this level affect society as a whole or major segments of it. Being imbedded in national goals, macro-policies will change only slowly, reflecting the gradual evolution of social will and/or the geopolitical or economic environment in which a country finds itself.

Macro-level policies are generally formulated by the highest authorities. In Pakistan, this includes policies that arise from discussions in the National Assembly and Senate, the Cabinet, the National Economic Council and other bodies. Public articulation of these policies is often by the President, the Prime Minister, or the Ministers of Finance or Development.

Obviously, macro-policy is grounded in the political process, a necessary condition for its legitimation. Sound economic analysis is extremely important for these are the broad policy thrusts that reach widely through society. Decision makers need accurate estimates of the primary impacts and secondary consequences of alternative choices before acting. Their very jobs depend on making these choices wisely.

Within the macro-policy framework lie a wide range of micro-policy decisions. Micro-policies, for the sake of discussion, can be visualized as policies directed at specific issues, such as a specific commodity policy, policy for an individual resource or other narrowly defined issues. A commodity price, the minimum wage, decisions on the desired level of competitiveness in a given industry are but a few examples

of the level of aggregation implied by the term micro-policy.

Micro-policy is one step more specific, one step more operational than macro-policy. It takes its overall direction from the larger macro-framework and moves it further toward action.

Again, policy analysis is critical to getting it right. For example, there are several individual ways for government to, say, increase the profitability of wheat farming and thus domestic wheat production. The wheat price can be raised, the fertilizer price lowered, credit for tubewells extended, new wheat varieties tested, and many others. Yet there are many different groups in society with an interest in wheat, and each will be affected differently by any of the available policy choices. Thus these choices also have political and social consequences. Economic analysis is one of the most powerful tools with which to identify and quantify probable impacts on each affected group.

Finally, there are the policy implications of implementation decisions. Any time that a program or decision is implemented, there usually exist several means to achieve the same end, each with a different mix of overall consequences.

For example, lowering the price of fertilizer to farmers can be accomplished by increasing the efficiency of marketing channels, price controls on the fertilizer itself, subsidy on inputs to fertilizer manufacture, trade in fertilizer and exchange rate manipulations, concessional credit at the farm level for fertilizer purchase and many other means. Choosing an implementation strategy simply on the basis of which one will reduce the farm gate fertilizer price in the most cost effective manner may seem an appropriate criterion. Yet these choices have implications on the profitability of domestic industry and international trade, the long term viability of the fertilizer industry, market conditions that determine farmers' effective access to fertilizer and many other factors. Implementation decisions can reinforce or negate the very policies that the implementation activity is designed to promulgate.

3.2 Hierarchical Relationships

The structure of goals, macro- and micro-policies and implementation actions described here forms a hierarchical set, as shown in Figure 3.1. At the top are the most generalized, most broadly affective goals. Moving down the ladder, the policies become more specific, more detailed and more operational. Ideally, the framework at any given level guides and directs decisions or programs at the next lower level. With greater detail at lower levels, the number of individual decisions increases as well. However the level of analysis required for each diminishes because the issues are more narrowly focused. A single national goal can lead to two or three macro-policies, which in turn can be supported by several micro-policies while implementing programs may involve daily decisions, both small and large, that have some policy implications.

FIGURE 3.1

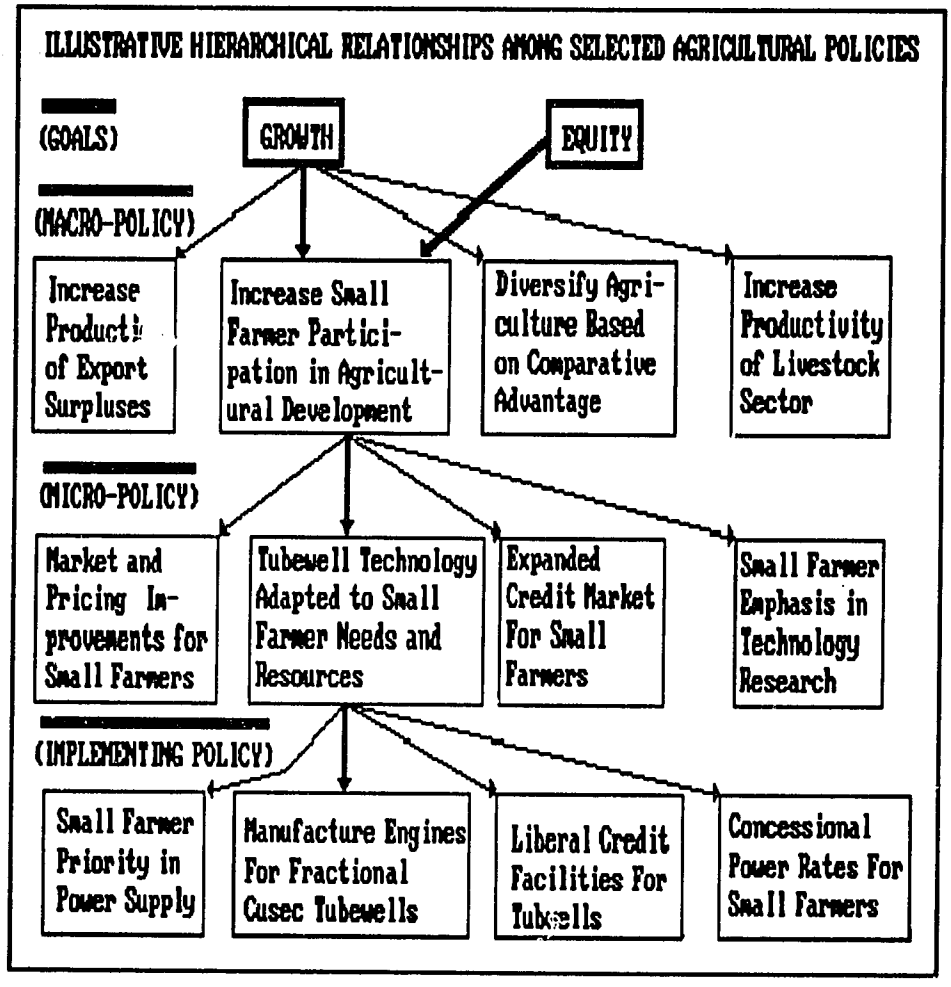


Figure 3.1 provides selected illustrations of these relationships drawn from the 1988 Report of the National Commission on Agriculture in Pakistan. In this example, we see that increasing the participation of small farmers in agricultural development has become a recommended macro-policy which is expected to be endorsed and publicly adopted in the Seventh Five Year Plan. In this case, this policy serves two of the national goals described in Chapter Two. Both of these goals are recognized in the text of the Agriculture Commission Report (p.375).

"Public Policies and Small Farmers

A close examination of many public policies would indicate that these have not been targeted on the small farmers. It can be argued that certain key policy options have not been used effectively and that others that have been used are contradictory to the goals of improved efficiency and equity in agriculture". (emphasis added)

The Commission is making two points. First, continued increases in productivity and growth within the agricultural sector cannot be sustained without participation by the small farmers who comprise the vast majority of rural households. Second, many policies in the past have by-passed the small farmer or made things worse for him to the detriment of his family income and welfare. Without explicit policy attention given to the small farmer, growing inequality will increase the rural poverty problem and could potentially destabilize rural areas.

Small farmer growth is only one of several broad policies being recommended to increase agricultural productivity. Micro-policies designed to support this emphasis are suggested in several fields. Figure 3.1 lists examples in the areas of marketing, pricing, credit, and research policy. Also included is the policy of bringing tubewell technology to small farmers, so that they have full access to Pakistan's most productive agricultural resource, irrigation water. Among the policies recommended to implement this strategy are designing technology appropriate to small farms (fractional cusec wells), ensuring that they can buy them (targeted credit) and operate them profitably (concessional power rates). Finally a priority is suggested for small farmers in the power distribution system, which constitutes a very definite statement of public implementation policy.

3.3 Steps in Agricultural Policy Analysis

Policy analysis is a research process. Because of the policy orientation, it differs somewhat from scientific research in that it is more immediately responsible to a political process and must ultimately be guided by a vision of social welfare. Nevertheless, the basic fundamentals of research procedure, often called the scientific method, comprise the steps in policy analysis. In the research methodology literature, the scientific method is normally defined as the following steps, with perhaps a few variations.

1 Identification of a problem.
2 Review existing information on the problem.
3 Formulation of hypotheses.
4 Collect new information.
5 Test hypotheses.
6 Draw conclusions.
7 Subject conclusions to peer review.

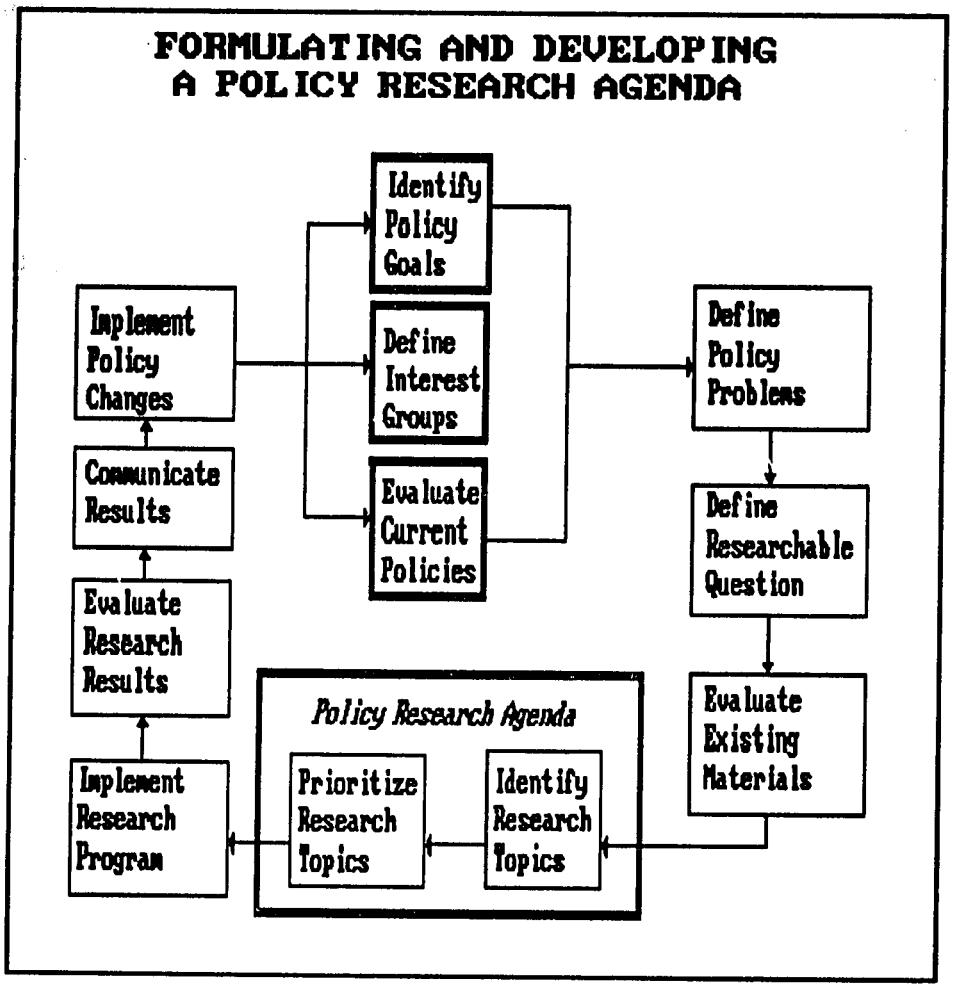
The policy process does not stop with this last step for it is research designed to support decisions and action. Thus the following steps are added.

8 Take decision and/or action.
9 Bear consequences of action.
10 Evaluate progress of actions.
11 Identify second generation problems.

3.4 A Generic Macro-Analysis Process

Figure 3.2 presents in schematic form a generalized pattern of steps in the formulation of macro-policy. Each step is discussed separately below.

FIGURE 3.2



3.4.1 Identifying Policy Goals

At any point in time, most countries have an established framework of policy goals including those relating to agriculture. Most policy goals will be available in writing although one must normally search through several sources. The specific source that constitutes a recognized statement of goals or policies will vary from country to country. In Pakistan, these are to be found in five-year development plans, annual economic reports, and occasionally in policy papers issued by the National Economic Council, the Ministry of Agriculture or other body.

As noted earlier, the framework of goals normally changes only slowly. Exceptions that can trigger rapid change in social or economic policy include significant changes in government leadership, major changes in the geopolitical situation, such as the independence of Bangladesh or the Soviet invasion of Afghanistan, or externally imposed policy shifts, such as has occurred in several African or Latin American countries in response to IMF mandated economic reforms that were prompted by an serious debt crises. In these types of instances, sweeping policy changes can happen overnight. But, more commonly, one can expect stated national goals to evolve slowly, with major reassessments tied to five-year planning exercises or perhaps to election years.

Nevertheless, analysts involved in the policy process must begin with a collection of goal statements so that their understanding of the framework in which they will function is clearly defined. Word of mouth and hearsay is not sufficient. The written goal statement will have been carefully scrutinized before it was released and thus stands as an official position. Furthermore, analysts need to remain alert to impending or final changes as they arise in order that their work remain relevant. Keeping the technical staff well informed of these changes is a key responsibility of the supervisor of the analysis unit.

3.4.2 Multiple Interest Groups

Policy goals express government's response to expressions of felt needs. Such expressions are received from a variety of sources, each of which has their legitimate place in the scheme of things.
The largest, though not always the most listened to, constituency is the population at large. Individually, through one forum or another, they express their desires which through a process of aggregating consensus become the popular mandate. The basic assumption in a democracy is that elected leaders are motivated to retain their office and that they will respond to the popular mandate because it represents the wishes of the electorate. But aside from the ballot box, there are many ways that the masses can band together to make themselves heard.

A second type of constituency found in every country are the special interest groups. These are smaller groupings of people organized around a common interest in a single issue or a narrowly defined set of problems. In some settings, special interests are looked down upon as self serving, feared because they may wield disproportionate influence or viewed with suspicion because it is believed that they will seek to obtain their own goals at the possible expense of other, less well organized or financed constituencies. Indeed, governments often pass legislation to control the activities of these groups. Yet, any expression of felt need is an expression of self interest, and it is proper that the desires of the special interest groups be added to the overall mix with which the politician must deal.

Other than politicians, two groups within government have a legitimate role in identifying policy issues. The first is composed of line officers in government who

are responsible for day to day implementation of government programs. Their jobs often make them the contact points with the public and puts them in a position to pick up problems or issues as they emerge. In addition, modern management principles suggest that at least the larger programs include a monitoring function to support periodic evaluations. Line officers should be receiving monitoring and evaluation data and are thus likely to be the first to perceive gaps between expected and actual performance of existing policy or programs.

The second group composed of the policy analysts themselves. Although they generally have only staff roles in government, their research places them in position to project trends, estimate relationships and compare these with either accepted norms or desired progress. Out of these analyses can flow identification of existing problems that have been overlooked or predictions of problems just over the horizon, which a sensitive government should add to the mix of concerns.

Finally, an important component of the Third World policy environment is the ubiquitous donor community. Donor agencies represent a special situation in policy formation, especially in the case of bilateral donors. Interactions between donors and the host country occur at the points of contact between two quite different value systems. To simply assume that bilateral donors give assistance for altruistic or humanitarian reasons alone is naive, although humanitarian concern is certainly one of the operative motives. Donor nations are taking funds out of their national accounts for distribution in another country's economy. These decisions must have political support in the donor country, articulated through their political system. Aid can occur only if there is a convergence of interest between the public wills as politically expressed of both the donor and the recipient country. Thus to the extent of a Third World nation's reliance on foreign assistance, the goals and policies of major donor nations are part of the mix of expressed needs to which national macro-, and even micro-policy must respond.

3.4.3 Current Policy Evaluation

An evaluation of the effects of current policies should logically occur in two contexts. First, government should be sufficiently interested in how their current policies are working to monitor them regularly and evaluate them periodically. One standard time for an in-depth evaluation is just before drafting a new five-year plan. This process can serve to identify policy issues in advance of their becoming crises.

The second instance occurs after a new policy issue surfaces. Often the decision maker will ask for an evaluation of selected existing policies in order to determine if the policy instruments then in place are sufficient to take care of the new issue. Minor changes in the existing policy framework, and especially in implementation policy are often sufficient to head off emerging problems without the need of working a whole new policy through the time consuming policy formation and approval process.

