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9. ABSTRACT

In Part I (Chapters One and Two) of this volume we described and analyzed the human baseline, consisting of demographic and cultural patterns. We have paid particular attention to urbanization and migration and the relations between the urban and rural areas. We used planning relevant criteria in a culture cluster analysis to identify distinct groups in the region and pointed out the importance of taking the cultural patterns of these groups into account in any plans and strategies.

In Part II (Chapters Three to Eight) we examined different levels of decision-making, and different types of resources available for the implementation of any plans of action which might be developed.

In Part III (Chapters Nine and Ten) we explored the human factor in ecological construction in broader terms than decision-making and implementation. We reviewed the vicious circles of poverty characterizing the region, presented a summary of the agro-ecological strategy (ISYALAPS) and discussed some of the socio-political implications for breaking the "three circles" of poverty and for evaluating the practical dimensions of the ISYALAPS strategy.

In the concluding section of this report we have summarized our analysis and findings. We have also included a rather extensive bibliography. The appendix to this annex provides the data base for much of the analysis in the report.

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A FRAMEWORK FOR EVALUATING LONG-TERM STRATEGIES FOR THE DEVELOPMENT OF THE SAHEL-SUDAN REGION

Annex 4

SOCIO-POLITICAL FACTORS IN ECOLOGICAL RECONSTRUCTION

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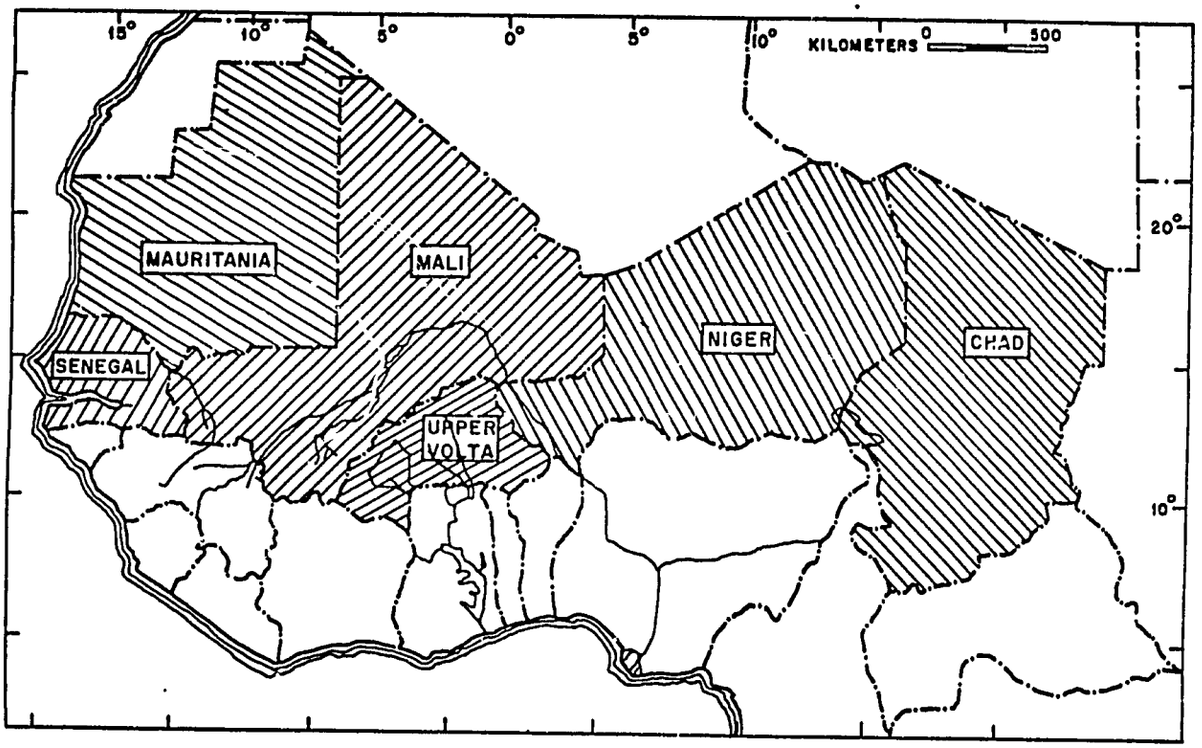

Volume 1. Summary Report: Project Objectives, Methodologies and Major Findings

Volume 2. ISYALAPS, A Framework for Agricultural Development Planning

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The contents of this report reflect the views of the Sahel-Sudan Project at the Massachusetts Institute of Technology and do not necessarily reflect the official views or policy of the Agency for International Development.

FOREWORD

This report results from a one-year effort by a multidisciplinary team of analysts to establish a framework for evaluating long-term development strategies for the African Sahel-Sudan area.

By June 1973 it had become evident that the suffering caused by the drought was the most severe the area had experienced in the last half century. A meeting of donor organizations and U.N. agencies, called by the U.N., was held in Geneva to discuss the problem. It was clear that, while the area required immediate assistance to meet the problems of drought relief, there was also need for long-range assistance if the region were to become self-sustaining and begin an era of positive economic development and widespread improvement in the quality of life of its people. The U.S. delegation offered to undertake the first steps necessary to "identify the methodology, the data requirements and the possible alternative lines of inquiry from physical, economic, social and cultural points of view" on which to base "a comprehensive examination of technical problems and the major alternative development possibilities" for the region.* The United States Agency for International Development (A.I.D.) offered to take responsibility for this task and determined that it should enlist the assistance of the academic community in carrying out the work. A.I.D. then approached M.I.T., and a study effort was formally initiated with the signing of a contract covering the period September 1, 1973, through August 31, 1974. This contract was subsequently extended to January 1, 1975.

The goal of the U.S. effort is to develop a methodology for evaluating long-term development strategies for the Sahel-Sudan region. The

* Final Report on the Meeting of the Sudano-Sahelian Mid- and Long-Term Programme 28-29 June, 1973, Geneva. Special Sahelian Office, United Nations, New York. Statement by Donald S. Brown.

specific focus of the M.I.T. study has been on the development of an effective framework within which to appraise specific projects and programs. The term framework, in this context, refers to the accumulation, development, organization, integration, and analytical evaluation of information on the natural resources, economic resources, and human resources, including the social and political institutions, of the region. The framework is constructed in such a way that alternative strategies for the region can be identified and evaluated, in terms of both their requirements and their impacts, intended and unintended. The M.I.T. study has not been oriented toward detailed sector studies, prefeasibility studies, or project studies. Nevertheless, in the process of developing a methodology we have examined many kinds of information and a number of specific projects and have identified areas requiring further research to fill information gaps that impede long-range planning and evaluation of specific development proposals.

It is hoped that this framework will assist decision-makers in the Sahel-Sudan countries and in donor organizations in arriving at informed judgments concerning strategies for the long-term (20 to 25 years) social and economic development of the region.

The study was conducted under the direction of the M.I.T. Center for Policy Alternatives and was carried out by a multidisciplinary group. The Summary Report and the volume on agricultural development planning have drawn upon a number of working studies on specialized aspects of the problem prepared by the staff, i.e. (1) Economic Considerations for Long-Term Development, (2) Health, Nutrition, and Population, (3) Industrial and Urban Development, (4) Socio-Political Factors in Ecological Reconstruction, (5) A Systems Analysis of Pastoralism in the West African Sahel, (6) Technology, Education, and Institutional Development, (7) The Role of Transportation, (8) An Approach to Water Resource Planning, (9) Energy and Mineral Resources, and (10) Listing of Project Library Hold-

ings and Organizations Contacted. The basic elements of these studies have been drawn together in the two volumes of the final report.

In addition to M.I.T. personnel, individuals from a number of other organizations participated in the effort. Participants from the University of Arizona, in particular, made major contributions; they had primary responsibility for developing the analysis of the agricultural sector strategy. Professor John Paden of Northwestern University was a major contributor to the work on socio-political factors. Members of the Société d'Etudes pour le Développement Economique et Social (S.E.D.E.S.) in Paris provided valuable insights into various aspects of the Sahel-Sudan area. Several members of the Centre de Recherches en Développement Economique (C.R.D.E.) in Montreal developed sections on monetary policy, urbanization, and relationships between Niger and Nigeria. A list of individuals who participated in the study is included in Volume 1 of this report.

Numerous other individuals acted as consultants to the project, provided advice as the study progressed, and reviewed draft material for the reports. Help and advice were given by officials of the governments of the Sahel-Sudan countries, the Comité Permanent Inter-Etats de Lutte Contre la Sechèresse dans le Sahel (C.I.L.S.S.), members of United Nation organizations, members of the International Bank for Reconstruction and Dévelopment, and, especially, officials of the Secretariat d'Etat and various socio-economic and technical study groups in France. Finally, representatives of A.I.D. arranged meetings in Africa and reviewed the the progress of the study. All this assistance is gratefully acknowledged.

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This annex on socio-political-factors is part of a comprehensive effort by the Center for Policy Alternatives at M.I.T., under the direction of Dr. J. Herbert Holloman, to design a framework for assessing long-term development options for the Sahel-Sudan region of west Africa. We are grateful to the Principal Investigator of this project, Dr. William W. Seifert and the Project Manager, Dr. Nake M. Kamrany, for encouragement and assistance in all aspects of our efforts.

This annex is intended as an independent analysis of socio-political problems and prospects in the Sahel-Sudan region, and also as a complementary effort to work carried out in other sectors of the project. We have tried, in the initial definition of the problem and in our data collection and analysis, to coordinate our efforts with the analysis done in other sectors, especially the work by Matlock and Cockrum in their volume on agricultural-ecological factors and with the annex on economic factors. We would like to emphasize that we have drawn heavily on the comprehensive theoretical model of "rural circles of poverty" developed by Dr. Kamrany in the economic sector. These works, as well as the annexes on water resources (Major), transportation (Roberts and Findakly), health and nutrition (Stanbury), transfer of technology (Rao and Soussou), and industrialization (McPherson), all have socio-political dimensions which must be assessed in more detail in future work.

In addition to the above efforts which attempt to assess comprehensively macro-level problems and solutions, the project has produced several case study monographs which look at the interrelations of social, economic, and ecological factors in particular contexts. The Center for Research in Economic Development (CRED) in Montreal has cooperated in preparing two monographs of special importance to this volume: "The Urban Framework of the Republic of Niger," and "North-South Relations in West Africa: Lessons from the Case Study of Niger-Nigeria."

The systems dynamics model developed and tested by Picardi, "A Systems Analysis of Pastoralism in the West Africa Sahel," is directly related to the cultural and sociological patterns of herders and farmers in general, and although we have interacted with Picardi, we have tried not to duplicate his descriptive assessment of rural human interaction patterns.

We would also like to express our gratitude to the various contributors to this volume. Dr. Skinner has served as a consultant to the entire project, but has been especially helpful in thinking through some of the theoretical and practical issues of this volume. Richard Hay Jr. has been essential in working at Northwestern University on some of the computerized aspects of our analysis. James Thomason has contributed both his data, and his analytical talents to our assessment of regional interaction patterns in west Africa. We should also note that we have drawn on some of the earlier work of Linda Kadlec, especially the field notes from her trip to the Sahel-Sudan region in Fall, 1973.

We have also utilized social, political and economic comparative data from the Northwestern University/York University African Data Bank. We are grateful to the four co-directors of that Data Bank: Donald G. Morrison, Robert C. Mitchell, John N. Paden and Hugh Michael Stevenson, for making this data available. A more complete description of that data appears in Morrison, et al, Black Africa: A Comparative Handbook, New York, The Free Press, 1972. Throughout this report we have tried to give full acknowledgement and credit to all original sources of the material used.

We would like to thank the project support staff at M.I.T., especially Lynn Brown and Joan Coughlan for their assistance. We are also grateful to Liza Graybill, the project librarian, for her help on checking references and data. Mrs. Anne Potter, of Evanston, reordered a number of her priorities in order to type not only significant portions of the preliminary draft, but also several of the internal working papers which preceded it. For the typing of the final copy, we give special acknowledgement to the talent and industry of Lourdes Ferreira and Barbara Noble.

The bulk of this socio-political analysis and write-up occurred between March and July, 1974, and in two out of four cases involved considerable reallocation of time from an already full teaching and research schedule. We hope that this volume will stimulate thought as much as provide answers. We know that the eventual solutions to the drought related problems of west Africa must depend primarily on the people of that region and their own understanding of the problems. In the meantime, we are grateful for the opportunity to provide a preliminary "outside" assessment. We see this effort, ideally, as a step in the communication process between Africans and the international community, between technologists and social scientists, and between scholars and policy planners.

ABSTRACT

Our objective in the Socio-political Annex is both to provide a data base and analysis of socio-political dimensions relevant to long-term development options in the African Sahel-Sudan, and to provide an analysis complementary to the work in other sectors of the project, particularly to the agro-ecological strategy which has emerged.

Our conceptualization of the problem was based on a cursory initial diagnostic survey of the region. Inasmuch as various constraints functioned to preclude field work for any of the members of our team, we were forced to draw primarily on limited previous personal experience and existing data sources. The human factor is indeed central to development and we have focused on key socio-political components. Our selection of topics for analysis was conditioned by our understanding of basic needs of the region, which grew out of our initial diagnostic survey. We have examined problems of communication, skills, incentives, mobilization, and the relationship of people at the grassroots level to larger social and political organizational structures.

Basically, our techniques of analysis have been confined to cross-sectional descriptive analysis, trend analysis, and elementary process models. The more rigorous use of these techniques has been limited due to the constraints imposed by the available data. Data on the Sahel-Sudan region remain sparse and subject to question. We have relied almost

exclusively on library resources and the data bank facilities at Northwestern University.

In Part I (Chapters One and Two) of this volume we described and analyzed the human baseline, consisting of demographic and cultural patterns. We have paid particular attention to urbanization and migration and the relations between the urban and rural areas. We used planning relevant criteria in a culture cluster analysis to identify distinct groups in the region and pointed out the importance of taking the cultural patterns of these groups into account in any plans and strategies.

In Part II (Chapters Three to Eight) we examined different levels of decision-making, and different types of resources available for the implementation of any plans of action which might be developed. Our analysis of decision-making at the local level, the national level and the regional level, led us to conclude that in all six countries decision-making is highly centralized in "descending" structures and processes with a serious breach in linkage between the governments and the rural areas, particularly the herders. In all six states the problem of vertical linkage, exacerbated by the "mass-elite gap," is a central problem in any plans to engage in ecological reconstruction. This is probably the weakest link in the chain of vertical cooperation and the most crucial area for the development of "ascending structures," which would open channels of influence and communication from the rural/grassroots level to the local/national level. We note that a major challenge is to develop institutions

which permit and encourage the rural people to share to a larger extent in the influence and reward processes, i.e., to create human opportunities in the rural areas, without challenging or jeopardizing the fragile national structures which have so recently come into existence. We analyzed the implications of policy changes in areas such as language and mass communications. Our discussion of implementation potential focused on such areas as magnitude, scope, and priorities of national budgets, military and educational structures, communications/connectivity patterns, internal structure and process within the Sahel-Sudan national ministries and international structures and interactions.