3.4.4 Defining Policy Problems

Problems, or policy issues, arise when there is shortfall between expectations and reality. Expectations are formulated either explicitly, such as in the targets of a development plan, or informally as people listen the statements and promises of their national leaders and government administrators. In the case of formal targets, these can be easily disaggregated into annual (or short term) expectations. Monitoring data is collected and at appropriate times an assessment of performance vs. expectations conducted. Although monitoring and evaluation functions are often neglected by government, they do offer the potential of an early warning on emerging policy issues. Action can then be taken before shortfalls become serious enough to become politicized.

3.4.5 Defining Researchable Questions

At this point, the policy analysis process first involves the technicians, the analysts who must provide the answers. Policy issues identified in the previous step have raised questions of how to alter a trend or satisfy a need. The economist must now sketch out what information is needed to answer these questions. He does this by defining a series of research questions which, when answered and combined with other available information, will provide enough information on which to base a decision.

This step has two requirements. First is that the analyst have a thorough knowledge of what is already available on the topic. He is thus able to narrow the list of research questions down to only those specific items that need original work. An academic scientist must review the literature before setting out on a new research effort in order to ensure that he is not reinventing the wheel. For this same reason the analyst must know which questions or parts of questions have already been answered.

Second, defining research questions should be done jointly with the individual (or his representative) who is responsible for answering the policy question. Again this is to ensure efficiency, to keep the analytical work done to the minimum needed to complete the job and to make sure that the results are highly relevant.

3.4.6 Evaluate Existing Materials

Once the questions have been defined, the next step is a literature review. This is no less important in policy analysis than it is for scientific research. This step has several purposes. First, existing material becomes the starting point for further research. Knowing what is already known prevents duplication. Second, previous work guides subsequent research by suggesting additional relationships to be explored. Third, all research must be tested for consistency with existing principles,

theories and empirical findings. New results do not have to agree with older ones but if they do not, the analyst must recognize this and support the accuracy of his new findings.

3.4.7 Identifying Needed Research Topics

The two previous steps establish:

a a list of research questions, and
b a list of existing analyses related to the subject matter of the research questions.

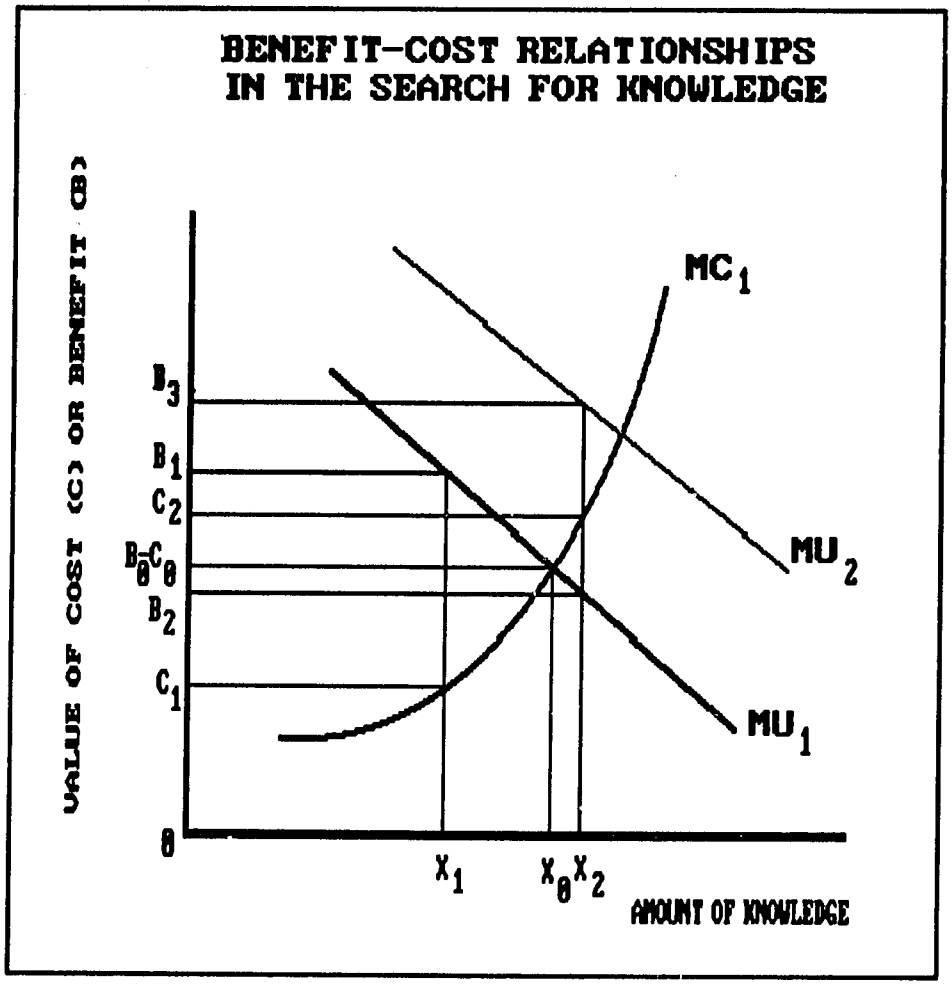
Careful comparison of the two lists identifies those research topics on which further work is still needed. This becomes the first draft of a research agenda. Admittedly, it will be broad, probably much more inclusive than any research agency can hope to complete. It is advisable that the net be cast widely at first, generating an extensive shopping list of research topics. In this way, the chances of overlooking an important topic are minimized.

Comparison of the two lists above can also indicate the extent of further analytical effort required. Some needed answers will be only one or two calculations away since most of the analysis will have already been done. Other analyses will require considerable work, perhaps including primary data collection. An assessment of how much work remains to adequately address individual topics is an important part of the prioritizing process.

3.4.8 Assigning Priorities

Two prioritizing criteria are involved. The first is timing: what are the most urgently needed research answers and can the analysis be completed in time to meet the needs of a politically determined timetable? Second is a benefit:cost assessment. Information has value, although this can only rarely be expressed quantitatively. Nevertheless, managers should consider certain optimizing concepts, even if they must do so subjectively. These are illustrated in Figure 3.3.

FIGURE 3.3



It is widely accepted that increased accuracy in analysis is obtained only with a rising marginal cost, illustrated by MC_1. Conversely, increasing the amount of knowledge of a given topic yields only decreasing marginal utility or benefits as shown by MU_1. At some point, the cost of additional knowledge exactly equals the benefits (knowledge level OA in Figure 3.3).

If, for example, a policy question can be answered with an amount of information shown by OB, then analysis should proceed to its conclusion. If, however, OC of knowledge is required, then the question should not be answered and the resources allocated to another task. In this latter case, only when political requirements raise the importance of the issue, resulting in a shift of the marginal utility of information curve (to MU_2) would it then be advisable to proceed with the analysis.

Determining priorities to be assigned to various topics on the research agenda should be a cooperative effort. The analyst is in the best position to estimate the amount of work needed to complete an analytical assignment. The supervisor of the policy analysis unit, is responsible for the efficient utilization of the analytical resources at his disposal and must, therefore, address questions of cost and timeliness. However, most research agendas will contain more topics than can be efficiently handled at one time. Therefore, input is required from the policy makers on which answers are needed first and which ones are worth their expected cost.

3.4.9 Research Program Implementation

Having finalized a research program that accurately reflects needed new analyses and their associated priorities, the next step is to perform the actual research. These procedures are the subject of the next major section of this chapter and are not discussed here.

3.4.10 Results Evaluation

As research studies near completion, they need to be subjected to two types of evaluation. The first is for their technical and methodological validity. Several professional questions need to be asked. Has the best available data been used? Were the most appropriate calculations and analytical models used? Have the results been correctly interpreted? Are there unexpected or inexplicable results that need further work? Are the results clearly communicated? Essentially this is a quality control function which requires the experienced judgement of a senior researcher or the administrative head of the analysis unit.

The second type of review is by the policy maker who will actually use the results. His criterion is whether or not the analysis fully meets his needs in order to permit a decision. If, as is suggested below, the policy maker has been consulted regularly throughout the analysis process, then this final review will not need to be extensive.

3.4.11 Continuing the Policy Process

Once a decision is taken, the new or amended policy is implemented. This action will, by definition, alter the overall policy mix. Continual evaluation of the new mix of policies and programs will identify new policy questions. This, in turn, suggests new components for the research agenda, and the process continues.

In truth, the policy process is not so clearly delineated as the above steps would tend to indicate. At any one time, several issues will be on the agenda of the

policy analysis unit, in various stages of identification or completion. Thus, the analysis unit will probably be engaged in all stages of the process simultaneously with respect to one issue or another. The policy needs of government are continually evolving and so will the workload of the analysis unit as it strives to meet these needs.

3.5 Conducting Policy Analysis

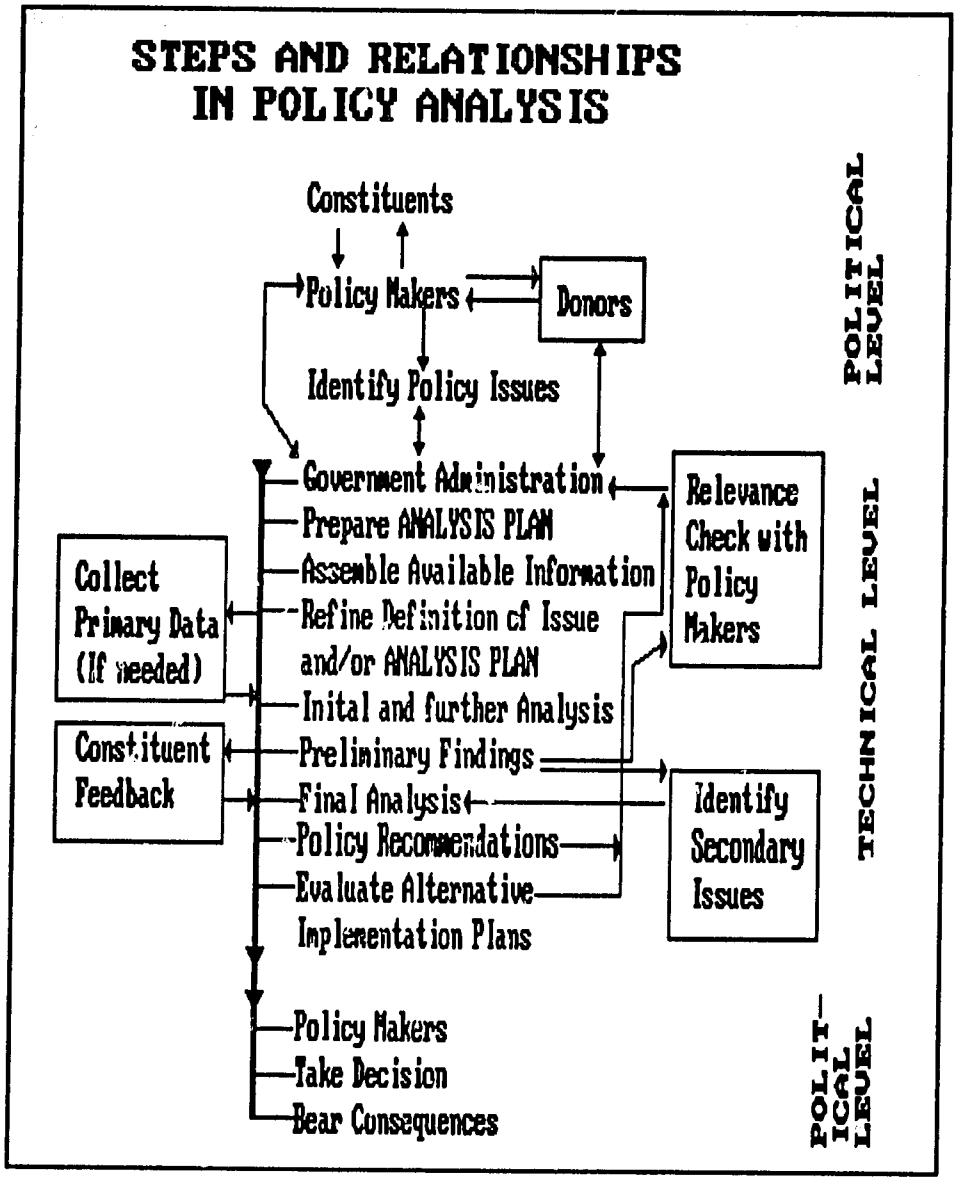
Policy analysis is very much like any other research process. It involves a systematic attempt to discover new knowledge or new applications of existing knowledge. As with other research, policy analysis involves formulating hypotheses, collecting the necessary data, using the methods and theories of one or more discipline to test the hypothesis with data at hand, and reaching conclusions. It may also entail sensitivity analysis of key relationships, formulating and communicating recommendations and predicting the consequences of alternative recommendations and implementation strategies if they are adopted.

3.5.1 The Research Process

Figure 3.4 presents schematically the several steps involved in policy research together with certain key relationships between the agencies involved. All of the preliminary steps from Figure 3.3 are collapsed in Figure 3.4 into the top of the chart labeled "Political Level". We only emphasize here that the policy maker is coordinating inputs received from various constituent groups, the donor community and the staff of government below him. Out of this dialogue comes a prioritized research agenda, as described earlier.

The portion of the figure identified as occurring at the technical level is intended to be an expanded and detailed version of the box in Figure 3.3 labeled "Implement Research Program". Beneath the political level of government are the administrators. These have presumably been involved in developing the research agenda. Now the agenda becomes their responsibility to implement.

FIGURE 3.4



As with any complicated and sensitive activity, an implementation plan is the key process management tool. Since this is a research activity we have called it at "analysis plan". Analysis plans should be prepared for major topics or for any body of research that must logically be taken together as an integrated problem.

The analysis plan, as a management tool, should indicate resources required, methods proposed, time frame required, identifiable indicators with which to

monitor progress and expected end products. It should also assign responsibilities for performance of the various tasks. We have attempted to indicate in Figure 3.4 that the analysis plan is brought through administrative channels to the policy maker for review before further action. The purpose of this brief review is to determine if the expected results will likely meet the decision maker's requirements and whether the effort is justified.

The real work begins with assembling all available and relevant data and existing analyses. This material can occasionally refine the understanding of the problem or cause the analysis plan to be modified. Examining the existing materials will also indicate what additional information is needed, if any. In the case of such modifications, it is again important to check with the political level to validate the changes. Where new primary data is required, its collection should be started as early as possible since this can be the most time consuming step in the sequence.

Primary data usually implies raw quantitative information obtained from original data collection efforts. Two other types of information are often easier to collect and in many cases will be a sufficient basis for the analysis. The most common of these is secondary data, that numerical information collected by others and often available in published form. Much economic analysis only requires secondary data, as long as it is available and reliable.
The third generic type of information is the qualitative or evaluative judgments of experts in the field. The views of these individuals can be invaluable sources of insight, sometimes avoiding many days of analyst time rediscovering what the experts already know.

Initial analysis leads to preliminary conclusions. It is appropriate, as soon as the analyst begins to have something conclusive to say, to check his conclusions both with the constituent experts and with the policy makers. Their views are incorporated as the research leads on to final conclusions.

At any point in the actual economic analysis, secondary issues or consequences may be identified which, in the analyst's view, are important. These should be brought to the attention of the policy maker and if their importance is verified, they are then incorporated into the overall study.

Finally, analytical conclusions become the basis of policy recommendations. In many cases, there will be alternative means of implementing a policy change. Much of the same data that is used in analyzing the impacts of alternative policies will also serve to evaluate the possible impact of alternative implementation strategies. Both of these are then reported through channels to the decision maker. And at that point the action again enters the political arena, as the politician takes decisions as well as the responsibility for his decisions.

3.5.2 General Management Concerns

At the more general level managers must strive to ensure that the policy analysis process demonstrates three characteristics; responsiveness, efficiency and timeliness.

Responsiveness: Policy analysis is designed to serve the needs of decision makers. The analysis process must be managed in ways that are sensitive to decision makers priorities and special circumstances. The most effective method to ensure this is to involve the decision maker in the process at several key points, letting him guide the effort for maximum relevance. In the real world, the analyst will seldom communicate directly with a policy maker. This link is usually part of the job description of the head of the analysis unit.

In Figure 3.4, at selected points the policy maker's input should be sought. He needs to be involved in approving the analysis plan and any subsequent, major modifications to it. Here, his input is needed on two questions: 1) will the proposed analysis fully supply what he needs for a decision, and 2) is the issue faced sufficiently important to justify the time and resources proposed in the plan.