Throughout our report we stressed the importance of regionalism to agro-ecological reconstruction in west Africa. Hence we devoted considerable attention to regional institutions, ranging from bilateral focused commissions to multi-national all-purpose organizations. In addition we examined regional institutions with a view to decision-making patterns and inter-state interaction patterns, and we looked at international structures and interactions as they might affect the process of ecological reconstruction in the Sahel-Sudan region. These national-regional-international relations form an important ingredient in the whole development situation.

In Part III (Chapters Nine and Ten) we explored the human factor in ecological construction in broader terms than decision-making and implementation. We reviewed the vicious circles of poverty characterizing

the region, presented a summary of the agro-ecological strategy (ISYALAPS) and discussed some of the socio-political implications for breaking the "three circles" of poverty and for evaluating the practical dimensions of the ISYALAPS strategy. We then summarized our conclusions (by no means exhaustive) regarding socio-political policies required for ecological reconstruction. Finally, we summarized the major organizing concepts of this report: linkage, mobilization, and scale. We suggested that the key to linkage is communications and joint action and we tried to identify means of improving this linkage. We noted, further, that the Sahel-Sudan people must be mobilized to help solve their own problems and that this mobilization may be cultivated through participation and re-education. Finally we suggested that the small scale of the national units involved invites a reassessment of the advantages of regionalism, as does the agro-ecological strategy outlined in Volume II of this report and the economic and political analyses. We then sketched four alternative futures for the Sahel-Sudan region, depending partly on the kinds of policies which stem from current options.

In the concluding section of this report we have summarized our analysis and findings. We have also included a rather extensive bibliography. The appendix to this annex provides the data base for much of the analysis in the report.

Annex 4

SOCIO-POLITICAL FACTORS IN ECOLOGICAL RECONSTRUCTION

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INTRODUCTION

Socio-political factors relate to a framework for evaluating long-term development strategies for the Sahel-Sudan region in numerous ways. We will discuss these factors under three topics: (1) problems of the Sahel-Sudan region and the need for socio-political analysis; (2) central concepts, models, and methods utilized in our analysis; (3) the socio-political data base available for our analysis.

(1) The Problem

The current drought in the Sahel-Sudan region of west Africa suggests a number of crucial issues which must be addressed if long-term development options for the region are to be explored in a meaningful and responsible manner. For example: Is the drought a result of long-term climatic changes, i.e., reflective of secular changes, or is it a temporary phenomenon, i.e., reflective of cyclical patterns? Is the ecological devastation in the area primarily due to physical factors, such as the climate and weather, or to human factors, such as poor land management practices, e.g., overgrazing? Is it possible for changes in physical technology (such as weather modification, irrigation, etc.) and/or in social technology (such as institutions, traditions, attitudes, knowledge) to re-establish ecological viability, and if so are these changes within the realm of feasibility? Should development aid be transferred into the area to assist the indigenous population, or should the people be encouraged to migrate? If development aid is decided upon, should it be carried out unilaterally or under multilateral auspices? What order of magnitude of international assistance might be expected realistically, e.g., what are the past trends? Is there an adequate infrastructure in the region to absorb or distribute aid? Should the region of concern be limited to the Sahel-Sudan eco-zones, or should it include contiguous and/or other regions as well?

Each of these issues has obvious physical environmental and technological components. In this annex, however, we will focus on crucial social components, especially those of a sociocultural-political nature. The human factor is indeed central to the development options of the region. In any case, there is a need to develop communication involving the grassroots level and to encourage the farmers and herders and government to cooperate in joint problem solving efforts. The basic conclusion of the agricultural/ecological section of the FINAL REPORT is that the drought is cyclical and even as we write this final report (August 1974), the rains have returned to many parts of the Sahel-Sudan region. Yet, in a cyclical or secular pattern, the socio-political implications are much the same, i.e., farmers and herders must be mobilized to deal with their problems of survival and development. It is also suggested in the agricultural/ecological report, that much of the technology and knowledge required for good land management in this region is known and the problem may well be one of adapting this technology to local conditions, and communicating with the people involved.

The problems of communication, skills, incentives, mobilization, and the relationship of rural people at the grassroots level to larger social and political organizational structures will be the focus of our socio-political analysis. It is related to the problem facing those concerned with the immediate distribution of aid: how can the international, regional, and national communities and those who are suffering from the drought be brought into a constructive and productive working relationship? Does an infrastructure of linkages exist between various levels of socio-political organization? Is the technical and administrative capacity of the national civil service organized in such a way as to be responsive to rural needs, given current organizational, decision-making, and implementation principles?

At a broader level, we are concerned with the scale of the units under consideration, and the question as to whether a particular ecological zone can solve its problems without social organizational, administrative, economic and technical linkages with other ecological zones. It is ironic that one of the greatest water-resource areas in the world, the rain forest/coastal zone, lies within a relatively few miles of the drought region in west Africa. Ghana has the largest man-made lake in the world, yet its northern neighbor, Upper Volta, is stricken with thirst. Parts of Cameroon have the highest annual rainfall average in the world (over 400 inches per year), yet its northern neighbor, Chad, is parched. Nigeria increasingly has the capability to harness one of the great river routes in the world (the Niger), yet its northern neighbor, Niger, goes without irrigation. If the problem of interstate cooperation in west Africa is a political one, then it should be identified as such. It should also be recognized that no state in west Africa (except Liberia) is yet twenty years old and there is no historic legacy of conflict between states. To the contrary, the trend since independence, with a few exceptions, has been toward regional cooperation. In the next twenty years this trend may affect significantly the issue of ecological adaptation and survival.

We regard the "socio-political" dimension of the FINAL REPORT as relevant to a variety of specific and general issues. In this annex we will try to analyze the human baseline in the Sahel-Sudan zone (including demographic and cultural patterns); we will examine the different levels of political decision-making and implementation capacity in the region (including local, national, regional, and international); we will explore the possibility of a socio-administrative model geared to cross-level linkage and geared to the question of rural survival and development; we will discuss some of the socio-political implications of an "agricultural strategy" which is emerging in the various sectors of this FINAL REPORT; we will present a summary of our socio-political

analysis.

The three major needs which emerged from our initial definition of the problem and which guided our selection of topics for analysis have been: the need to mobilize farmers and herdsmen at the local level; the need to work through national level decision-making and implementation structures; and the need to coordinate planning and implementation at a regional level.

(2) Concepts, Models, and Methods

Conceptualizing "the problem" is crucial to any solution. Concepts are abstractions, and hence by definition "over-simplifications. Given the problem at hand, we are concerned with the concepts of linkage, communications, mobilization, decision-making, implementation, and scale. When concepts are seen in relation to each other, we have a conceptual model. When a logic of interaction is posited which relates one concept to one or more others, we have a theoretical model. A model is usually identified at the conceptual level, constructed in terms of theoretical hypotheses, and then tested empirically, i.e., by use of real world data. Since a macro-level model usually presents insuperable obstacles to real world testing, we are left with the alternative of reverting to an ad hoc approach to our problems, or of utilizing our "conceptual models" as "frameworks" or "selectivity guidelines" to more focused micro-studies.

Within the social sciences, conceptual models are often based on some notion of "systems theory," which in turn is based on notions of "a universe," and a set of "interacting elements." The boundaries of a system become crucial to the definition of the problem and the interacting elements. In the case of the drought areas in west Africa, is the relevant "system" or "universe" to be an ecological zone(s), (e.g., the "Sahel," or "Sahel-Sudan"), a set of "six sovereign states" (i.e., Chad, Mali, Mauritania, Niger, Senegal, Upper Volta), a

geographic region (i.e., west Africa), an exoglossic language zone (i.e., Francophone west Africa) or a sub-set within an international economic system? We have decided to let our problem focus determine the appropriate "system" boundaries. Thus, if we are examining political "decision-making," the appropriate system is the state. If we are looking at river routes and connectivity, the appropriate universe would be geographic/regional. (The important headwaters of the Niger river are not in the Sahel-Sudan ecological zone, or within the six sovereign states, but in Guinea.) If we are assessing economic interaction, the appropriate universe is probably international (for example, world market prices, relations with the European Economic Community, international monetary zones, etc.).