Second, he might appreciate being consulted on the range of expert opinion to be incorporated in the analysis. Asking various constituencies for their expert opinion while formulating policy recommendations is one way of increasing their feelings of "ownership" of the results. Our politician/policy maker may well want to have some influence on this factor as a means of building support for whatever ultimate decision must be taken.

Finally, the decision maker should definitely be given a chance to review tentative recommendations in draft, possibly several times as different drafts are prepared. The analyst cannot proceed to a final set of recommendations without this type of input or he runs the risk of his results being considered irrelevant.

Efficient Resource Use: Analytical resources are usually scarce, relative to need. Process managers must constantly apply cost-effectiveness criteria to the operation of their units. This can occur at three places in Figure 3.4. First, by frequent dialogue with the political level he ensures that the work of the analysis unit remains targeted toward items of importance. Time is not wasted on irrelevant, although possibly interesting research.

The second chance to streamline the operation is in the several administrative decisions that arise while implementing the analysis plan. The manager's responsibility is to ensure that the most efficient process is followed to obtain the desired end results.

Finally, as a special consideration that should be addressed in the analysis plan, time should be spent collecting primary data only when it is absolutely necessary.

In Pakistan, there is a common assumption that few agricultural questions can be answered without going to the field and interviewing farmers. Millions of dollars, rupees and manhours have been invested in farmer surveys of questionable importance. Many policy questions require only aggregate response data of the type that is best computed from macro-level statistics. From this perspective, one of the most useful management criteria is the following simple rule: "If you can't identify a specific use for the data, don't waste time collecting it".

Timeliness: Policy formulation often occurs in a supercharged atmosphere, where every day is filled with new urgencies and issues bubble to the surface only briefly before they are replaced by other priorities. Quick response capability is often required of analysis units, especially those attached to high levels of government. An estimate of time required to complete a task is one of the most important items in the analysis plan. Furthermore, process managers must take pains to determine how soon the answers are required when they receive assignments for their units. This concern for timeliness reinforces most of the points made above concerning saving resources.

CHAPTER 4

AGRICULTURAL PRICE POLICY

4.1 Introduction

Around the globe, more human time is probably devoted to agricultural price policy than any other policy topic with a similar level of generality. The subset of agriculture that commands most attention is the price of staple food, which in most countries means only one or two cereals. The importance of food prices cannot be underestimated, especially in relatively low income countries where large proportions of the average household budget of either time or money is devoted to food.

Food prices highlight the single most important policy dilemma in agriculture, that between producers and consumers. The staple food is, by definition, the most important consumption item in the budgets of consumers. In many Third World countries, the staple cereal is also the most widely produced agricultural commodity and often the biggest contributor to agricultural gross domestic product.
Obviously, a movement in food prices affects producers and consumers in exactly the opposite way. The consumer's view is relatively simple. An increase in food price means a reduction in his real income and thus his welfare. Not only will he eat less but he will also consume less of most other goods and services as well. For producers, on the other hand, an increasing food price means higher incomes, if he is marketing the commodity.

Farm producers, however, are also farm households and thus food consumers. The net impact of a food price change on farm households will depend on whether the household is, on balance, a net food producer, net consumer or more or less self sufficient in the particular commodity.

In fact, the analysis can become much more complicated by the economic specifics of the farm household's dual role as food producer and consumer. Farm produce is often sold immediately after harvest while food for consumption is bought in the months leading up to harvest. There is no assurance that prices at different points in the season will move together, or even in the same direction.

Further, a marketing margin separates the farm gate price of an agricultural commodity and the retail price for the processed version of the same product. While, for example, the prices of wheat and bread are linked, it is not uncommon for a 20 percent increase in the price of bread to result in less than a 2 percent increase in the price of wheat.

Much of the world's agricultural trade is in commodities that are staple foods in the Third World; namely wheat, rice and maize. Established world prices set an

economic environment which conditions many policy decisions within individual countries. Cheap international food provides an opportunity for Third World nations to feed part of their population with purchased food. High world prices may provide a chance to earn foreign exchange through exports. Variations in international prices for food can reflect quickly and severely on local markets, sometimes creating intolerable variation at either the local producer or consumer level.

Many of the largest traders are not developing countries and they do not see the commodities in which they trade as food staples but rather more simply as economic and/or political goods. Often, the major causes of international price movements reflect these motives on the part of major traders. With a few exceptions, Third World countries are "price takers" in the world market, rather than "price makers". So while world prices are important indicators of efficient resource allocation for the Third World, they are not without risk, either from the fact that world prices reflect a foreign mix of incentives or bring with them additional variability to an already highly variable domestic situation.

4.2 Justifications for Price Intervention

Absolute and relative prices are among the most important determinants of human decision making. Based on prices, people choose what and how much to consume, what to produce and with what technology, where to work and many other of life's basic choices, both large and small. In so doing they are allocating their own resources and giving signals to others on how they should allocate theirs.

In a fully competitive market, price serves to equilibrate the demands of consumers with the productive capacities of producers. "Laissez faire" economists believe that the only appropriate role for government is to ensure that the market is functioning perfectly and then let the market determine prices.

Yet there are three fundamental reasons why this academic ideal never occurs in real life and most governments must take a strong hand in price determination. First the market never functions perfectly. Among the assumptions of perfect competition are perfect knowledge and foresight as well as the assumption that no single firm is influential enough to influence prices on its own. These two assumptions set up an academic "pure case" which does not, in fact, exist.

This is particularly true in the developing countries where markets may be among the most underdeveloped institutions in the local mix. This explains why developed countries are often characterized as (relatively) open market economies while Third World economies are usually described as mixed, meaning that government has adopted a more interventionist strategy with respect to the market.

Second, many human transactions at the individual and aggregated level are based on mon-market allocation criteria, such as power, persuasion and influence. By

definition, these transactions are not incorporated into a market, no matter how perfectly it may function.

Third, individuals express individual preferences in the market place. Individual private welfare functions do not always aggregate to a fully acceptable social welfare function. In other words, national leaders must perceive and respond to a mix of criteria, only some of which can be perceived in the interaction of a competitive market.

For these reasons, it is legitimate for government to intervene in the price setting process. Indeed, few governments could survive for long without a significant influence on key allocation decisions within society. One might suggest that this is one fundamental justification for having government at all, to influence private allocation decisions in the interests of the greater social welfare.

This raises a fourth justification for government intervention in prices. Prices influence individual and institutional decisions. The influence of prices will extend wherever there are people and firms involved in the market. Government can choose to influence decisions by direct government action which bypasses market channels. Ration shops are an example of a judgement that the market will not adequately feed the poor, so government provides that function directly. However, direct government action programs are expensive and often inefficient. Purely from a practical perspective, if the same allocative results can be obtained indirectly, by influencing hundreds or millions of decision makers through price manipulation, then it is probably cheaper, quicker and more efficient to do so.

4.3 Functions of Agricultural Prices

Agricultural prices can be used to pursue several broader goals. Prices serve to motivate, guide, and structure the agricultural sector and through that sector's wider linkages, much of the economy as a whole. It is useful to examine the several generic functions for which prices can be used.

4.3.1 Resource Allocation and Efficiency

The primary use for agricultural prices in a national setting is to influence resource allocation decisions. Production economics, the theory that most fully explains small farm agriculture, states that relative prices affect three basic choices:

1 the choice of how much of an input to use,
2 choices among various inputs which can be combined in different combinations to produce a given product, and
3 choices among alternative products.

The core of production economics is a rather straight forward, integrated theory

explaining the calculus of these three types of decisions. However, it must be obvious that much of the structure and productivity of the agricultural sector is determined by the time these decisions are made by millions of farmers responding to the relative price structure they face.

The first justification for intervening in resource allocation is the pursuit of efficiency. To an economist, an efficient resource allocation is one where there is no possible reallocation which will yield greater social welfare. No country has attained this even in a static sense but much less so in a dynamic economy. Departures from efficient resource allocation, by definition, create a loss in aggregate welfare and this logically becomes a concern of government.

But what prices should be used to determine efficient allocation in a particular country. The theory suggests that a perfectly functioning market will accurately reflect the balance between scarce resources and the unlimited demands of consumers. As a first approximation, policy makers could concern themselves with the nation's own resources and consumer population. And, indeed, efficient allocation within the context of a closed economy deserves a great deal of attention.

More recently, however, as the world becomes more tightly interdependent and the global economy becomes more important relative to national economies, economists and planners have begun to suggest that world prices should be the criteria that determine efficiency. Drawing on the theories of economic specialization, trade and others, a growing number of analysts suggest that welfare within a country will be maximized only if resources follow the pattern dictated by world prices. After all, why should rural labor be used in producing cereals when cereals can be had cheaper from abroad and the labor utilized producing something else? In policy discussions, this concern has led to the concept of border pricing. In policy analysis, the theory and methods for calculating domestic resource costs and net protection coefficients are currently in use.

It will become apparent below that developing countries cannot rest their price structures either on domestic relative scarcities or world scarcities alone. Instead, there are good and sufficient reasons to use a judicious combination of both. The point to be emphasized here is that <u>both</u> must be considered. At the broadest macro-economic level it is true that maximum economic efficiency would be obtained by using world prices wherever they exist. No country of any size can afford to ignore the world market today. But at the same time, domestic priorities must also be recognized and this will occasionally dictate deviating from world prices to reflect priority domestic conditions.

4.3.2 <u>Resource Payments and Income Distribution</u>

Prices are the payments to resources. Therefore, relative prices determine the relative incomes commanded by different resources and by the owners of those

resources. Not all people own an equal share of the nations productive resources. The lucky ones own capital and land and their own labor reflects the productivity of their investment in education. The less fortunate, e.g. small farmers, have only small amounts of land, very little capital and a family supply of semi-skilled labor. Landless laborers have only their own labor as the basis for their incomes, a resource that is often debilitated by lack of skills and the impairments of disease and malnutrition associated with poverty.

Consequently, the price structure is a crucial determinant of income distribution within the economy and pricing decisions must be analyzed for their distributional impact.
For example, the relationship between product prices and input prices in agriculture, generally called the agricultural terms of trade, can have a significant impact on the relative profitability of farming and the relative incidence of poverty between rural and urban sectors. Relative prices for capital and labor will set the relationship between incomes for capitalists and workers. A labor saving technology will likely reduce incomes of the laborers relative to incomes for technology owners whereas a labor utilizing technology might have the opposite effect.

To illustrate the complexity of the issue, consider the question of combine harvesters in Pakistan. On the surface, these machines are definitely labor displacing at the level of field crop production. The combine converts a standing crop of wheat to harvested, winnowed grain, the job traditionally done by millions of landless laborers throughout the country. The persons who's jobs are eliminated by combines are those on the lower end of the rural income distribution.

Conversely, combine harvesters increase the incomes of their owners, the larger land owners, by diverting to their account the value added from the harvesting and winnowing processes. This element of value added is their return for their investment in the equipment.

However, there is a second level of analysis. Combines should contribute over time to a lower real price for wheat in two ways. First, field losses in harvesting should be reduced, causing an effective increase in yield of harvested grain. Second, combines should result in increasing the profitability of wheat production for many farmers and by a positive supply response, i.e. more wheat being grown. Again real prices should decline in the longer term. The net effect on the landless can only be determined by combining the loss of income with the reduction in the price of his staple food. Of course this analysis will require an estimate of the opportunity cost of his labor, that is what is the next best alternative employment and at what price.

4.3.3 Terms of Trade

Agricultural terms of trade reflect the relative balance between prices of factors of

production bought by agriculture from the manufacturing sector and the prices of farm produce sold to the manufacturing and marketing sectors. At the macro-level, the agricultural terms of trade affects the relative attractiveness of life and employment in the rural vs. urban sectors and thus the rate of rural-urban migration, the rural-urban distribution of poverty and other factors. Through its affects on the profitability of farming, the terms of trade can have a long term impact on the adequacy of national food supply and on the ability of agriculture to make a sustained contribution to overall economic growth. This latter factor is perhaps the most important in a country like Pakistan where the agricultural sector is large enough that acceptable economic growth cannot happen unless a major portion of it happens in agriculture.

4.3.4 Stimulating Growth

Attractive prices are the incentive for investment and thus growth. Government can use prices to encourage some sectors more strongly than others, thus shifting the thrust of development to better meet social needs. For example, higher product prices could be used to stimulate a particularly labor intensive industry, or an industry located in a particularly remote or economically depressed area. Attractive producer prices for food are the most effective means of ensuring against serious food deficits and dependency on foreign supplies.

In Pakistan as in many other places, one serious limit to the use of higher prices to stimulate growth is the lack of effective demand. National poverty results in a limited market, creating very real upper bounds to the prices that the market will bear. One possible solution is exports, but this is limited to only a few commodities in most cases. A valid long term growth strategy is to expand export markets for present and new products as a means of increasing aggregate demand and thus sustaining product prices at levels above what would be set in the domestic market alone.

4.3.5 Achieving Stability

As mentioned above, markets are subjected to variation from climatic, physical, biological, cyclical and institutional factors. Some sources of variation can be severe, such as a major natural disaster or a sudden shift in the trading position of one of the larger actors in the world market. Given the fact that producers and consumers always require time to adjust their output and consumption, static market equilibrium is never achieved and prices are always in a state of flux.

Frequently, and especially in the case of agriculture where so many small farmers are risk averse, government decides that price risk is constraining agricultural growth and investment. Managing prices for stability in order to remove some of the risk affecting farmer decision makers becomes a valid and widely used

government strategy.

4.4 Common Methods for Controlling Prices

Governments have at their disposal a wide range of policy instruments for controlling prices. In fact, of the policy issues discussed in this manual, there has probably been more imagination applied to attempting price control around the world than any other single topic. There is no "best" method. Each has its specific strengths and weaknesses which determine under what conditions, if any, the method is suitable. The sections below discuss several generic categories of price intervention mechanisms. Unless otherwise mentioned, the discussion proceeds from the assumed goal of controlling food grain prices in the face of a growing population.

4.4.1 Supply Control

Certainly the most commonly used means of price control are the many different mechanisms with which government seeks to control the quantity of a commodity on the market. Stimulating domestic production is a frequent strategy, particularly with food grains. Two common tactics are 1) allocating public resources to research aimed at cost reducing, technological change, and 2) subsidizing selected production costs.

If domestic production response is insufficient, for whatever reasons, food supplies can be augmented by imports. Government can use any of a number of means of stimulating the private sector to import or government can import on its own account. The latter is frequently used for food grains for the simple reason that Third World food deficit countries often have access to food from donors on concessional terms, a factor that can substantially reduce the average commodity price once imported and domestic supplies are combined. Further, importing on government account places the grain directly into government hands and facilitates directing its distribution to clienteles that are particularly in need, or particularly influential.

A special category of supply control is the purchase and release programs used in many countries to even out seasonal fluctuations in price. As mentioned earlier, many farmers are forced to sell their produce just after harvest at depressed prices and then end up buying food for the kitchen during the "hungry season" at substantially increased prices. One form of intervention is to establish a floor price for procurement and a release price. If post-harvest prices fall to the floor level, government buys hoping to guarantee the farmers at least this minimum price for their products.

Later in the year, if the wholesale price rises to the release price, government releases their stocks onto the market in the hope of preventing further price rise.

Thus, on a seasonal basis, government is alternatively reducing supply by taking commodities off the market and increasing supplies through commodity releases. Such a program can be very effective, but requires effective management, carefully set procurement and release prices and an administrative capacity to handle large commodities over large areas of the country.

4.4.2 Direct Price Intervention

Somewhat more heavy handed, and much less successful in the long run, are cases in which government simply determines that it will replace the market as the price setting authority. For one or more commodities, government sets a fixed price, using whatever criteria it feels are appropriate. Government then faces the problem of enforcing this price.

Fixed prices, if they are not very close to an economic equilibrium price, can be a managerial nightmare. If fixed prices are set too low, they tend to give rise to black markets or to various types of non-market allocation systems in which influence rather that purchasing power prevail. Since influence is usually less equally distributed than purchasing power, worsening inequality can result. When set too high, unmanageable surpluses must be dealt with. When government decides to preempt the market in price setting, it often must also replace the market with respect to procurement and distribution as well, functions which are usually very expensive and inefficiently done by bureaucratic agencies.

4.4.3 Controlling Demand

Much less common as a strategy is controlling demand, although there are a few feasible methods. Prices may be set artificially high as a means of controlling consumption through the use of taxes of one type or another. This tactic is used in the United States on alcohol and tobacco and is occasionally used for energy sources, such as petrol, in times of an energy crisis.