The concept of interaction is central to all forms of social systems models, and this holds whatever our problem or universe. Scale refers to the size or social complexity of a universe; linkage refers to the modes or structures of interaction; and communications refers to the exchange of messages. Decision-making and implementation are usually regarded as processes in a system by which values are focused on particular options or priorities, and then executed within that system. Mobilization refers to the active engagement and dedication of the energies of elements in a system to a defined purpose or goal. It involves some form of <u>participation</u> on the part of those persons required to achieve the goal.

Our purpose is to construct conceptual models which have direct bearing on the ecological problems of the six Sahel-Sudan states. With this in mind, our first task was diagnostic and descriptive. In this report, we have included a considerable amount of descriptive statistics. Yet, each of these data profiles was selected from an almost unlimited number of socio-political data. Thus, our descriptive data are the result of an initial diagnostic survey of the situation, and are intended to confirm or disconfirm the diagnosis, rather than lay out all possible permutations of the data. Ideally, we would have spent a

considerable amount of time in the Sahel-Sudan region, checking and rechecking this diagnosis. Time constraints and the urgency of the situation have precluded such field work. It should be noted that our analysis and write-up took place essentially between March and July, 1974, and that only one of the four major authors of this volume has spent time in this region. His personal experience there took place several years ago and was limited to a small fraction of the total geographic region under consideration. We have drawn on this previous personal experience, but to a large extent have had to rely on existing data sources. Socio-political data sources on the Sahel-Sudan region are such an important factor in the international assessment of the problem, that we will discuss this matter in a separate section.

In short, we proceeded methodologically from an initial definition of the problem, to the identification of appropriate concepts, to the coding of empirical data on such conceptual dimensions, to the assessment of problems and prospects resultant from such patterns. (This process is depicted schematically in Figure 1.) In some cases we have attempted to project empirical data into the future, but in many cases this is not possible given the quality of the data, or the uncertain interactive relations between sets of data.

Ideally, we would be in a position to outline a clear and realistic set of policy options based on an interpretation of the data, and would be in a position to estimate the costs of such alternatives. Without time for interaction with the appropriate African policy makers, we have no base for assessing either feasibility or costs of policy options. Nevertheless we can identify some of these policy options.

We have also attempted to project in an intuitive way four "scenarios," each of which has prima facie credibility. The first would be a significant deterioration of socio-political conditions as a result of the drought; second would be a continuation of pre-drought socio-political patterns; third would be the possible impact of a

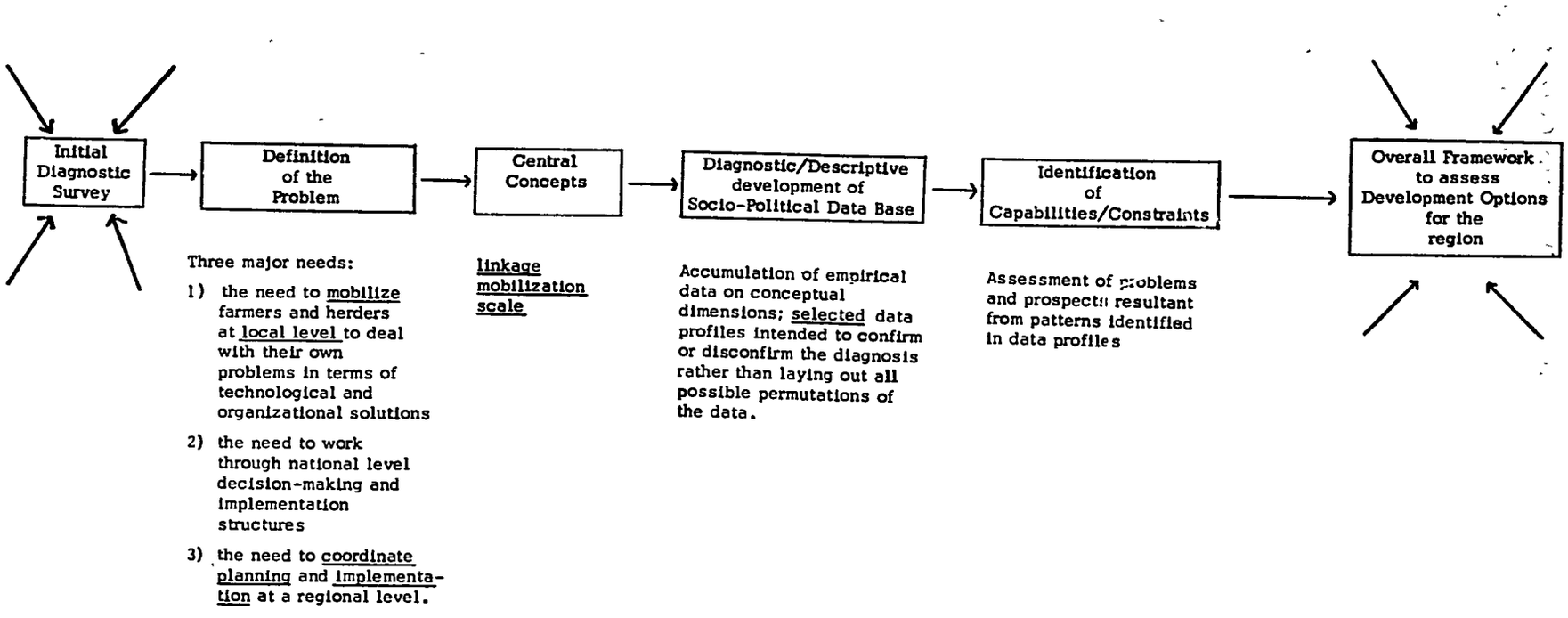

Figure 1. Diagrammatic Representation of the Study Process

grassroots mobilization strategy; fourth would be the impact of a mobilization strategy, plus an increase in the scale (or scope) of the system dealing with the problem (i.e., a regional approach rather than a national approach). In short, we have tried to be concerned with the practical and real world aspects of the situation, often at the expense of conceptual and methodological "purity," but we have found that a conceptual framework is probably the most practical way of assessing the socio-political factor in an ecological equation.

In terms of more rigorous techniques of analysis, we have tried to draw on three distinct approaches: cross sectional descriptive analysis (including univariate "profiles" of patterns, bivariate cross-tabulations of variables, and bivariate correlations, using Pearson product moment statistics); trend analysis (including time series analysis and quasi-experimental analysis); and systems dynamics (including process models). The potential use of each of these three methological techniques is limited by certain problems which will emerge in our analysis of the Sahel-Sudan states. For example, in cross-sectional multivariate analysis, certain methods (such as regression analysis) can be used only with a reasonably large "N" (i.e., number of analytic units). Thus, with our N of six states, we are limited to univariate, bivariate, and correlation analysis, rather than some of the more sophisticated forms of multivariate analysis. With regard to trend analysis, most social scientists would agree that at least 20 time points are necessary to do any serious time series analysis, and on most variables regarding the Sahel-Sudan states, such a range of data do not exist. We have done simple trend projections, but these should be viewed with caution. With regard to interrupted time series (quasi-experimental) analysis, i.e., judging the impact of a particular event (such as the drought) on the slope and level of a time trend line, we are clearly unable to judge this until post-drought observations of key variables are available. Nonetheless,

the data we are gathering now will serve as the basis for future quasi-experimental analysis, which should be essential in dealing with the next drought. With regard to systems dynamics analysis, inevitably this requires the generation of field data which is most cases have not been made available to us. It has been possible to develop process models, for example the three vicious circles elaborated by Dr. Kamrany, but much of this should be regarded as descriptive modeling rather than hypotheses testing. Again, if models can be refined, related to mobilization and linkage, then data could be gathered to examine future patterns in terms of their dynamic interactions.