Another tactic draws on the economic principle that many commodities have substitutes in consumption preferences. Thus, for example, if Pakistan wanted to reduce the need to import raw sugar, stimulating the production and use of artificial sweeteners might be a successful strategy. A rise in the wheat price could be slowed by reducing exports of rice leaving more of this substitute cereal in the domestic market.

4.4.4 Level of Competition

The level of competition in the domestic market can potentially be manipulated in two opposite directions in order to reduce consumer prices without necessarily lowering farm prices. Where there is reason to believe that marketing agencies are

using monopoly or oligopoly power to extract an unfair margin for their services, then policies to increase the number of firms in the business may lead to lower consumer prices. Implementing such a policy may be as easy as issuing new permits to establish in the trade or changing the structure of enabling legislation so that entry to the field is made more attractive. Policing the abuses of monopoly power is also possible but it is often an expensive diversion of government resources.

Governments all too frequently elect to put themselves into the marketing business to provide more competition for the private sector. Often the net result is the demise of private sector marketing for the commodity in question and the economy is left with an inefficient government bureaucracy as its only source of supply.

A special case lies in the cooperative movement. With appropriate enabling legislation, cooperatives can provide additional competition to the private sector and have important impacts on prices as a result. Unfortunately, the Cooperatives Registration Act and its clones, as found in most former British colonies, do not provide the foundation for an effective Cooperative movement.
Conversely, in cases where there are clear and extensive economies of scale, restricting competition may result in lower end prices. However, when government establishes monopoly or oligopoly conditions for these reasons, it must also be prepared to establish a regulatory function to prevent abuses of this concentrated power.

4.4.5 Controlling Border Prices

One form of direct price control occurs at the border with respect to traded commodities. Using taxes, tariffs, duties, cesses and subsidies, governments have some capacity to insulate the local economy from world market prices and to set local prices selectively higher or lower. It must be emphasized that this will be limited in the long run by comparative advantage, by the extent of trade and by government's ability to police smuggling and black market trade. The larger the deviation from world prices that government seeks, the more likely that individuals will try to capitalize on the distorted price situation that results.

4.4.6 The Government as a Marketing Body

In the early stages of development, when markets are functioning imperfectly, it is common for government to decide that they can do the job better and, in the interests of the people, should. In Pakistan, as elsewhere, there is an age-old prejudice against the "middle men" who are seen, fairly or unfairly, to be using their economic position to extort an unfair profit from the farmer, the borrower or even the consumer. This belief has been the subject of policy-oriented research since at least the mid-1930s and continues today.

A frequent response is for government to step in, either as an additional marketing

body in competition with the private sector or, using its power to legislate, to set itself up as the only marketing agency in the business. This can happen with respect to farm products (marketing boards, mandatory procurement schemes) or farm inputs (government monopolies in fertilizer distribution, etc.).

The bottom line in this sort of intervention is usually that of efficiency. Bureaucracies are not structured nor operated so that efficiency is the governing criterion. The profit motive does not affect decisions. Therefore, in the absence of some special conditions that would give government an edge, a government agency will probably not operate a marketing function as efficiently as would a competitive private sector.

One special, widely used case is when government wishes to administer a multiple price system that the competitive market would not find attractive. Ration shops in the Subcontinent or food stamp programs in the United States are two examples. In these, and in most other such examples, the program is undertaken for welfare, and efficiency reasons, and the extra costs of administration are simply part of the cost of the welfare program.

4.4.7 Forward Pricing

Finally, while not widely used in the Third World, there is the potential for forward pricing. In this type of program, government seeks to influence expectations of future prices. This can be done for two reasons, first to remove some future price risk and second to give advanced signals of price relationships as a guide to investment.

4.5 The Economic Tools of Price Analysis

While the range of economic calculations that might be brought to bear on agricultural price analysis is probably unlimited, a small number of key concepts will cover most real world issues. These tools constitute the basic conceptual framework for price policy analysis.

The policy analyst specializing is price policy needs to be thoroughly familiar with the vocabulary, methods and applications of each quantitative tool. His boss, the supervisor of the analysis function or agency, need not be a specialist in the methodology but must be knowledgeable in the applications and interpretations of each method. As a manager, he is thus able to formulate, together with the analyst, the analysis plan for any given price issue and to interpret findings to policy makers as results emerge throughout the analysis process.

In this section the major tools and concepts are discussed briefly. The intent is to sketch out some of their uses while showing key relationships between several economic concepts. We do not attempt to describe or even illustrate how to accomplish the several economic calculations required. There are many texts,

theoretical articles and practitioners manuals in the economic and development literature that do that already and we have assumed that the policy analyst has access to this material and knows how to use it. This, then, is not a cookbook. It is, however, an approximate checklist for the types of tools that must be considered as options whenever a policy question is formulated and assigned for analysis and an Analysis Plan is being prepared.

4.5.1 Supply and Demand Curves

Most basic to price policy analysis is an economic understanding of the conditions of production and consumption, the two economic functions that are to be influenced by price policy. For individual commodities, or less frequently for collections of commodities (e.g. food grains), the important relationships are summarized in supply curves and demand curves. These curves provide the fundamental relationships between price and quantity either of consumption demand or producer supply. From their slopes are derived price elasticities of demand and supply, two coefficients that are crucial for determining the direct impact of price change.

A second set of elasticities can be important although they are less frequently available. Most commodities are not completely independent in the consumption preferences of individuals. Substitute and complimentary relationships abound, especially in food consumption and especially in the developing countries where foods are consumed in forms embodying less processing and less product differentiation through brand names and packaging. Where commodities are linked through either substitute or complimentary demand relationships, the demand for one can change in response to changes in the price of the other. Cross price elasticities of demand can be important to certain types of price analysis.

In parallel fashion, supplies of farm products are linked since they ultimately compete for land, water, labor and other inputs in the management decisions of the farmer. Thus an increase in the price received for one summer crop, say cotton, could well lead to a decrease in quantity supplied of maize or sorghum. Cross price elasticities of supply can thus be calculated and prove useful.

When interpreting elasticities, it is important to note that there can be important differences in the case of all four of these elasticities between the short-run response and the response for the longer run when individual producers or consumers have the chance to more fully adjust their practices to reflect the altered prices.

4.5.2 Producer and Consumer Surpluses

A second set of concepts used in price analysis is the concept of economic surplus applied to either the producer or the consumer. Economic surpluses refer to the

difference between what the individual would have been willing to pay or receive for all units traded as compared to the actual amount paid or received. Whenever demand is based on a decreasing marginal utility curve or the supply curve reflects increasing marginal costs, there will exist, respectively, a positive consumer or producer surplus.
The importance of this conceptual tool from a policy analysis viewpoint lies in the following fact. Changes in price such as might be achieved through government intervention will change the sizes of the producer and consumer surpluses and these changes will rarely be equal in magnitude and direction. Thus intervention in price policy will normally affect producers and consumers differently. When one group gains relatively to the gain (or loss) of the other, a transfer of income or welfare has occurred.

Understanding and quantifying these differences is important to assess the impacts of alternative policy recommendations, not only for their economic implications but also for the chance that these economic effects could become politicized.

For example, the price of a staple food can be reduced by a direct subsidy on its purchase price. Government incurs an out of pocket cost and consumers receive a benefit. However, under most market conditions, the producers of the staple crop will suffer a direct loss as the staple price in the market is lowered. Thus, part of the consumer benefit is paid for by farmer losses. Under most conditions, the total consumer benefit will not equal the total of farmer losses plus government costs. Thus, in addition to the redistribution away from farm producers, society as a whole is taking a loss from a policy intended to benefit everyone through lower food prices. These types of analysis are quantified with simple supply and demand curves and the concepts of economic surplus.

4.5.3 Demand Projections

Among the more important functions of an agricultural analyst is projecting the future to assist policy makers in anticipating needed changes. In agricultural policy perhaps the most frequently made long term projection is the demand for food. The demand for a particular commodity is a function of the price of the commodity, the prices of linked commodities, the size of the population, income levels and variations in taste. Price elasticities were mentioned above.

To these must be added the coefficients describing relationships between income and demand, i.e. income elasticities of demand and Engel's coefficients. These parameters, along with good baseline information on current consumption levels and a small dose of subjective judgement regarding likely future changes is tastes and preferences are sufficient for most demand projection exercises.

4.5.4 Relating to International Prices

Most of the policy dialogue on agricultural prices in Pakistan concentrates on domestic prices and their relationship to domestic needs. Especially evident in the press and in debates of the various legislative bodies, are discussions of the local prices of those consumption items that affect the poorer strata of society most directly; wheat, atta, ghee, kerosene and others. It is easy to conclude that domestic agendas dominate price setting.

However, as mentioned several times above, the structure of world prices is the ultimate determinant of economic efficiency and whenever domestic prices differ significantly from world prices, a social price is being paid in terms of efficiency losses, regardless of whatever other benefits are received as a result of the price deviation. It is important for the policy maker to fully understand these costs before taking a decision, and indeed, these types of analyses are becoming increasingly frequent throughout the Third World.

The report of the National Commission on Agriculture recommends diversifying agricultural production along lines of comparative advantage. Several other policy spokesmen have called for a shift in emphasis from "self sufficiency" to "self reliance" and economic strengthening through greater involvement in imports and exports. The Minister of Planning has announced government's intent to decontrol trade in cotton and rice, thus permitting greater initiative on the pert of the private sector. All of these suggest a significant move toward more open economic borders which will, perforce, increase the importance of world prices in governing Pakistan's internal decision making.

The tools for this type of analysis are relatively simple in concept although not necessarily easy to calculate. The central idea is the concept of social value, meaning the total economic worth to society, and its comparison to private economic and financial values. The first principle of efficiency pricing is that comparable world prices (cif import of fob export) serve as social values for commodities or inputs that are traded internationally.
Social valuation of domestic factors can be a complicated exercise. The idea is to find the social opportunity cost of each factor, the amount of national income foregone by not using that factor in its next best alternative use.

Several economic measures have been developed for use in these types of calculations. Among them are the concepts of "net protection coefficients" and "domestic resource costs". Recently, Scott Pearson and Eric Monke have developed a Policy Analysis Matrix (PAM), the principle purpose of which is the estimation and valuation of social profits. While the monograph on the PAM comes complete with a micro-computer spreadsheet, the process of estimation is not easy. Pearson and Monke estimate that to complete the analysis for a small collection of key commodities will require one year of time from a senior researcher and two years of time from junior researchers, the three of them working together as a team.

4.6 Important Price Policy Issues in Pakistan

4.6.1 The New Policy Environment

Pakistan's Seventh Five Year Plan offers many important departures from previous development strategies. As part of the planning exercise, a new Perspective Plan has been prepared giving a vision of Pakistan's society, its structure and changes over the next 15 years. This Perspective Plan appropriately recognizes the significant economic, political and social achievements of recent decades which have created a changed development environment. The Seventh Plan is attempting to move the country's economy systematically into this new era.

The policy mix that will be needed to implement the provisions of the Plan must reflect these changes. In the context of the steps laid out in Chapter 3, the first year of the Seventh Plan would be the optimum time for an evaluation of existing policies, leading to the identification of a new policy research agenda.

If considered carefully, the transition from food self sufficiency to food self reliance as macro policy has several significant price policy implications. The food self sufficiency policy assumes unacceptable shortages and the dominant motive becomes one of increasing food supplies. Almost any policy or program that moves production in this direction is accepted short of those causing excessive drains on the government budget or too high a consumer price.

"Self reliance" removes the dominance of the need to increase supply and opens the door to a more balanced agricultural management strategy with policies that can embrace a wider number of objectives. The meaning of "appropriate" in a policy context can now include more attention to issues of efficiency and social costs in the context of world prices, terms of trade between sectors, distributional issues affecting different population groups, exports as well as imports, etc. For the first time, Pakistan seems ready to take serious policy steps toward reducing inequality and stimulating smaller producers, both in agriculture and in commerce and industry.

Even without the benefit of an in-depth evaluation of existing policies, one can tentatively identify several new components to the policy research agenda. We discuss here those that relate primarily to price policy.

4.62 Demand and Supply Response Estimates

Instead of simply trying to drive supplies upwards, government is in the enviable position with many agricultural commodities of being able to adjust supplies up or down as needed using price signals. As they do, quantities supplied and demanded, the need for supplemental food imports and the real incomes of food producers and consumers will be directly affected.

This type of commodity management requires accurate, up to date estimates of price elasticities for both supply response and consumer demand. These need to be built into simple response models so that the effects of price changes on quantities offered and taken can be projected quickly and accurately. Import requirements (or export possibilities) will follow as the residual.

One important unresolved issue in Pakistan is exactly what supply response really means. There is some limited evidence that higher prices do not lead to higher yields through technology adoption but rather merely result is substituting one crop for another. The balance between these two responses is an important consideration for agricultural program and policy managers.

4.6.3 Price Forecasting

Management of commodity flows, into, out of, or within the country requires advance knowledge of likely supplies and demand. For this, an ability to predict prices some months into the future is essential. Pakistan needs a domestic price forecasting model for each major crop. This in turn requires a model to predict production well before harvest. To facilitate the smooth functioning of the private sector, these estimates need to be made public on a routine basis.

To this should be added forecasts of world prices for commodities in which Pakistan is involved in any significant way in the world market. Several sources exist for world market price projections. It is unclear to the writer whether these are systematically being tapped by policy analysts here or not.

In an ideal world, one might suggest that a single point be identified somewhere in a policy analysis body with responsibility for routinely supplying price forecasts based on available international data series and locally constructed models predicting domestic prices. Such a function could serve the needs of both government and the private sector. And in this case, providing this function through a policy analysis unit is probably much cheaper and more efficient that trying to establish a futures market.

4.6.4 Moving Toward World Prices

Changing the domestic price level and degree of instability relative to what they would have been if determined by world prices is the essence of agricultural price policy. But unless price policy is done to offset some failure of a market to operate efficiently, this action distorts domestic prices away from their most efficient levels, which are given by world prices.

Pakistan's domestic prices deviate significantly from world prices in the cases of wheat, edible oil, sugar, cotton and Basmati rice. Table 4.1 below provides one set of recent comparisons. The first column in the table provides the financial cost, or what is actually paid, adjusted to farm gate prices. The second column is the

actual value to society of the commodities also at farm gate levels. The final column calculates the difference per metric ton.

Part of these 1987 distortions apparently reflect the decision to hold certain prices constant even though world prices had seen major recent change. This is certainly the case with cotton where the price paid is right on parity with world prices for 1985. And as mentioned there can be valid reasons for insulating domestic producers from some international price variations. However, one must constantly review this situation and when it appears that the world price relationships have changed permanently, then the structure of local prices may also need altering.

Figure 4.1 provides a rough picture of social losses and transfers. For example, farmers in Pakistan are producing wheat at Rs 1.90/kg when its value to society is pegged at Rs 3.60/kg (import parity). At Rs 1700/ton and with production at 13.93 million tons, this represents a transfer from farmers to consumers of nearly 23.7 billion rupees. Or one can look at this in reverse. Society is incurring a loss of Rs 1700 for every ton of imported wheat that could otherwise be produced locally.

Table 4.1 Comparative Prices of Farm Commodities in Pakistan, 1987

Commodity	Price: Financial	Price: Economic	Economic Price as percent % of Financial Price	Gain or (Loss) per ton
	(Rupees/Kg.)		%	Rupees
Wheat	1.90	3.60	189	1700
IRRI rice	1.35	1.24	92	(110)
Basmati	2.42	5.68	235	3260
Cotton	4.83	3.28	68	(1550)
Sugarcane	0.25	0.16	64	(90)
Oilseed	3.80	4.93	130	1130

Two more serious distortions lie with sugar and cotton. In both cases, farm gate prices are approximately 50 percent higher than the commodity's social value. Both policies constitute a subsidy to the farmer. In the case of cotton, the loss to society is real to the extent of exports. And with sugarcane the transfer comes from domestic consumers.

Two important distortions occur with respect to input prices. One is the underpricing of irrigation water already mentioned. While this may be a price that society is willing to pay for agricultural productivity, it must be recognized that when water is priced extremely cheaply, there is little incentive for farmers to use it sparingly and manage it well. This is complicated in Pakistan by flat rate pricing for each crop under the abiana system. Canal water has no variable cost except for application labor and the farmer is actually encouraged by the price system to over irrigate.

The other major farm input price distortion is the subsidy on fertilizer, much of which is implemented by subsidized prices charged to manufacturers for Sui gas. The use of gas in fertilizer makes the agricultural sector one of the most energy using sectors of this energy scarce economy. If commodity prices are to be gradually brought in line with international prices, whether or not the large subsidies on fertilizer should not also be removed is an important price policy question.

As the borders open up, it must be asked whether the social costs of these deviations are worth the other benefits.

4.6.5 The Perennial Question of Subsidies

Several of the above paragraphs bear directly on subsidy policy issues. In Pakistan, subsidies are almost viewed as a right by farmers and it would seem that government shares that view. Yet subsidies have their social costs and as the economic environment changes, so does the justification for altering relative prices through subsidy. It seems possible that it is time for decision makers to weigh the social costs a little more heavily in relation to private returns in their policy deliberations. There is a significant body of informed opinion in Pakistan today that is calling for reducing, eliminating or at least rationalizing agricultural subsidies.

4.6.6 Cost of Production Pricing

Farmers the world over argue that they are "losing money" and that government should cover the "costs of production". And for years Pakistan along with many other countries have used costs of production as one of the principal factors in setting procurement prices for major farm commodities. Yet there are several good reasons why this is not reasonable economic policy although it may, for a while, make political sense.

First, there is no such thing as the one unique cost of production. The concept supposes that one can take the variable costs of producing an acre of a crop and then dividing it by yield obtain a single cost per unit of output. Yet input-output relationships vary depending on agro-climatic zone, the quality and quantity of fixed resources used in the production process and the technology with which all resources are combined. In a diverse country such as Pakistan, variation in these

factors alone can be extensive.

Second, even for a single crop each farmer faces, not a single productive relationship, but a schedule of technical relationships that reflect his marginal cost curve. Where he chooses to be on the cost curve (his supply function) depends on the price of inputs, the absolute price of the various products from the crop in question and the relative relationship of that crop's price to the price of other possible enterprises.

Third, where farmers are producing strictly for home consumption, their choice of production level and technology may well reflect certain household criteria, such as the desire to ensure that household cereals needs are met from home production, thus avoiding the risks of relying on the market. In this case, all of the price relationships mentioned in the above paragraph are irrelevant because the farmer has set for himself a shadow value that reflects his risk aversion and other factors. It seems likely that 30-40 percent of Pakistan's wheat producers are in approximately this position. An analyst's calculations of costs of production for these farms are meaningless.

Fourth, serious valuation problems exist with respect to inputs provided by the farm household itself. In small farm agriculture, the two dominant inputs are likely to be land and family labor. Yet these are exactly the two inputs for which valuation is most difficult. Land markets are often very narrow with the result that a market price is an unreliable indicator. Economists suggest opportunity costs in this case. But the opportunity cost of land is a function of its next best use, and this value is dependent on the prices received for alternative crops. Thus both international and domestic market events affecting the price of completely different crops can alter the calculated cost of production from year.

Labor is even more tricky. One of the worst indicators of value is the government minimum wage. This value is usually set to reflect a desired condition, not an actual one, and it is usually applied to industry if it is applied at all. Minimum wage levels seldom bear any relation to labor productivity or to actual wage rates in agriculture.

If there is a labor shortage, an effective labor market exists, and the farmer is actually hiring workers, then the market price may serve adequately. However, it will likely show considerable seasonal variation. Further, the effective rural wage, in modern times is strongly affected by the accessibility of off-farm work. This factor will have significant regional variation and will reflect variable socio-economic factors such as caste, education and others.

Even local market wages may miss the mark, over valuing the time of family members who could casually add an extra day or two to farm activities when needed, or under valuing the time of the farm manager. Furthermore, social expectations often set an effective minimum daily wage rate at the village level that reflects the social view of bare subsistence requirements. This daily rate may well exceed the productivity of labor in some uses even though no one will work for less. Thus, economic attempts to price labor using shadow prices generated by

appropriate economic models may miss the mark as well.

The fifth problem with cost of production pricing is a theoretical one. It is standard procedure to assume that the surplus above an appropriate return to variable costs is the returns to land and management. If these are included in cost of production calculations, then over time the method becomes self defeating. Suppose that government calculates the full cost of production and then sets the price level to permit some profits for producers. These profits will quickly become capitalized into the price of land and the imputed value of management with the result that the calculated cost of production rises. If government continues to seek to provide profits in this manner as a farm incentive, the result is a never ending upward spiral of prices and estimated costs of production.

These various reasons suggest that there are much better ways of setting commodity prices than by using cost of production estimates. Probably the most defensible in today's interdependent world is to start with international prices and to make only those adjustments that are absolutely necessary to satisfy certain domestic priorities, keeping in mind clear estimates of the social costs incurred in the process.

CHAPTER 5

DISTRIBUTION POLICY

5.1 Introduction

In the early 1970s, enthusiasm over the production successes of the Green Revolution as a development thrust in India, Pakistan and elsewhere gave way to a serious concern about maldistribution and inequality. The supposedly scale neutral, seed-fertilizer technology had proved to have a much greater impact on larger farms with their ample supplies of high quality, well managed inputs than it had on small farms. Consequently, even these divisible inputs had contributed to greater income growth among the affluent, and thus to widening inequality.

At the macroeconomic level, it was apparent in the mid-1970s that part of the standard theory of economics was not fully applicable to the developing world of that time. In particular, one of the fundamental tenets of economics, the "invisible hand" suggested by Adam Smith to characterize the aggregate guiding impact of expressed individual self interests, seemed to operate to the increasing detriment of equality.

Free rein to the personal pursuit of self advancement may have worked in 1776 when there were relatively few differences in opportunity and in technology in the production process. But turned loose in the Sub-Continent in the 1960s, where the economy was characterized by vast differences in wealth derived from a formerly feudal social structure, and reinforced by a development theory that suggested concentrations of wealth in the hands of a "savings class" were necessary to generate a "take-off into sustained economic growth", these concepts led rapidly to an escalation in inequality. An it gradually became apparent that the "trickle down" process for spreading the fruits of growth just was not working.

Quantitative, cross country comparisons at that time indicated that early economic development usually led to worsening inequality, often significantly so. This phenomenon was apparent in many countries whether or not their growth strategy had been agriculturally or industrially based. Development theorizers began to search for strategies that would embody "growth with social justice" or "redistribution with growth".

Since the subject of maldistribution or inequality in the development process had not previously been accorded much importance, very few data were being collected on a systematic basis. Furthermore, few analysts and even fewer policy makers were conversant with the standard measures of inequality and their meanings in a policy sense. Models were not available to predict the distributional consequences of alternative policy decisions in any detail.

This situation has changed in the intervening 15 years as scholars and practitioners have invested a considerable amount of time and intellectual effort into developing

a theory, analytical methods, and policy tools for dealing with equality issues. Maldistributions have not gone away, although they are being reduced in many countries. Even now, with a more mature science of development, the twin objectives of efficiency (growth) and equity (distribution) remain with us as widely accepted national goals.

Maldistributions can be found throughout society, between economic sectors, social strata and along other lines of cleavage. Maldistributions are deterministic economic phenomena as well, creating cleavages of their own, e.g. rich vs. poor, landed vs. landless, etc. The most frequently discussed are inequalities in asset ownership or incomes, primarily because they are measurable.

Yet, true development requires an equitable distribution of several less tangible factors, such as health, food, access to social infrastructure, employment, pride, self worth, and the general ability to participate in determining one's own future. There is a correlation between the distribution of these intangibles and that for income. But the relationship is not absolute, and in many cases it is not even very close.

In this chapter, we concentrate on distribution and equity issues that intimately involve the agricultural sector. For purposes of discussion, they are separated into those associated with production, those dealing with consumption of food and other farm commodities and those dealing with distributions between producers and consumers.

In the producer case, the issues revolve around who are the primary and subsequent beneficiaries of agricultural development programs. One of the principal means of generating agricultural growth is technological change, a strategy which normally requires major investments from public funds for both research and extension. The resulting technology is thus a public good and the distribution of these goods is a legitimate public concern.

Second, agricultural production programs are rarely aimed at the general farm population without differentiation. More commonly, programs are targeted at producers of certain commodities, or in selected regions, or toward rural groups with particular disadvantages. Thus these programs, by their existence, will have distributional impacts. Monitoring and steering these becomes a legitimate part of program design and implementation.

On the consumption side, the most important distributional issue lies in the adequacy of the distribution of food. In an earlier chapter, the point was made that most, if not all of the world's hunger problem is not a quantity, or even a quality issue. Rather it is a maldistribution problem that can be measured between nations, and within nations between regions, seasons and substrata of the population. The principal reason that food distributions are not more equitable is poverty, the absence of effective purchasing power to command enough food of a suitable quality to maintain health and vitality.

Between consumers and producers, the policy issue is one of the relative

distribution of benefits. An agricultural project that increases the supply of, say, rice through local production can benefit both rice growers and rice consumers but usually not in equal measure. Furthermore, any change in price will affect producers and consumers in opposite ways. Consequences determine a number of rural-urban relative growth and income issues that are important for national welfare.

To repeat an earlier point, after growth per se, questions of the distributional impact of growth are probably the next most frequent concern of politicians everywhere. The balance of this chapter examines these and related issues from the perspective of the policy analyst.

5.2 The Functions of Welfare Transfers

There are two perspectives, passive and active, that appear in the approach to distributional policy. The passive approach is one that accepts maldistribution as undesirable and a consequence to be avoided, but does not seek actively to do anything about it. This may seem trivial, but a common project design or policy evaluation criterion is simply that the pending decision or project must not worsen income distributions.

In economic jargon, this value is identical to constrained maximization, the decision criterion that lets another objective, say rate of growth, be maximized subject to the constraint that income distribution is not worsened. This criterion is almost universally accepted, easy to apply and thus widely used. A reasonable amount of time from policy analysts is devoted to these calculations.

More *ACTIVE DISTRIBUTIONAL STRATEGIES* are difficult to design and implement, but nonetheless necessary in today's political environment. Among the functions that may be achieved with a proactive distributional strategy are the following:

Reducing Relative Inequality: Maldistributions have serious consequences regardless of the average level of income around which they occur. One type of consequence occurs in the economic sphere. Prices in most economies tend to reflect the average buying power among the population. Therefore, maldistributions of income, in which a portion of society falls well below the average, mean that those peoples' buying power is seriously constrained in relation to others. They are poor in a relative sense and constrained by their poverty to only limited economic roles in society. The economy as a whole is less healthy because a portion of the population is not fully participating and aggregate as well as individual welfare is reduced.

At the socio-psychological level, relative deprivation is degrading to the deprived. Unless progress toward equality occurs rapidly enough to be tangible to the depressed, inequalities can become politicized. While this is more likely if relative inequality is severe enough to threaten basic quality of life, it can also occur at income levels well above the starvation level. Both of these reasons, the economic

and the socio-psychological, call for active policy measure to reduce major inequalities where they exist.

Reducing Absolute Poverty: In low income countries, maldistributions push the poor below the threshold which defines an acceptable level of living. Development theory defines incomes below this threshold as "absolute poverty", with the implication that in some important way, e.g. health, nutrition, shelter, the individual's or household's living level is at risk. Global data suggest that several hundred million people suffer from absolute poverty in the late 1980s, that two-thirds of these are in Asia and that one-half of the latter (one-third of the total) are in South Asia. Humanitarian reasons, if nothing else, demand an active strategy to reduce this poverty.

Stimulating Growth: The logic given above in the paragraphs on relative inequality links well with yet another common policy goal, that of accelerated economic growth. If society contains any significant proportion of its members whose economic participation is constrained due to their relative poverty, then aggregate demand is constrained, as are all the other factors that drive the economy, i.e. employment, savings, profits, tax receipts, etc. One of the key justifications for growth strategies emphasizing greater equality is that as poverty is reduced, new demand will be released, new innovations appear and the rate of growth should accelerate. It can be shown that even short-term zero sum redistributions can generate sufficient near-term economic vitality that everyone will benefit, not just the poor.

Targeting Specific Needs: The poor in any country can be identified by various socio-economic or regional characteristics. They will be found concentrated in certain types of jobs, in certain areas, or belonging to certain castes. Whether the basis of their poverty is social, geographic or economic, a more equitably balanced society requires a proactive distributional growth strategy. Achieving this is one of several functions for policy.

5.3 Methods of Changing Distributions

Almost any policy decision will have distributional consequences. There are, however, several common policy strategies which are employed specifically to improve income distributions. These form the basis for analyzing the distributional impacts of policy decisions taken for other reasons as well. *COMMON REDISTRIBUTIONAL STRATEGIES* are discussed only briefly here.

Targeted Productivity Increases: The poor and the rich are separated not only by the quantity and quality of the resources at their command but also by which resources form the dominant source of their incomes. Policies that increase the productivity of one or another resource will have their largest income impact on those households most heavily dependent on that resource. Very basic decisions on whether growth shall be led by gains in the productivity of land, labor or capital have broad implications on who shall benefit from that growth.

In agriculture, large farmers tend to have their family labor plus abundant supplies of land and capital, the latter being used to augment labor supplies, obtain needed technology and increase management skills through education. Small farmers have their family labor plus limited land. Very limited access to capital markets constrains their ability to offset any of these inherent shortages. Proportionally, the small farm household is much more dependent on returns to labor than his larger counterpart. This distinction provides one entry point for distributive policy. This consideration is critically important when seeking to assist landless laborers.

The crop and livestock enterprise mix characterizing small farms will often differ significantly from that of larger farms and even from national averages. Furthermore, small farmers will be using different technologies and different factor combinations. Agricultural administrators can raise the incomes of small farmers if and only if they target technological change and price policy adjustments at those enterprises and technologies actually used by this group.

Increasing Productive Assets Owned: Redistributing productive assets to the poor is one of the most effective means of redistributing incomes. When undertaken as a zero-sum activity, however, where assets are taken away from one stratum in society and given to another, these programs are one of the least feasible to implement from a political standpoint, as Pakistan's experience with land reforms will indicate.

Relative asset redistributions can be achieved by more subtle means. A relative redistribution only requires the assets of the poor to grow faster than those of the affluent. It does not necessitate reducing the latter's wealth or income in an absolute sense.

Provision of social infrastructure for the poor, such as basic education and health, can significantly improve the productivity of their labor and increase their managerial capacity. The simple policy of making extension services available to small farmers can also enhance managerial skills. Both of these measures should raise their long-term welfare relative to others.

A technologically based strategy to change the relative distribution of Pakistan's most important productive resource lies in fractional cusec tubewells as recommended by the National Commission on Agriculture. This would extend the availability of supplemental groundwater resources to smaller farmers. In Pakistan today, this may be the single most important strategy for improving income distributions in the rural sector. And while it will require diversion of some resources into technology testing and extension, power distribution grids and the like, there is ample groundwater in most areas to support such a strategy without threatening current owners of larger tubewells. One beneficial externality (secondary consequence) could likely be a modest lowering of the water table through higher pumping rates with a consequent decrease in salinization and water logging.

Another asset to which the small farmer often has restricted access is the market. Market development through the entry of new firms and increasing competition can only work to remove this resource constraint. Other institutional asset scarcities, such as access to credit or extension services, deserve similar attention.

Altering Relative Prices: Apart from redistributing assets or increasing the productivity of assets controlled by the poor, is the question of the rates at which the individual assets are compensated. Within limits, government has some capacity to alter the relative prices paid for productive inputs and services, and thus the incomes received by the owners of those resources. Minimum wage laws or taxes on capital investment or profits are two common policies used in this regard, although neither has much application to agriculture, except perhaps taxing certain types of labor displacing machinery.

An effective limit lies in the inherent productivity of the resources themselves. Compensating resources above their true economic return involves social losses and can place untenable pressure on government budgets in the long run. This occasionally occurs with respect to minimum wages. The case for altering relative factor prices can best be made when analysis shows that current prices are distorted away from economic optima.

A peculiar situation commonly occurs in agriculture. Around the world, irrigation water is almost always underpriced relative either to its true contribution to production or to the actual costs of delivery. The frequency of this observation and its common justification as supporting cheap food suggests that this policy is not likely to be reversed. The distributional issue arises when this subsidized resource is not equally available to all legitimate claimants. And ample evidence exists that in many irrigation systems large farmers and farmers at the heads of distribution systems command a disproportionately large share of the available water.

Setting Absolute Price Levels: Agricultural production exists as one element in a tightly interwoven economy. The sector is both a consumer of inputs and a producer of consumer goods. Neither input nor output prices can be set with only the agricultural sector in mind since these prices also affect returns to input suppliers, product marketers and processors and the price of food and fiber for the general public. Terms of trade between these various actors are affected by the absolute level at which input and output prices are set. To repeat an earlier point, there is strong economic logic to let these price levels be set in a competitive market. However, there are also reasons why government may seek to adjust these prices upwards or downward. In doing so, they must be aware of the distributional affects of their actions.