In most cases we use macro analysis in order to try to identify long-range patterns and trends. In some cases, it has also been possible to look at micro level situations, although we recognize that such analysis is inevitably dependent on empirical field work which has not been possible in this short-term project. Micro and macro levels of analysis refer to the level and scope rather than the complexity of analysis. We are fully supportive of micro level analyses using multi-method approaches. This type of micro analysis is different than project evaluation, insofar as project evaluation entails projecting impact implications from a specific policy of stimulus. Since we are not evaluating the impact of a specific list of projects, we are more concerned with looking at the socio-political dynamics of the region, diagnosing problem areas, and identifying policy options (which could be costed or evaluated for feasibility if they seem appropriate).

In the case of both micro and macro analysis, we have used quantitative and qualitative approaches. Much of the quantitative data is available on a systematic and comparative basis only from the 1950's through about 1970. Rather than leave our analysis at this point, we have also attempted to do a qualitative interpretation of current patterns and prospects. In addition, in dealing with cultural patterns and local level phenomena it has frequently been impossible to design a research

effort which can draw on quantitative data. While we have done cultural cluster analysis and ecological analysis of ethnic groups in the area, we were led to the conclusion that some specific groups were most involved in the drought crisis and we have relied on qualitative case study literature to follow through in our analysis of these groups.

(3) Data Sources

In our analysis we have relied exclusively on published or publicly available data. Since we are working from a university base rather than a governmental base, we have drawn more extensively than usual on library resources as well as our own data bank facilities. The comparative quantitative data cited in this socio-political analysis is most frequently drawn from the Northwestern University Africa Data Bank, which is described and presented in Morrison, et al., Black Africa: A Comparative Handbook (N. Y. Free Press, 1972). This data bank has been made available to Ibadan University and is currently being used by students and staff in Nigeria. While the analysts in this particular project have been primarily American social scientists and graduate students, we have tried to suggest procedures for the training (or re-training) of African social scientists, administrators and technicians in these technologies and approaches. We are convinced that any long-term evaluation of west African ecological problems should be carried out primarily by African social scientists and technicians, working perhaps in cooperation with the international community. Specific suggestions will be made at the end of this report on the problem of how data can be gathered, evaluated and disseminated most effectively.

Part I

The Human Baseline

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1. The Demographic Baseline

2. The Cultural Baseline

1. THE DEMOGRAPHIC BASELINE

We will consider three aspects of the demographic baseline: population patterns, urbanization patterns, and migration patterns.

1.1 Population Patterns

In this section, we will examine current and projected population figures, density patterns, population pressure, and population characteristics. We also assess problems and prospects.

1.1.1 Population figures and projections: The six Sahel-Sudan countries considered in this study were part of the federation of French West Africa and French Equatorial Africa until independence in 1960. Also, census figures for the individual countries, even as of 1972, are based only upon sampling. Hence the reliability of population figures is questionable. Table 1 gives population figures for the area as provided by the UN and by Europa Publications. There is considerable difference in population figures utilized by various agencies. Consequently, growth rates computed using alternative figures show a significant spread. Table 2 gives population growth rates for the six countries, derived from different sources.

Since considerable divergence of data exists, population, rate of growth, and population projections based on these data are even more sensitive to error than usual. Table 3 provides rough extrapolations of the 1970 population of these countries to the year 2000, based upon the assumed rate as derived from the figures in Table 2. Deviations above and below the average are given in Table 4. These deviations were selected consciously to indicate the extent to which long-term projections are sensitive to relatively small changes in the growth rate.

Table 1

COUNTRY	Population: Totals by country (000) 1958	1960	1965	1970	1972
Chad	2,980	3,070	3,307	3,600	3,791
Mali	3,920	4,062	4,530	5,022	5,143
Mauritania	940	970	1,050	1,170	1,180
Niger	2,666	2,876	3,513	4,050	4,239
Senegal	2,967	3,110	3,487	3,755	3,822
Upper Volta	4,090	4,400	4,858	5,076	5,426

Table 2

COUNTRY	Population: Rates of growth (%) (alternative sources)* CEE	IMF	WB	United Nations Europa Public.	Country
Senegal	2.2	2.2	2.5	1.8	2.2
Mauritania	1.6	1.7	2.0	1.6	2.0
Mali	2.0			1.9	2.0
Upper Volta	1.8	1.9	2.0	2.0	1.9
Niger	2.7	2.5	2.7	2.3	2.75
Chad	1.5	1.5	1.7 (1963-68) 2.1 (1968-80)	1.7	1.7

* CEE = European Economic Community
IMF = International Monetary Fund
WB = World Bank

Table 3

Population Projections to the Year 2000

COUNTRY	Population 1970[1]	Assumed rate of growth[2]	Population 1980	Population 1990	Population 2000
Senegal	3,755,286	2.25%	4,692,000	5,858,000	7,320,000
Mauritania	1,020,000	2.0 %	1,426,000	1,738,000	2,119,000
Mail	5,022,000	2.0 %	6,126,000	7,462,000	9,096,000
Upper Volta	5,076,000	2.0 %	6,187,000	7,542,000	9,194,000
Niger	4,050,000	2.75%	5,312,000	6,966,000	9,139,000
Chad	3,600,000	1.75%	4,282,000	5,093,000	6,058,000
TOTAL	22,523,286		28,025,000	34,659,000	42,926,000

[1]Source C.E.E.

[2]For Senegal, Mauritania, Mali, and Upper Volta--rate of growth--official figures for Niger and Chad, IBRD data and CEE weighted average.

Table 4

Alternative Population Projections to the Year 2000

COUNTRY	Population 1970	Assumed Rates of Growth		Population (000) 1980		Population (000) 1990		Population (000) 2000	
Senegal	3,755,286	2.0 %	2.5 %	4577	4,806	5580	6,153	6,801	7,876
Mauritania	1,020,000	1.75%	2.25%	1391	1461	1,655	1,825	1,968	2,280
Mali	5,022,000	1.75%	2.25%	5973	6,273	7104	7,836	8,457	9,789
Upper Volta	5,076,000	1.75%	2.25%	6037	6,340	7181	7,921	8,541	9,894
Niger	4,050,000	2.5 %	3.0 %	5,184	5,442	6636	7,314	8,494	9,830
Chad	3,600.000	1.5 %	2.0 %	4,177	4,388	4,848	5,349	5,626	6,520
TOTAL	22,523,286			27,939	28,710	33,004	36,398	39,887	46,189

One interesting observation is that the average of the population growth rate for these countries is slightly below the 2.4 percent per year average for the developing countries of the world as a whole (defined here as East Asia without Japan, South Asia, Africa, Latin America minus its temperate zone, and Oceania without Australia and New Zealand). If these countries are to follow in the path of the developed nations, we may expect to find that their present growth rates, resulting from high birth rates and high death rates, will be superseded by a substantially higher growth rate brought about by a falling death rate as increasing control over disease is gained in this area. It has been the historical pattern that control over the birth rate does not take place until sometime later than control over the death rate. Hence we can expect that the growth rates of the Sahel-Sudan countries may, along with those of the other African countries, shortly be among the highest in the world.

1.1.2 Population Density: Africa as a whole constitutes approximately one-fourth of the total land surface of the world and contains approximately 10 percent of the world's total population. There were, in 1967, approximately 11 inhabitants per square kilometer. This is of the same level as Northern America, Latin America and the U.S.S.R., and is higher only than that in Oceania.

The six states of Mauritania, Senegal, Upper Volta, Mali, Niger and Chad have an area approximately 2/3 the size of the U.S. and a population size roughly 1/5 that of the U.S. Density in the Sahel-Sudan countries ranges from a low of approximately one inhabitant per square kilometer in Mauritania to a high of approximately 21 inhabitants per square kilometer in Senegal.

Prior to examining the crude density characteristics of the region, we should examine the implications of the measure of crude density itself. Operationally the measure of crude density is a simple calculation of the ratio of people to land surface. Here the unit of land

surface used is all important inasmuch as an uneven distribution of people across a large area will give a very deceptive picture of the density at which people actually live. Vast regional differences may exist which grossly distort the statistic. Density-range figures for an area are an improvement upon a single crude density measure. This statistic provides more information with respect to the densities which people actually experience and refers to crude density within a specific subdivision; these densities then form a range. Generally speaking, the utility of density-range figures varies inversely with the size and number of the subdivisions for which density data are available. Whenever possible we will make use of the more sophisticated measures of density. Nevertheless, even the use of low-order political subdivisions can conceal marked differences, e.g., if the district includes substantial uninhabitable regions such as lakes, swamps forest reserves or rugged terrain. The general patterns are shown in tables 5 and 6. Detailed figures are presented in Appendix 1.

1.1.3 Population pressure: Demographic specialists on Africa vary in their interpretations of "under-population" or "over-population" of the continent. Recently, the concept of "population pressure" has been introduced in an attempt to clarify and refine investigation in this area. However, the basic conceptual problems remain. Langdale-Brown writes "The physical capacity of an area only has reality in relation to the human population and its social organization and aspirations. Soils which are a prized resource to one tribe, such as the waterlogged peats of the Barotse plain from which the Lozi produce heavy crops, may be valueless or even a hindrance to another which has not developed the same skills or social organization." ("Langdale-Brown, 1966) Others make the same point that shortage or abundance can only be defined in relation to environments and systems of land use. This means that unless information is available on land capacity, including estimates on critical carrying capacity, as well as

Table 5*

Population Density per Square Kilometer, 1969

Range = 18.00 Mean = 8.17 Standard Deviation = 7.71

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.5	Senegal	19	1
40.3	23.5	1.5	Upper Volta	19	
62.0	21.7	3.0	Mali	4	9
77.6	15.6	4.5	Chad	3	
94.9	17.4	4.5	Niger	3	
100.0	5.1	6.0	Mauritania	1	10

*This rank order table, and other such tables in this report, arranges the six countries in order of their score on the variable value. The country population and cumulative population percentages are given in the left columns. Range deciles in the right column are used to present inter-country variation. A presentation of simple rank order would be less useful because it would not reveal the amount of difference between the countries on a given variable. Alternatively, decile rankings vary from 1 to 10 and indicate the respective tenth (or 10 percent) of the range of scores for a given variable where a particular country's score is located. Thus, if variable X has scores from 1 to 20 and country Q has a score of 19.5, it would fall within the first decile. If country R has a score of 1.2, it would fall within decile 10. Decile rankings provide a summary indicator which facilitates comparisons between different variables across the six countries of the Sahel-Sudan region, as well as between variables. Full variable definitions are given in the Appendix.

Table 6

Acres of Agricultural Land per Capita C1963

Range = 86.00 Mean = 27.00 Standard Deviation = 29.62

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
5.1	5.1	1.0	Mauritania	88	1
20.7	15.6	2.0	Chad	37	6
42.4	21.7	3.0	Mali	19	9
59.7	17.4	4.0	Niger	12	
76.5	16.8	5.0	Senegal	4	10
100.0	23.5	6.0	Upper Volta	2	

human resources, social organization, aspirations and values, it will be impossible to assess population pressure in a region.

Density measures, especially crude density measures, are subject to gross misreadings and cannot be used inferentially to adduce population pressure or the lack thereof. Niger has a density level of only 3 inhabitants per/km, but only 2 percent of their land is cultivable at present technologic and socio-economic levels. The reverse fallacy, that all areas with high densities suffer from population pressure, must also be avoided. Although density figures may suggest that the relation between population and resources is worthy of investigation we cannot in any way infer population pressure from density measures, even when relating one local density figure to another. Comparative density figures have their greatest utility in describing population distribution, but they take on meaning only when related to the opportunities and limitations of the ecological and social environments.

William Hance (1968) presents the following indicators of possible population pressure:

(1) declining soil fertility; soil deterioration, degradation or outright destruction, often associated with a shortening fallow period, or with overstocking and overgrazing

(2) use of excessively steep slopes

(3) declining crop yields; a trend toward more soil-tolerant crops such as maniac

(4) a breakdown of the indigenous farming system

(5) food shortages, hunger, and malnutrition, sometimes endemic and sometimes the result of periodic droughts, or, less often, excessive precipitation and floods

(6) disputes over land, land fragmentation, excessively small holdings, landlessness among the rural population

(7) some types of outmigration

(8) unemployment and underemployment in rural and urban areas

At this time, we would simply add that any measure of population pressure would necessarily have to include multiple indicators which are reflective of a combination of both social and physical-environmental characteristics. The impact of the drought on the Sahel-Sudan states has created a situation of population pressure, but assessment of the exact magnitude of this pressure would require extensive demographic sampling in the area. The exact nature of this pressure would also have to be empirically determined, i.e., whether it results from social and/or physical environmental characteristics.

1.1.4 Dynamic population characteristics: Size of the population may be less relevant than other characteristics such as high fertility, declining mortality, and the proportion of children in the population.

The high rate of growth within the Sahel-Sudan region prior to the drought was probably the result of a falling infant mortality rate. This indicates that the population will for some time become increasingly biased toward youth. Already the population of African countries is young, with children (under 15 years of age) usually forming about 43 percent of the total population. The distribution of the population by age groups is extremely important for development considerations because it gives some indication of the manpower potential of the population and also provides a measure of its dependency load, consumption needs and the social requirements both for the present and the future. For example, the cost of education is very heavy in this region. Such a situation is likely to continue so long as fertility remains high, and under a condition of declining mortality.

Unfortunately, little reliable information is available on the

distribution of the population into age cohorts and on birth rates, death rates, infant mortality, and other demographic factors that are important if realistic planning is to be done. It is hoped that the plans currently underway to conduct a complete census in each of these countries in the next year or two will be implemented. Projections have been made from existing demographic data and are included in Appendix 1.

1.1.5 Problems and prospects: Although growth rates were relatively high (at least before the drought), the overall population of the six states is not high. Overpopulation of the region as a whole has not been a problem, and population pressure will clearly continue to be a function of the ecological carrying capacity of the region, plus a function of technology. From the existing demographic point of view, there is no urgency to implement a stringent population control policy, even if this were politically feasible. If it becomes apparent, over time and with increasing information that population increase will have debilitating consequences, then more emphasis should be given to population management policy. In such case, it is a matter of policy by the governments of these countries whether to reach a firm decision to emphasize population management. Then it may be more feasible to consider population management policy (either through family planning or through fiscal incentives) than at present. In order to be prepared, however, there is a need to research indigenous methods of population management (both in terms of family planning and migration). The issue of migration will be considered later in this section.

The proper arenas for participation by donor countries or organizations include:

(1) assisting in compiling and maintaining up-to-date census information;

(2) providing information regarding the importance of the population factor in development planning (e.g., the

importance of knowing the distribution of the population by age groups for understanding the manpower potential, dependency load, consumption needs, and social requirements);

(3) assisting in the building of an administrative apparatus for spreading family planning information, including a staff of medical and paramedical personnel; and, perhaps most important,

(4) continuing to improve family planning research and technology.