5.4 Economic Tools for Distributional Analyses

Distributive analysis deals with identifying differentials between people or groups of people and assessing their implications for policy or programs. Primary differentials occur in the factors affecting incomes and in the disposal of those

incomes.

For distributive analysis to proceed requires a stratification of the population into groups that are relatively distinct and which have political significance. In Pakistan's agricultural sector, farm size and tenancy status have historically been used although it is likely that these classifications are outmoded and need to be replaced. More contemporary stratifiers would include agro-ecological zone, volume or value of farm sales, or the extent of use of certain technologies. Since the current approach to small farm agriculture emphasizes the household as the decision-making unit, selected household characteristics might also be used, e.g. access to off-farm incomes, family size, land:labor ratios within the household, etc.

The analyst then searches for differences between these groups that have policy implications. The distributional analyst, more than any other, operates from the assumption that the most important characteristics in the population are the deviations from the mean. He specializes in identifying that diversity.

Because distribution is a relatively new field in policy analysis, some of the needed data is not routinely collected in easily usable form. The analyst must use imagination in searching for relationships and associations that characterize the poor or limit their advancement. Much of the data base that is needed for distributional analysis is the same as for other policy issues. Only it is must be broken down according to the population stratifications being used. Simple statistical comparisons, controlled for statistical significance, form the principal method. Beyond this, there are a few special statistics that have been designed for examining inequality that will prove useful. The discussion below groups the *GENERIC TYPES OF INEQUALITY ANALYSES.*

Differentials in Assets: Command over various means of production, including family labor and managerial capacity, is the principal determinant of incomes. As discussed above, this can vary widely throughout society, with the poor normally being poor because they have few such resources at their disposal. The first level of research is simply to quantify significant differences in resource ownership between groups. Done one resource at a time, this can be illuminating but normally tells only part of the story.

Under normal circumstances, the poor are disadvantaged with respect to several resources at once while the rich generally are well endowed with multiple assets. To depict the full picture requires developing data on the co-incidence of various distributions. For example, in Lesotho in southern Africa, small farmers were found to be not only limited with respect to their arable area, but they also generally did not own cattle, had the smallest sheep and goat flocks and the least access to off-farm jobs because of their limited family size. Household incomes were lower relative to larger farmers than the distribution of any one resource would have indicated.

Differences in Asset Productivity: Closely related to the above are differentials in the productivity of whatever assets are being used for income. Economic theory states that productivity is related to the relative proportions in which inputs are

combined in the production process. Thus small farmers receive lower levels of output for any single resource because they also have restricted supplies of complementary resources.

For example, grain:nutrient ratios from fertilization may be substantially lower on small farms than on large ones where supplemental water, mechanized seedbed preparation and planting that provide optimum conditions for growth are not available. Thus, fertilizer pricing decisions will likely have a different impact on different sizes of farms.

Different Multiplier Paths: Farm production links with the rest of the economy in three ways, two of which are called multipliers. The first is the case of farm expenditures for goods and services provided by non-farm sectors. This demand creates profits for entrepreneurs and wages for workers in the supplying industries. These economic linkages mean that agricultural productivity and growth reaches out through the economy to stimulate growth in other sectors as well.

However all of agriculture is not homogeneous and the structure of the relevant multiplier linkages will differ form stratum to stratum. Agricultural multipliers are often concentrated within regions with only limited spillovers to more remote producers. Small farms have different input requirements and output mixes than large commercial farmers and will thus stimulate different sectors of the agricultural business industry.

One part of the analysis is simply the linkages between sectors that is normally described with an input-output (or interindustry) model. The second important type of analysis lies in the flow of incomes generated by wage payments in the agri-businesses stimulated by farm output. Again, the distribution of employment multipliers will differ depending on where in the farm sector they originate. These incomes will be received in different measure by the rich and the poor, who will again spend them according to their quite different consumption practices, creating second round multiplier effects in different locations of the economy. There is some evidence from Pakistan that incomes received by the poor tend to multiply themselves among the poor, thus strengthening the effects of redistribution policy.

Whatever the total balance, it is important that these differences in the structure of multiplier linkages be quantified if policy alternatives are to be assessed for their secondary as well as their primary distributional impacts.

Consumption Pattern Differences: The third linkage between agriculture and the broader economy is found through food consumption. Agricultural commodities play widely different roles in the consumption and expenditure patterns of various social groups. Changes in price or supply can have widely different effects on each group. For the urban poor basic unprocessed cereals may account for three-quarters of their total expenditure. A small price rise can have devastating effects on their real income as well as on their nutrition and health. It is critical for decision makers to understand these impacts as they consider policy aimed primarily at agricultural producers.

Analyzing these factors requires quantifying consumption patterns and how they differ from group to group. The main economic parameters include Engel's Coefficients, and income and price elasticities of demand. As with other statistics, these must be developed for each important stratum and comparisons made between them. The principal source of data is likely to be income and expenditure surveys where these are available. The main theory employed is consumption economics.

Measures of Inequality: Economic statistics provides several useful measures of inequality which can be used to describe frequency distributions for factors such as land or income. Three normal statistical measures are used; the standard deviation, the coefficient of variation and the root mean square. More specific for measuring inequality are the Gini Coefficient of Concentration and the Lorenz Curve for graphical presentation. Finally, the entropy index developed by Henri Theil is useful for disaggregating overall inequality in order to discover its principal causes.

A less statistically precise measure, but one frequently employed is relative shares analysis. Since this type of data is preferred by the World Bank, these figures have been estimated for a large number of countries to date. Thus relative shares analysis benefits from the possibility of cross country comparisons which is helpful in identifying excessive maldistributions locally.

Each of these measures has its strengths and weaknesses, not the least of which is that some of them will be completely unintelligible to politicians. Nevertheless, they are an essential part of the process of predicting or quantifying the distributional consequences of policy decisions.

5.5 Current Distribution Issues in Pakistan

In the Seventh Five Year Plan draft, the Government of Pakistan makes the following statements:

a "Although social justice has always been one of Pakistan's considerations in planning, the distributive objectives have generally been subservient to the growth objective." (p. 47)

b "The Sixth Plan made a significant departure from the previous plan in focusing on the poverty issue and planned to provide safety nets to the poorer section of the society." (p.49)

c "The Prime Minister's Five Point Programme is basically a poverty alleviation programme with a largely rural orientation." (p. 50)

d "Disenchantment with growth owing to failure of 'trickle down' mechanism coupled with emerging concern regarding equity in general and poverty eradication in particular has compelled policy makers in the developing world to chart a course of development with equity. Pakistan

has been no exception. Both direct and indirect measures have been taken to achieve a fairer distribution of economic benefits. Redistribution of assets was attempted in the past but it was not much of a success. Wage-price policies and fiscal measures have helped but not to the extent desired. It is by now quite clear that additional measures specifically designed for income redistribution and poverty alleviation, are called for if any tangible results are to be achieved. It is in this context that a specific income redistribution and poverty alleviation strategy is being conceived for the Seventh Plan." (p. 53)

e "--- the distributional aspect of growth has now assumed fundamental importance in the development strategy of Pakistan." (p. 43)

It seems clear that distributional issues will be among the most important types of policy work done in coming years. Specific issues and analysis needs likely to be addressed in the agricultural sector will fall in the following general areas.

5.5.1 Reaching and Assisting Small Farmers

Small farmers have been historically hard to reach with price policy and programs for technical change. They are often only marginally involved in the market and many of them are constrained (by poverty, risk aversion, lack of complementary resources and lack of knowledge) from making full use of the technology that is available. Increasing their participation in growth will require policy changes or new policies in the following and other areas.

Basic Needs Infrastructure: Providing essential health care, literacy, education and nutrition will increase the basic productivity of the one resource that small farmers do have, their own labor and managerial capacity. The Sixth Plan began a process of reorienting government's provision of these services toward rural areas. The Seventh Plan will accelerate this emphasis.

Price Policy Implementation: A significant question exists as to whether the subsidies and allocation signals that are being transmitted through the price system are actually reaching the strata within the rural farm community to which they are directed. An honest evaluation of the distribution of actual benefits from agricultural price distortions (away from world market prices) might be an eye-opener. It seems likely that significant improvements in price policy implementation mechanisms are necessary if the intended impact is to be made on small farmers.

Institutional Reforms: Any time an institutional service is scarce yet valuable and is provided by government as a public good (and thus not legally allocated by market prices), allocation will be determined by illegal payments or exercised influence. Both marketing and extension services remain scarce relative to demand in Pakistan. It must be admitted that the potential for corruption or co-option exists with the result that those without money or power are excluded from their fair share of these services. This point was made several times in previous chapters in the context of market development and increased competition. In the Seventh

Plan, government commits itself to encouraging greater autonomy and economic roles to the private sector and, in fact, has recently announced significant moves in this direction in the agricultural sector. Implementing this macro-policy will necessitate a continuing series of micro- and implementation policy analyses in coming years.

5.5.2 Differential Behavioral Coefficients

For analyzing several of the above issues, it will be necessary to quantify differences in the aggregate behavior of substrata in the rural population. The fact that this is now necessary is another reflection that Pakistan has entered a new development era, where fine tuning policy has become the order of the day rather than merely manipulating whole sectors in the aggregate. At this point in time, policy makers need to know:

a How supply response elasticities differ between farm sizes and agro-ecological zones (tenancy differences are probably irrelevant in this regard). Furthermore, is there a significant difference in the source of the supply response (between yield increases and crop substitutions) from these various strata.

b What are the differences in the structure of household budgets, expenditure patterns and Engel's coefficients, price and income elasticities of demand, and sources of income between large and small farmers, tenant farmers, the landless and other classes of rural residents. This information is critical to differentiating the impacts of price and wage policy changes on the various substrata. To the knowledge of this author, recent estimates of these parameters are unavailable in Pakistan.

5.5.3 Asset Redistribution

The Seventh Plan notes that "Asset redistribution has taken place between agriculture and industry, but in a negative way". (p.48) The document further notes the failure of the land reforms of 1959, 1972 and 1977 to achieve significant results. And a number of thoughtful Pakistani economists feel that land reform is a dead issue at present.

Nevertheless, there is scope for addressing the distribution of certain productive assets in the rural sector. Human capital assets were discussed briefly on the previous page. In the long run this type of investment will be critical for the maturation of Pakistan's society and to eliminate inequities. We also mentioned access to institutional services, which can be seen as assets. Serious inequities continue to exist to the detriment of the already disadvantaged.

Access to groundwater has been mentioned but is repeated here because of its importance. Having already cultivated most of the suitable lands and utilized most of the surface water, there are only two remaining sources of significant, long-term growth in Pakistan's agriculture. One is technology, including not only machinery,

chemicals, and germ plasm but also improved knowledge. The other is groundwater. Technical, pricing and public investment policies designed to extend the availability of this resource to a wider spectrum of farmers will be key issues for analysis well into the next century.

5.5.4 Agricultural Taxation

One of the hottest contemporary policy debates concerns agricultural taxation. The topic has distributive implications in two spheres, both of which will need much analysis before decisions can be made and while new policies are being implemented. On the one hand, an agricultural income tax will partially alter rural-urban welfare differentials. On the other, the extent to which the tax is progressive and whether or not incomes below certain levels, or from certain sources are exempted, can strongly influence income distributions in the rural sector itself. There are, of course, other ways of taxing agriculture besides an income tax. Each will have its own distributive consequences of importance to policy makers.

CHAPTER 6

MANAGING AN AGRICULTURAL POLICY ANALYSIS UNIT

6.1 Introduction

Management is the key to efficient operations in almost any bureaucratic agency. Unfortunately, many heads of government agencies are promoted to their position based on professional training and skill in one or another of the sciences. Few have had exposure to the principles and practice of management before they become managers. This chapter presents several administrative and managerial considerations that unit managers face when trying to direct a policy analysis function. While these points are discussed in the context of a developing country agency such as described in Chapter One and Figure 1.1, most of these comments apply in the developed world as well.

Producing policy analysis is much like any other production process in that it involves combining various **inputs** according to certain **technologies** to produce outputs (**the supply**) in response to the expressed needs (**the demand**) of government or other agencies. Three of these factors, the demand, the technology of producing high quality outputs and the necessary inputs, are discussed below. Communicating results (the delivery portion of the marketing function, to extend the analogy) is the subject of the next chapter.

6.2 The Demand for Policy Analysis

One of the endemic problems with agricultural policy analysis around the world is that the demand for the service is relatively poorly developed, at least at the early stages of institutional growth. In part this is due to the simplicity of the policy issues at that stage as well as the relatively undifferentiated structure of the economy. A second cause, however, is that governments often have not had good policy analysis available and have not come to expect or rely on analysis.

The result is a non-analytical policy formulation process resting heavily on personal influence and subjective judgments, using perceptions rather than facts. It puts a premium on access to decision makers, which is always limited relative to demand, and is allocated by various non-market preference systems that exclude many people. Important externalities are overlooked, major groups of the population are bypassed, and inequality usually increases.

6.2.1 Generating the Initial Demand

One of the first, and most important functions of the leader of an analysis unit is to educate his superiors to the importance and usefulness of the service his agency is set up to provide. At the outset, this is basically a selling job. It can involve

short face to face discussions, more formal briefings and/or short written materials. The emphasis should be on resources and capabilities available and how they might be brought to bear on problems facing those in the audience.

In the language of Everett Rogers' "adoption theory", this exposure can only be expected to lead as far as the "early awareness" stage where potential adopters know something is available and begin to think about trying it. Full adoption will require the adopter to find that the product provides a benefit exceeding its cost and is socially and culturally compatible.

Thus, the second necessary condition for developing a strong demand for analysis is an extra effort to be particularly responsive to the decision maker's desires on the first few assignments. Just as a new firm often provides extra quality on the first lots produced in order to enter the market successfully, so the analysis unit manager should ensure that his clients are more than satisfied with their initial experiences.

When the product is an analytical report, evaluation in the eyes of the client is likely to rest on factors such as 1) accurate, quality methods used, 2) results presented briefly and intelligibly, 3) all important dimensions of the problem anticipated and dealt with, and 4) results delivered quickly.

When the client is a government decision maker, the timeliness factor is of critical importance. One major reason that government officers have little use for economists is that, in the officer's view, the economist always wants to "research things to death" and results are never available by the deadline for a decision. This unfortunate reputation has been well earned by generations of highly motivated policy researchers who sacrificed timeliness for thoroughness. In an academic or research institute setting, the balance might be tilted toward being comprehensive and detailed. But the policy analyst immediately below the political level in government is just as much on the firing line as is the politician.

6.2.2 Sustaining Demand for Analysis

The actual users of policy analysis are human beings, not institutions. While institutions may remain stable over time, the people in them do change. In the Third World this is true for three reasons. First, good people are scarce and will likely be reallocated around government to where they are most needed. Second, upward career mobility is often impossible without changing agencies frequently. Third, the demand for higher education and professional training is very high in low income countries and thanks to the donors, the supply is fairly large also. Middle level managers and professionals, in particular, are likely to be lost on short notice to training from time to time.

The potential for sudden and/or frequent turnover in personnel has important implications for relationship planning by the analysis unit leader. While it may seem comfortable to have the services of one's unit strongly appreciated and well used by one important senior officer such as a Secretary or Minister, if that is the

only point of support, the unit is in an unstable position.

Good institutional practice suggests that any unit should seek to have approximately three entrenched points of support (active users of the unit's outputs) at any one time. It can require as much as eighteen months to develop in a newcomer an appreciation of the need and a demand for policy analysis. Thus to stabilize an institution's role in government, the number of decision maker clients at any one time should equal three plus the number of turnovers that can be expected in a year and a half. Although this is not an absolute formula, it has served as a useful rule of thumb for the author in several countries.

Three other considerations are important to sustaining the demand for policy analysis once it gets established. One, of course, is to maintain a high quality and high volume output. Second, is to maintain an active and responsive contact with clients so that they feel that they have a vested interest in the unit's continued success.

But perhaps most important in developing countries today is to maintain absolute impartiality. Third World governments are only just beginning to use economic analysis as a counterpoint to political influence. This use will continue to grow as long as the analysis function is seen as objective. If, however, policy analysts become co-opted into positions of using their economic tools to support the political ends of one set of clients, they will have earned the distrust of others in the process and the analysis unit, as a whole, will have lost its credibility.