We might note tha any reduction in fertility would have a number of immediate important economic consequences. For example, the dependency ratio would immediately decline. This change in age structure would have the effect of increasing income per head and would be cumulative over time. On the other hand, there would be no immediate reduction in the size of the labor force. On the contrary, the labor force would continue to increase for the next generation, reflecting the previous high levels of fertility. A secondary consequence would be that the reduction of demands on the adult population in its child rearing years might increase the labor utilization and productivity of this group, which, in turn, if it provided higher levels of living, could supply the government with increased "forced savings" through taxation or other means.

1.2 Urbanization Patterns

In this section we will examine urbanization patterns, urban networks, urban-rural relations, and problems and prospects.

1.2.1 Urbanization: A significant proportion of the demographic growth in the Sahel-Sudan is being transferred from the rural areas and absorbed by the cities, although the region is still predominantly rural. The actual levels of urbanization in most African countries are of less significance than the rate at which these levels are rising. At present,

Africa is the least urbanized region of the world. However, it has the highest urban growth rate. In most countries of the Sahel-Sudan region the urban population is increasing at twice, and sometimes as much as 4 or 5 times the rate of the total population. In general, the population in the primate cities is increasing faster than in the towns. This increase in prime/capital city population is seen in historical perspective when the pattern is viewed over a twenty year period as shown in Appendix 1.

Urban growth, continuing at an average rate of 7 percent per year, will lead to a quadrupling of the urbanized population from 1965 to 1985. Growth of this magnitude surpasses urban growth in the most dynamic of the developed countries and suggests a number of problems of balance and development: (1) cost of urban development and impact on the general economic balance; (2) industrialization and/or unemployment; (3) provision of food supplies in the centers (economic problems of resources and of urban incomes; also, problems of external financial equilibrium). While the urban population is increasing at an average of nearly 7 percent per year for the region as a whole, Mauritania's urban population is increasing at 10 percent per year and that of Chad at approximately 8 percent per year, although both of these countries start from an almost non-existent urban base. As with other population statistics concerning the Sahel-Sudan, rates of urbanization derived from different sources show considerable variability. Part of this variability is undoubtedly due to the impact of the drought on population movement, including the rate of increase of the urban population. Recent figures are no doubt influenced by these forces. These extreme rates of urbanization may be substantially lower in the future or, if the country-side becomes <u>less</u> arable, the rate may increase. The speed at which urbanization is occurring, even under normal conditions, is of significance to our understanding of the urban-rural balance.

Urban employment opportunities are not expanding at the same rate at which urbanization is taking place, with the result that unemployment and underemployment in the major cities is severe, and living conditions in the bidonvilles or squatter communities are very poor. While these problems are not unique to west Africa, continuation of the present trends will have significant consequences regarding productivity and development. The governments, aided by donor organizations, should consider policies that will foster the development of the smaller urban centers. Development plans for agricultural projects, new industries, new transport arteries, etc. should include considerations of the impact of the project in distributing population in a more balanced and productive manner.

1.2.2 Urban networks: Urban network development refers to the pattern by which urban centers become linked into systems. Since urbanization represents an increase in scale, the notion of urban centers linked into larger systems has come to be regarded as an indicator of increased national linkage.

While cities may be regarded as growth poles within a particular rural area, urbanization also reflects national and regional connectivity. In Senegal, nearly 25 percent of the total population are living in cities of 20,000 or more while in Mauritania the figure is about 1 percent. (See Appendix 1.) At the same time, Mauritania is essentially a primate system, that is, one city is the center of the entire country. In both Niger and Upper Volta, by contrast, there are a number of cities throughout the country which form the basis of a potential interurban network. These patterns may affect human mobilization capabilities in several ways: in non-primate systems, mobilization efforts may be more decentralized, and hence geared to local needs. (This might even include decentralized language policy and communications faciltities.) In primate systems it is more likely that national mobilization and

integration policy will be more centralized. In most cases where towns develop populations of 20,000 or more, this is also an indication that at least rudimentary transportation and communication facilities have been developed. Mabogunje (1970) has distinguished between several different types of urban centers and urban systems in west Africa ranging from traditional cities (perhaps reflecting trans-Saharan trade zones of the past) to "modern cities" (probably reflecting the priorities of the colonial era). In the next 25 years, as regional interactions increase across west African Anglophone/Francophone zones, it is likely that new "cross roads" towns will develop. It has not been possible in our analysis to distinguish different types of towns, although we do have data on relative age of towns and the overall types of urban systems. A more detailed case study of urbanization in Niger is available as a monograph appendix to this report (CRED, 1974). We present the patterns of urbanization and urban systems development in the six Sahel-Sudan countries in Appendix 1. The country which is most rapidly developing an urban network is Niger. The country which is least urbanized is Mauritania, while Senegal is unusually well developed in its urban network. The primacy variable (explained in detail in Appendix 1) indicates that Niger and Upper Volta are more decentralized, while Mauritania is completely centralized in terms of urban centers. This primacy ratio may be a guide to planned urbanization in each of the countries since the patterns vary considerably, and no uniform policy would be appropriate.

1.2.3 Urban - Rural Relations: In an optimal situation, the urban centers would provide functions which could service a rural hinterland. This is illustrated in the CRED study of Niger (1974). In the case of the Sahel-Sudan region as a whole, the rapid growth of cities often means an increase of urban population, but without a cor-

responding increase in capacity to service the rural areas. That is, there is not a corresponding division of labor and specialization of function which is often associated with urbanization (this pattern is referred to as "The New Urbanization" by Greer, et al, 1970). The emigration to the cities is thus both a drain on the major strength of the rural areas (i.e., the "best and brightest" of the young men), and it is also a burden on the urban areas where there is often no infrastructure to accommodate the immigration.

At the same time, there has been an historic pattern of urban dwellers returning to the rural areas, both for reasons of trade, and for social and economic reasons. Thus, the urban centers may function as centers for the diffusion of innovation. This potential for rural mobilization will be considered later in this report.

A recurring theme of this report will be our diagnosis that the relationship between urban and rural areas in the Sahel-Sudan has been fragile, sometimes expoitative, and often reflective of a dual economy. This is truer with the "new towns" than with the "traditional towns." The "mass-elite" gap, to be discussed later, might also be characterized as an "urban-rural" gap.

1.2.4 Problems and prospects: Rapid urbanization can be controlled by coercive measures (e.g., the rigid enforcement of work permits, with road blocks in the urban areas), but the cost of enforcement is high. More likely, the urban centers might set up planning units which would take account of urbanization at projected rates. Moreover, policies can be considered which provide incentives to remain in the rural areas. As long as all of the attractions and incentives are in the urban centers, it will be difficult if not impossible to mitigate the trends toward uncontrolled urbanization.

In addition, training programs might be established which would

deal specifically with the immigration problem. Labor exchanges might be retooled for counseling and training, in both agricultural and industrial matters. They might also serve as "human tracking stations," since at present there is little up-to-date demographic data on the patterns or magnitude of urbanization.

The resettlement of refugees who have come to the cities will be considered at a later point.

The conscious policy of utilizing urban centers as a source for diffusion of innovation might be cultivated. If incentives are to be provided outside of the cities (e.g., water, educational and health facilities) some exposure to these technologies in the cities might have an important demonstration effect.