6.3 Supplying Quality Analyses

6.3.1 Process Management

Within limits, research activities can be planned and managed using some of the same tools that apply elsewhere in business and industry. Where timeliness and quick response are important criteria, management of the flow of activities through time becomes a significant activity for the unit leader.

In Chapter 3 it was recommended that an Analysis Plan be developed for each analytical effort that will involve a significant amount of resources. Once approved, this plan serves several purposes. It is a form of contract between the client and the analysis unit, specifying expected outputs and time of delivery. Further, it provides a monitorable schedule of events and preliminary results that serve as the set of expectations against which the analyst works.

It provides a time line that can indicate when the effort is falling behind, or when a new input must be scheduled for maximum usefulness. For those familiar with critical path management (CPM), the timing dimension of an Analysis Plan does exactly that and it should be developed as fully as is justified by the importance given to the timeliness criterion. As stated in Chapter 3, the Analysis Plan is one of the principal management tools for the analysis unit supervisor.

6.3.2 Personnel Productivity Factors

The productivity of any research process is largely a function of personnel management and, therefore, can be significantly influenced by the unit leader. Several factors need to be considered.

Specialization: Economists are fond of talking about the benefits of specialization in the production process and the same concept holds equally for research and analysis. Specialized knowledge speeds up the research process by preventing the analyst from having to learn the details of each problem area or policy issue. Furthermore, specialization of function carries with it the real possibility that the analyst might emerge as one of the more knowledgeable people in the field, one to whom others might turn for ideas and advice. This is one of the strongest incentives for a research professional and should be recognized and encouraged by management.

Both of these logics suggest that the analytical unit be organized and run in ways that permit professional specialization. This can be by economic sector, by commodity class or paralleling the structure of the Ministry of Agriculture which gives a problem area focus.

Incentive Systems: It should not need emphasis but the system of rewards and punishments is very important to unit productivity and in the civil service of a Third World nation, this often requires special imagination. It has been the author's experience that many of the normal and most powerful means of managing people, such as the ability to promote within an agency, to raise salaries for excellent performance or to terminate services for unacceptable work, are pre-empted, either by civil service rules or by social or political influences operating within the institution.

In place of the standard Western system of rewards and punishments in the office place, what other means does the unit manager have at his disposal? One incentive flows from specialization, as discussed above. Another can result from the allocation of training facilities to reward exemplary performance. This is excellent managerial policy simply because a person who performs well in the office is also likely to benefit most from investments in further training.

Another possibility lies in year-end bonuses or cash awards. These are occasionally possible, even in developing countries, because they do not obligate the recurrent budget in the long run in the same way that a salary raise would. Small celebratory functions, such as a special tea or an office-sponsored dinner, to commend completion of significant pieces of work are also useful.

Another powerful incentive in a society where personal connections are very important is to see that good work results in exposure of the researcher to influential individuals, thus broadening the researcher's network of personal contacts.

Of special interest to researchers and analysts is authorship, the right to put one's name on a significant document and claim some pride of ownership. Bureaucracies often disapprove of this and thus remove one of the primary factors that motivates professionals. In the context of developing country agencies, authorship has special benefits in that the donor community is especially tuned in to published materials and a job well done can result in foreign contacts that can be very stimulating and maybe helpful either on the job or later in training.

Building Morale: Most important, however, is the morale and esprit de corps that prevail in the daily office environment. The analyst needs a clear sense of direction. Much of this will occur naturally as long as the unit is involved in a viable research agenda (see Chapter 3) and the demand for their output is clearly legitimized as discussed above. He also needs to feel that his role and contributions are important. When he does, he develops a sense of ownership based on his valued participation and his commitment to the program will rise.

A small but important factor is the adequacy and competence of the support staff. Productivity of a professional analyst is seriously impeded if he cannot get typing, copying, calculating or file work done quickly or well.

High morale also depends very much on the attitude and commitment of the boss, whether he takes the welfare and careers of his employees to heart, whether he treats each fairly, whether he is professionally competent in his own right and whether he is decisive and accurate in his leadership. These latter factors are as much art as they are science and managers that display all these abilities are rare indeed. However, they are points for consideration by top management when selecting the unit leader for a policy analysis function if they want to achieve maximum effectiveness from this function.

6.4 Inputs Needed for Effective Policy Analysis

Once the demand for policy analysis and the capability to produce it are in place, certain inputs are needed to begin and sustain work.

6.4.1 Professional Skills

The first prerequisite is analytical skills. If the professional staff of the analysis unit are not sufficiently trained, the first order of business is to build and implement a manpower development plan for the unit. Such a plan is not only necessary to obtain the needed skills but serves as a major incentive to the staff as they see possibilities for further training in the future.

The manager faces a dilemma in that long term training requires his staff members to be away from the job for an extended period. For the near term, some reduction in unit productivity may be a necessary cost to pay.
Equally important, and often forgotten, is the fact that professionals need to continue to grow intellectually, to learn and to enhance their skills even after they

have obtained their terminal academic degree. If they can't, boredom and a stifled intellect result with a consequent reduction in their job performance.

The answer lies in recurrent exposure to new ideas through frequent formal and informal learning experiences. The formal mechanisms for accomplishing this include attending seminars, professional association meetings and similar events. Less formally, most research oriented individuals get considerable stimulation simply from the chance to seriously exchange ideas with other scholars or practitioners. Sitting in on high level meetings where front line policy is being discussed, or simply talking through a new computer program or a recent journal article with a colleague can be a positive professional learning experience. The skilled manager recognizes this and facilitates (even requires) it frequently.

6.4.2 Data Inputs

It is sad but true that most Pakistani analysis agencies are out of touch with the full range of data available to them. Analysis unit managers can, with little effort, remedy this situation with a significant impact on productivity and morale.

Routine receipts of published products of all relevant secondary data sources need to be ensured. Delegating this function to a staff assistant and then providing necessary guidance can save countless hours of professional time spent chasing after fugitive data.

Similarly, close and recurrent contacts are needed with the specialized research agencies, including the donors, which generate a considerable volume of basic analyses each year. Not only does this contact ensure that this literature is continuously available to the analysis unit, but new ideas and methods are exchanged as well. Facilitating these contacts is management's responsibility but the manager makes a mistake if he seeks to monopolize these contacts to the exclusion of his professional staff.

A common problem in Third World government agencies is that data sources quickly disappear into the files or private collections and are thus not available to all the staff that might need them. A library function or other form of repository can be a useful counteractive measure and one that does not require much more than special training for a secretary unless the collection becomes substantial. In the case of key references of frequent use to several people, an extra effort to procure desk copies for everyone will be appreciated.

These may seem like little things. However, in eight years of policy analysis at both the provincial and national levels in Pakistan this author has found these "little things" often to be major headaches.

6.4.5 Computational Capability

In 1980 the following observation would not have been made and even in 1985 it would have been improbable. But, in 1988 no agency can call itself a functional analysis unit unless it has in-house access to computers. This does not mean

mainframe computers, for today the need for these has become restricted to very specialized, high powered computational needs.

Almost all the policy analysis computational needs of any developing country for the rest of this century can be handled with desk top computers and software that are on the market today. And the prices for given machine capabilities continue to drop so that several adequate desk top machines are well within the recurrent budget capabilities of most local agencies. Furthermore, the donors have proved themselves a ready source of this equipment.

One does not need programming skills within the staff. Software today is increasingly "user friendly", so much so that most people who have the qualifications to be in economic research can learn the software packages quickly. In those rare instances when a special application must be programmed, there are programmers for hire in most capital cities.

One does, however, need people who know what to do with numbers, how to read and interpret standard statistical outputs, when to use different types of calculations, etc. At this point in Pakistan's history, the supply of skilled economic analysts, especially in the field of agriculture, is much more the limiting factor than the availability of computational equipment. Unfortunately, while the machines and programs are available, they are not widely in use in government agencies, even those charged with economic analysis.

CHAPTER 7

COMMUNICATING RESULTS TO POLICY MAKERS

7.1 The Need for Communication

Policy analysis has a specific goal: to use economic methods and empirical information together in ways that will assist policy makers in choosing among alternatives. Methods are interesting in their own right because they impose economic logic and consistency to aid the understanding of economic phenomena. Economic models and tools are a way of systematic thinking about an issue.

But policy analysts typically need more than logical frameworks for thinking about policy transfers. Data need to be assembled for principal economic activities and then analyzed within the logic of economic method. In this context, policy analysis serves an empirical function: to organize, analyze and interpret information. Selection and application of appropriate methods of analysis, therefore, are two essential steps in carrying out policy analysis, for agriculture or for any other sector of the economy.

Two further tasks, interpretation and communication, remain for those whose job it is to carry out empirical analysis. The first of these, interpretation of the results within the context of policy environments, is done at two levels. The first is to understand the technical meanings and implications of the results. The analyst, as an example, needs to have a clear understanding of what negative social profits or positive net transfers actually imply for an agricultural system.

The second level of interpretation is to understand the lessons that can be drawn from analytical results in order to aid the assessment of alternative policy choices. If the analysis for an agricultural system indicates the existence of high private profits because of very large positive policy transfers that more than offset negative social profits, the analyst needs to investigate who would gain or lose from policy changes and whether any non-efficiency objectives are aided enough to justify the efficiency losses. To carry out this second kind of interpretation, as [1] noted with small modifications from Scott Pearson and Eric Monke. The Policy Analysis Manual, The Pragma Corporation, Washington, D.C., 1987, the analyst needs to think in exactly the same terms that the careful policy maker would do to assess trade-offs among government objectives in policy analysis.

Still, the work of the policy analyst is not yet completed. A final task remains on the agenda. The results and their implications have to be communicated effectively to the policy makers. No matter haw appropriate the methodology, how accurate the empirical information, and how complete the interpretation of results, all of the analyst's work will be in vain if those who make policy decisions are unable to understand it. This process of communication of the method, data and results of policy analysis is done both in writing and orally.

Policy memoranda (memos) and oral reports are essential aspects of good policy

analysis. If done effectively, they are the basis of developing strong working relationships and mutual trust between economic technicians and policy makers. Ultimately, economic analysis will only be used importantly by policy makers if they are convinced that it has been done correctly, has been based on all available information and has been interpreted in relevant ways to illuminate the choices they face. Effective communication, therefore, is a critical final step of policy analysis.

The purpose of this chapter is to assist the analyst in this step. The two following sections offer practical suggestions for effective writing of policy memos and clear presentations of oral reports. The concluding section argues that methods and presentational techniques should be designed together.

7.2 Effective Writing of Policy Memos

Skills in written communication are an important aspect if effective agricultural policy analysis. Some analysts are very good at the first three parts of policy analysis, understanding methods, collecting information, and interpreting results, but their effectiveness is nevertheless limited because they are unsure how to explain results to policy makers. This inability to write a good policy memo is only partly caused by the analyst's lack of skills in the use of language. Instead, it is often an inability to state information in ways that are easily understood by policy makers. This problem is not restricted to policy analysts. In all walks of life there are good minds whose influence is constrained by their ability to communicate.

Policy makers as a group are busy people. Most have not studied economics at all (or lately), and some seem to feel that economics and economists exist more to cause problems for them than to help them make better informed decisions. Only the few highly trained economists among them have any patience with technical economics jargon, and usually the small subset of policy makers who have been formally trained in economics are the only ones who receive much intellectual excitement from understanding the intricacies of economic methods. For most policy makers, therefore, an inherent distrust of economics combines with an intense dislike of economic jargon and methods. This situation puts an economic analyst at a severe disadvantage. Analysts in these common circumstance have a particularly strong need to be able to communicate clearly, or they may be ignored.

What is it that busy policy makers would like to see in their policy memos? Analysts might imagine themselves in the positions of policy makers to whom they report to help answer this question. Basically, very busy people, who need to make decisions often, usually seek four common dimensions in a policy memo; 1) brevity, 2) clarity, 3) comprehensiveness, and 4) organization. Each policy maker will have his or her own style, but almost all will prefer that the length of their policy memos be in the range of five to ten pages (typed and double-spaced). Writing concisely and clearly is much more difficult than writing without any page limits. (There is an old saying that goes "I would have written your a short memo. But I did not have time, so I wrote you a long one.")

Brevity and clarity in composing policy memos are aided by using consistent principles of organization. Busy policy makers want to be sure that all relevant topics are covered in a logical order. For this reason, analysts are well advised to adopt a standard format to use in writing policy memos. One such suggested format for presenting the essential elements of policy memos is summarized in Table 7.1. The remainder of this section discusses each of the seven elements of this format. By following this organization for policy memos, analysts who should be able to improve the clarity of memos while shortening the length of them.

Table 7.1 Essential Elements of Effective Policy Memoranda

1 Policy Issues: brief statement of a) the specific policy issues to be addressed in the memo, b) the aspects of the issues that the analysis covers, and c) the wider policy context within which to view the specific policy under consideration.

2 Methods of Analysis: intuitive summary of a) the basic logic of the method of analysis to be used, b) why the method is appropriate for the particular policy question being studied, c) how extensively the method has been applied in academic analyses and in policy analyses, locally and abroad, d)the principal strengths and limitations of the method, and e) the main qualifications that use of the method entails.

3 Information Needs: summary listing of a) the essential data required for analysis, b) complementary information that assists interpretation of results, but is not absolutely essential, c) assumptions used for exogenous parameters or missing data, and d) historical information to provide an interpretive context

4 Interpretation of Results: full explanation of a) the results obtained from analyzing the empirical information in the context of the selected method, b) the sensitivity of the base case results to changes in key data, parameters, or assumptions, c) the meaning of the results within the selected method and within the context of the policy issue being studied , and d) qualifications of the results arising from limitations inherent in the method selected and missing information.

5 Implication of Results for National Interest Groups: brief summary of a) the policy choices, which are usually to continue the status quo, do more, or do less, b) the likely gainers and losers from each of these choices, c) approximations of the likely size of gains and losses for principal interest groups, d) the main government objectives that would seem to be furthered or harmed by the policy choices, and e) an estimate of magnitude of the likely trade-offs between government objectives associated with each of the policy choices.

6 International Consequences of the Results: short discussion of a) rough magnitude of the impact of the alternative policy choices on the country's quantities of import demands or export supplies of affected commodities, and on the levels and instabilities of world prices of those commodities, b) likely impact of the policy choices on international flows of capital or labor, and c) likely effects of the policy choices on the country's current and likely future obligations to international organizations, both multinational and bilateral.

7 Summary of the Pros and Cons of Policy Choices: single paragraph executive summary that a) highlights the lessons of the empirical analysis, b) states clearly what the analysis contributes to the policy debate, c) identifies the likely consequences for interested parties of each of the alternative policy choices, but d) does not offer any recommendations on selection among the policy choices.

7.2.1 Policy Issues

The first suggested element in a good policy memo is a brief, but clear, statement of the specific policy issues that are being addressed. This statement then needs to be both narrowed and broadened. It is narrowed by clarifying the exact aspects of the issue that can be addressed in the analysis, and it is broadened by stating how the specific issue fits into the wider policy context. It is important to be very clear about the limits of the analysis and where the results fit into the bigger picture. This task is best done in one long or two short paragraphs, requiring less that one page.

7.2.2 Method of Analysis

The next entry in the memo is an intuitive summary of the method of analysis that has been used to generate the results. This section is often the hardest one for analysts to write effectively because they tend to tell policy makers far more than they want or need to know. Analysts should remind themselves that this in not the place for lectures on economic principles. This part of the memo, above all others, must be clear and brief; otherwise, policy makers will be forced to take the results on faith--since they will not have been able to understand how they were obtained--or to ignore the whole exercise. Hence, the memo-writing analyst faces a balancing act: write just enough about method, but not too much.

How much is enough depends in part on the complexity of the method as well as the education and specialization of the client policy makers. As a general guideline, the entire discussion of methods of analysis should not take up more than one page. It should normally cover the five components outlined in Table 7.1.

The first two are the most important. Even though the policy maker probably is not interested in technical details, the basic logic of the method and why it is appropriate for the specific policy question being studied should be addressed.

Stating these two things briefly can be a very difficult task; the very best teachers of economics often require several years before they understand methods well enough to explain them in simplified terms. If the analyst has trouble being brief yet lucid at this point, he might want to seek the assistance of those who have had more experience. The explanation needs to be presented in common sense logic or it will fail.

The three other parts of summarizing the method are more straightforward. Policy makers should be told whether the method is well known, fairly standard or experimental; what strengths and weaknesses of the method will influence the results for the specific policy in question; and what qualifications are usually made to results obtained with the method. The discussion in this part should focus solely on method and not anticipate the results that will be reported later in the memo.

7.2.3 Information Needs

This section is perhaps the easiest to prepare because it is rarely difficult for policy makers to follow a discussion for information needs. There is sometimes a temptation for analysts--perhaps those whose main interest is in field work and data collection--to write excessively about details. The rule, again, is to tell the policy maker only as much as he needs to know. But since the results from the analysis are only as good as the information used to generate them, policy makers do need to know enough detail concerning data inputs so that they can have confidence in the results. This section, therefore, can cover as much as two pages.

It is helpful to divide information needs into four categories. The most critical of these are the data that are essential for the analysis. In all economic methods, certain kinds of data are so important that they "drive the system" since the results depend fundamentally on them. If category one data are unavailable, the method cannot be used. The second kind of information is that which assists interpretation of the results, but is not required simply to apply the method. If category two data cannot be found, the method can still be used, but some of the richness of interpreting the results is lost. Policy makers also need to hear briefiy about a third kind of information--that being the assumptions used for parameters that are entered from outside the method, and what procedures the analyst used to substitute for missing data. Finally, it is desirable, though not always essential, to provide policy makers with historical information to help them place the results in a broader context. Often, they will already have this kind of background information.

7.2.4 Interpretation of Results

This section is located at the center of the policy memo appropriately, because it is the central part of the exercise. Here is where the analyst explains what the results are and what they mean for the issues under study. This process needs to be done carefully and can require up to two pages (or even more for larger

studies).

Experience points to a four-step procedure in setting forth and explaining results of policy analysis. The first and most obvious is to catalogue the principal results obtained. The trick here is to scale down the mass of possible results and to report only those that will be specifically used in the policy discussion. Usually a second category of results comes from carrying out sensitivity analysis, that is, changing key data, parameters, or assumptions to study the affects on major results. A third and more difficult task is explaining the meaning of the results, first, in the context of the method, and then relative to the specific policy issue. This requires focusing on the results from the viewpoint of information and insights that policy makers will need to make better decisions. To this same end, the fourth kind of interpretation is to qualify the meaning of the results by pointing out inherent limitations in the method or of missing information. The purpose is to let policy makers know how much faith they should have in the results.

7.2.5 Implications of Results for National Interest Groups

This section is an extension and summary of the results that draws several lessons which policy makers typically require. Five steps are suggested: 1) review the policy choices, 2)point out the likely gains and losses associated with each of the main choices, 3) make rough estimates, if possible, of the magnitude of the gains and losses for each of the principal interest groups, 4) identify the primary government objectives (efficiency, income distribution, food security) that would be affected positively or negatively by the policy choices, and 5) sketch estimates, where feasible, of the size of the likely trade-offs between government objectives associated with each of the policy choices. The purpose here is to clarify the impact of policy change on political interest groups and on government objectives. It is not desirable for the analyst to include any of his own value judgments about what he feels are good or bad outcomes. The task of the analyst is to make objective evaluations of the likely impacts of potential policies. The policy makers then must choose among alternatives.

7.2.7 International Consequences of the Results

This section is especially important for countries that are large traders on international markets and key actors in the international economy. It is less critical for small developing countries that are price takers in world markets and that generally follow rather than make international economic trends. Still, all countries need to be concerned about the international consequences of their domestic policy actions.

Policy makers need to be warned if domestic policies might have negative international effects. What is suggested here is a very brief summary--only one paragraph unless the international effects are unusually large. The summary might contain references to three possible kinds of international influences: 1) international trade effects and consequent impacts on world prices, if any; 2)

international factor effects (foreign investment and labor migration); and 3) effects on international diplomatic obligations, including consistency with membership in international organizations and impacts on bilateral foreign policy.

7.2.7 Summary of the Pros and Cons of Policy Choices

The executive summary should consist of a single paragraph aimed at exceptionally busy people in the very highest ranks of government. It should state the essence of the policy memo. Like the body of the memo, it should not offer any recommendations as to selection among policy choices. The executive summary should focus on three topics: 1) lessons of the empirical analysis, 2) contributions of the analysis to the policy debate for the specific issues being addressed, and 3) identification of the likely consequences for interested parties of each of the alternative policy choices.

7.3 Practical Suggestions for Effective Oral Presentations

In ideal situations, policy analysts have ample time to finish and interpret their results, to prepare a complete technical paper describing their work, to write a careful policy memo along the lines suggested in the previous section, and, finally, to make an oral presentation of the analysis. This ideal is often not realized in busy planning agencies, especially those that are overworked and understaffed. But even when corners must be cut, the progression usually follows roughly the same order; from method, to data, to analysis, to results, to interpretation, to technical draft, to policy memo, to oral report. Even if that ordering is altered, e.g., if oral reporting precedes some of the writing, the suggestions offered in this chapter should be applicable.

Much of what needs to be done to prepare for effective presentation of oral reports is identical to what has just been reviewed for written presentation of policy memos. The substance of the analysis is, of course, the same whether one presents the story on paper or aloud. Therefore, if the analyst is forced to make an oral report before he has had time to write up his policy memo, he should follow the substantive outline set out in Table 7.1. The seven headings--issues, method, information, interpretation, national implications, international consequences, and summary-- serve to organize oral reports equally as well as memos. Substantively, therefore there are no real differences between written and oral presentations. Oral reporting requires some additional handouts and other presentational aids.

7.3.1 Handouts

Handouts, as their name implies, are materials that the analyst decides to give to those listening to his oral presentation. A well-organized speaker will put together a carefully selected set of materials in advance of the talk and then make enough copies of the packet of materials to satisfy the expected number of attenders at the

presentation. The packet of handouts is then used as a briefing aid during the presentation.

What should the packet of handouts contain? Candidates for inclusion are an outline of the material to be presented, explanatory notes covering informational or technical details, and tables, charts or figures that illustrate data inputs or results. Outlines are nearly always a good idea. Their obvious advantage is to provide a clear road map of where the oral report is headed. The only disadvantage of using outlines is that they often make it clear when the analyst is poorly prepared. But these problems are reduced with an outline since the outline also helps guide and structure the analyst's preparation as well as his presentation.

The use of explanatory notes and tables, charts, and figures is less obvious. Inexperienced speakers sometimes hand out lots of these materials in the hope that doing so will allow them to avoid unnecessary detail and get to the main points. More often the opposite occurs; curious (or occasionally bored) listeners ask endless questions about the handouts, and the speaker becomes hopelessly mired down in the details that he had hoped to avoid. The lesson, then, is to hand out explanatory material only if one is prepared to take the time to discuss and defend it. Those who truly want to assist the analysis will usually be willing to read written materials and to sit down privately with the analyst. The others, regrettable, are often there to "score points" for themselves or their agencies. Too many handouts, therefore, cause problems for a speaker because they encourage peripheral questions that consume precious time and, sometimes, create unnecessary embarrassment when detailed queries cannot be answered.

In presentation of econometric results, it is usually a good idea to hand out a fairly detailed outline of the talk, perhaps one page (typed and double spaced) per hour of presentation, a figure or diagram that summarizes the method, a table that summarizes the main data used, but does not include all of the detail, a table that covers the international relationships such as world prices and tables, charts or other appropriate material summarizing the results. When several alternative policies have been compared, a summary table listing the main comparative findings should conclude the handouts. The degree of detail needs to match the policy issues addressed and the length of time available for the presentation.

7.3.2 Other Presentational Aids

The foregoing materials need not be copied and handed out if visual aid equipment is available. Some speakers prefer to use overhead projectors and transparencies to assist their presentations. Others use the visual aid equipment but also hand out the materials that will be screened during the talk. This allows the speaker to refer easily to the materials and the participants to have their own copies for reference during and after the talk. This is especially important if a decision is not to be taken during the meeting but will be taken later after the policy maker has had time to reflect on the policy presentation as well as consult other sources of input.

One of the most common presentational aids is the chalkboard. Effective use of a chalkboard is a far more complicated task than is apparent to most. Inexperienced speakers are generally better off if they concentrate on handouts (complemented with overheads at times) and use chalkboards only very occasionally. Using chalkboards well requires much more than being able to talk loudly and to write legibly; it requires excellent organization and advance planning. If the speaker is sufficiently secure in his knowledge of the material to be presented and adequately experienced in developing his argument sequentially, use of chalkboards can be an extremely effective means of communication. Detailed chalkboard plans are put together instead of speaking notes, and participants will marvel at how the desired material is always available as the talk progresses whereas only the unneeded has been erased along the way. But this skill is one that only the best professional lecturers have developed. Policy analysts whose jobs require oral reporting only on an irregular basis are better advised to use handouts, not chalkboards.

Virtually all speakers prepare and use speaking notes to guide their talks. Those who are very unsure of their material sometimes write out the entire talk before presenting it. Some even read their written speeches when giving reports or seminars. For policy analysis, reading aloud is almost always a bad approach, perhaps only one person in twenty sounds more convincing while reading than he does while speaking.

At the other extreme are those who are very confident about their material. Often they will write their technical papers and policy briefs, carefully prepare a detailed outline, put together a packet of handouts, and never bother to use any notes during the presentation. This confident approach is impressive (if it works), but it is also very risky. Until policy analysts gain ample experience in both economic analysis and oral presentation of results, they should follow a middle road on using notes. This means preparing notes on a modest number of points to ensure that none are forgotten and that they are given in the desired sequence. Notes may be needed to amplify key items in the presentation where accurate detail is needed in the oral presentation. Generally, confident, experienced speakers have such notes in their hip pocket, even if they never have to use them.

7.4 Designing Research and Communicating Results

An appropriate way to close this chapter is to highlight a critical relationship in effective policy analysis. Appropriate choice of research methods is the first step in actually doing policy analysis, careful compilation of relevant information is the second, and correct interpretation of results in the context of policy choices is the third. Without good research design, therefore, the analyst has no story to tell. But that story needs to be heard by the policy makers or all of the research work will have only academic value.

This chapter has focused on the essential need of communicating results for effective policy analysis. If both the design of research (the first three steps) and the communication of its results (the fourth step) are equally essential, the

relationship between design and communication should be recognized from the start. Research designs need to be simplified so that their results can be easily communicated to nontechnical policy makers.

For this reason, this manual has stressed only simple types of economic concepts and relationships. Most policy questions can be addressed without extremely complicated econometric models. In fact, if the economic relationships are so complex as to require a great deal of analytical complexity to discover and specify them, one might suggest that they are also too complicated to be clear enough for straightforward policy decisions anyway.

APPENDIX

Illustrations of Policy Memo Elements (Hypothetical Case)

1 **Policy Issues**

a Our government is considering whether to allocate a substantial amount of agricultural research resources into the development of high-yielding wheat varieties for the good soil areas of the southern region.

b This memo summarizes the results of research that measured the degree of efficiency and effects of government policy on the existing technology for producing wheat in the target zone.

c These research results need to be complemented by similar analyses of the existing efficiency of other agricultural systems and of the potentials for cost-reducing technological improvements in those systems so that the government can allocate its agricultural research resources most effectively.

2 **Method of Analysis**

a The method of analysis used to measure the efficiency and effects of policy for the good-soil, southern wheat system is the policy analysis matrix (PAM), which measures profitability in actual market (private) prices and in efficiency (social) prices.

b The PAM method thus shows the actual revenues, costs, and profits that southern wheat farmers and millers are experiencing and those they would realize if they received sales revenues and paid costs of production based on prices that would allocate resources most efficiently.

c Variations of this method have been widely used in both academic studies locally and abroad and in policy work in international aid agencies and agricultural research centers. However, this study is the first one based on PAM in this Ministry.

d The principal strength of PAM is that it gives measures of the economic efficiency of existing agricultural systems and of the effects of policy on those systems. Its main limitation is that its results are for a base year and thus need to be altered as principal parameters (such as world prices of outputs and inputs, wage rates, interest rates, as well as farming and processing technologies) change over time. The method, however, can readily accommodate such parameter changes.

e The PAM efficiency measure, social profitability, is a requisite first step in the analysis. The next steps are to examined how much improved wheat technologies, developed with the research expenditure, might

increase yields or save on inputs and thus reduce per unit costs, and to contrast those results with similar studies for other systems that could benefit from more agricultural research.

3 **Information Needs**

a The basic information required for PAM analysis comprises budget data (revenues and costs), broken down into prices and quantities for a representative wheat farm in the good-soil area of the southern region and for post-farm marketing and flour milling, world prices for products or inputs that are either imported or exported, and estimates of the efficiency values of wage and interest rates.

b The basic PAM data need to be complemented by anticipated future changes in the budgets (related to the; newly developed technologies), world prices, and factor (labor and capital) prices.

c The budget data are complete and reliable, because they were compiled from agricultural census data, farm group information, and field surveys. The principal assumptions are that the social value of capital is 8 percent plus the rate of inflation and that the social value of skilled labor is 23 percent less than the actual market wage rate, reflecting taxes for pension contributions paid by employers.

d No complete historical budget data for this area are known to exist. The current representative technology has spread gradually through the region during the past two decades.

4 **Interpretation of Results**

a In the base year (1983), the representative wheat system was very profitable; private revenues were 27.42, private costs were 16.92, and thus private profits were 10.50. Profitability was maintained at social prices. Social revenues, 22.79, were 4.63 less than private revenues because of import quotas on wheat; social costs, 19.76, were 2.84 above private costs mainly because of subsidies on fertilizers and credit; and therefore social profits, 3.03, although positive, were 7.47 less than private profits.

b Projections to 1995 were made, using various assumptions about future world prices and factor costs, and the wheat system remained socially profitable under all reasonable sets of assumptions. No changes in technology were projected, because that analysis awaits information from agricultural research.

c Two principal lessons emerge from these results. First, the current system operates efficiently and so all increases in social profit, arising from new agricultural research, will be net gains to the economy. Second, government policies--the import restrictions on wheat and the subsidies on fertilizer and credit-- are resulting in excess private profits

for good-soil wheat farmers.

d The efficiency results appear robust because they are based on complete data and because they were realized under a wide variety of assumptions for key variables.

5 Implications of Results for National Interest Groups

a The policy choice is whether the government should decide to allocate new research funds for southern region, good-soil wheat.

b The main beneficiaries of successful research results would be the wheat farmers and to a lesser extent the flour millers in the target region. These farmers have farm wages and incomes that are currently among the highest in the country. These farmers are already benefiting from agricultural price policies affecting wheat and inputs (see 4. above). There are no obvious losers, other than taxpayers or those who would benefit if the research funds were spent elsewhere.

c The size of the gains for wheat farmers in not yet estimable because no new budget data are now available on potential revenues and costs for the ;new technologies to be developed with ;the research funds.

d Successful research on wheat for the target area would likely advance two objectives of food policy but probably not the third. It would improve the efficiency of an already efficient system, and it would increase the productivity and reduce required imports of one of the country's staple foods and ;hence probably further food security. But the income distributional effects are not likely to be positive, because the technical innovations would aid mainly large, well-off farmers who employ capital-intensive, production technologies.

e The policy trade-off is thus to compare gains in efficiency and (probably) in food security with costs in income distribution. The decision will depend on the results of similar analyses for other commodities, technologies, and regions.

6 International Consequences of Results

a Successful research is expected to reduce recent levels of imports of wheat by up to one-third or about a 150,000 metric tons. This result is not expected to cause problems with the country's foreign wheat suppliers or to have any noticeable impact on price levels or variability in international markets.

b A marked expansion of domestic wheat production is not expected to have any important impact on foreign investment or on ;international flows of migrant laborers.

c No negative consequences for the country's foreign policy are anticipated. Investment in agricultural research to develop new technology creates no large conflicts, except for some unhappiness among wheat exporters abroad. The new research, if approved, would be done in collaboration with CIMMYT (the International Center for Maize and Wheat Improvement an international body located in Mexico)

7 **Summary of the Pros and Cons of Policy Choices**

a Wheat in the good-soil areas of the southern region is currently produced efficiently. Farmers there could earn profits even if they did not receive the transfers from existing policies that substantially protect wheat prices and subsidize fertilizer and credit.

b The government is deciding whether to allocate large new amounts of agricultural research resources to improve gook-soil wheat production in the south. Because the current production system is efficient, all gains from newly discovered or adopted wheat technologies will lead to increases in national as well as wheat farmer incomes.

c Allocation of public funds for successful wheat research would thus increase economic efficiency and probably improve the country's food security as well. But most of the benefits would accrue to farmers who are already among the best off in the country. Similar analyses of the extent and distribution of gains from research need to be carried out to assure the best allocation of funds.