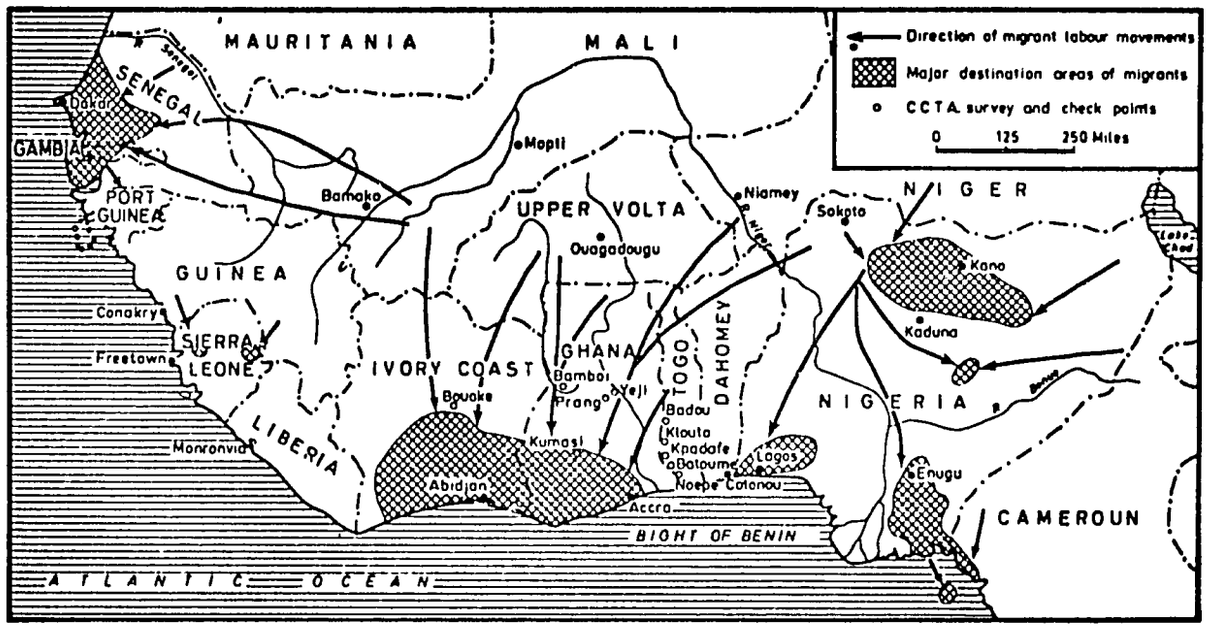
Since the process of urbanization is directly tied to the process of migration, we will consider migration patterns in more detail.

1.3 Migration Patterns

In this section we will examine general migration patterns, seasonal migration of farmers, seasonal migration of herders, the impact of the drought on migration, and problems and prospects. We will consider specific patterns of ethnic mobility later in this report.

1.3.1 General migration patterns: The relatively early development of the coastal region in west Africa, which led to the integration of the coastal cities into the "modern" economic system, was accompanied by a particular pattern of migratory movements (see Map 1). This general movement covers, in effect, the complex convergence of separate and distinct movements related to professional specialization of certain ethnic groups which will be considered later.

The general pattern was for peoples in Niger to move into Northern Nigeria, or Ghana. Those in Upper Volta moved into Ghana and Ivory Coast. Those in Mali moved to Senegal and Ivory Coast.



Map 1. Colonial Labour Movements.

Source: R. Mansell Prothero, "Migrant Labour in West Africa," Journal of Local Administration Overseas, 1, No. 3 (July 1962): 151.

Often such peoples would remain as semi-permanent residents in the "new towns" of these magnet cities.

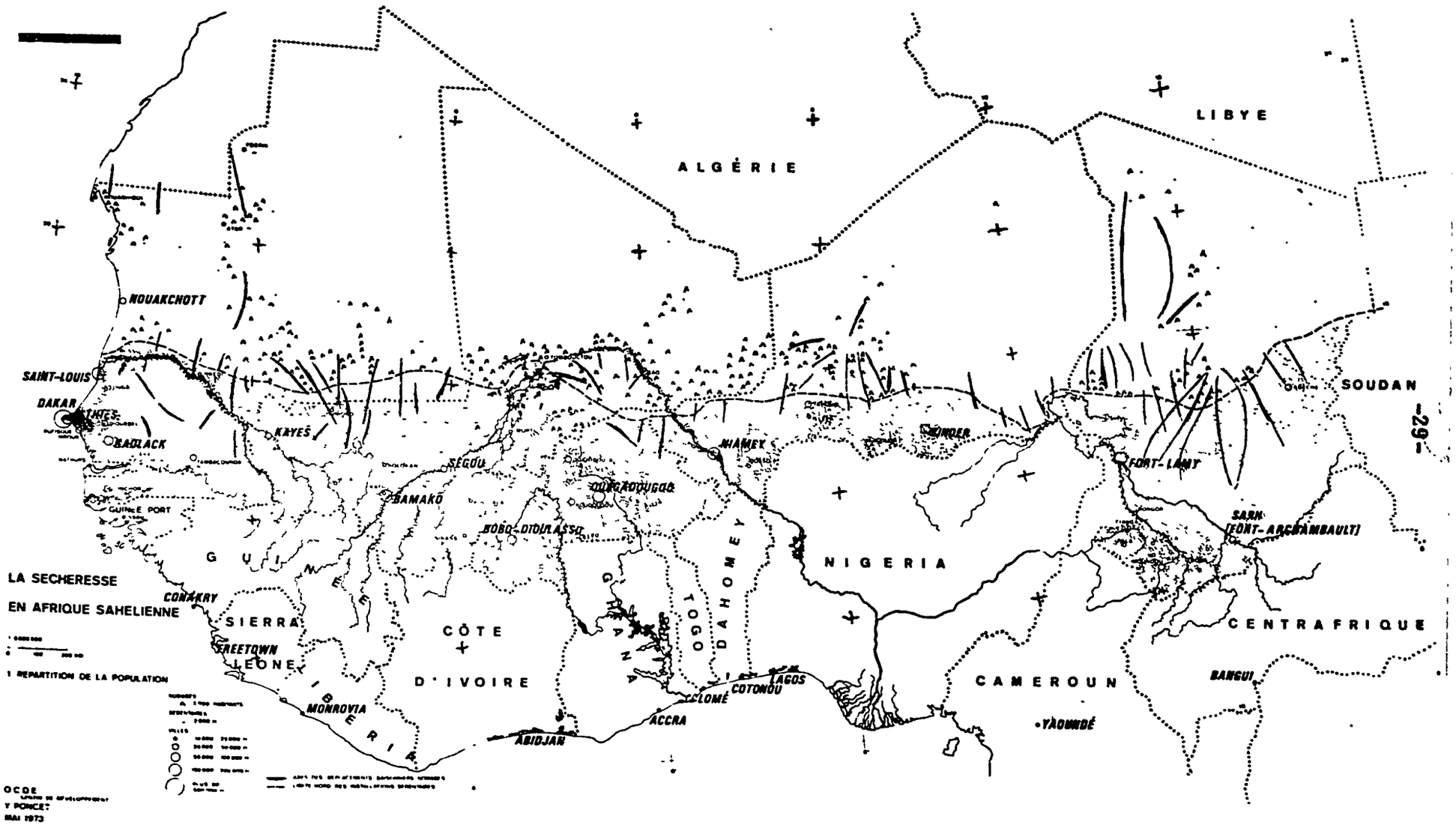
1.3.2 Seasonal migration of farmers: It has been the regular practice in a number of the Sahel-Sudan states for farmers to engage in seasonal migration, from November after the harvests until May when the rains and plantings begin. Often the cities of west Africa swell to twice their normal size during this "off season." Migrants may engage in manual labor in the cities, or in the petty trade associated with cottage crafts. In some cities, it is difficult to get an accurate census count because it is not clear which season is "normal." In some cases, farmers make use of ethnic links to facilitate this seasonal migration (this pattern will be considered later).

A reverse pattern is also apparent in some areas. Urban laborers will leave the city during the summer farming season and go to work on plantations, or large farms. In both cases, there is considerable opportunity for interchange between rural and urban based peoples.

These patterns have been studied in some detail, and a reference bibliography is included in this report.

1.3.3 Seasonal migration of herders: There have been a number of scholarly analyses of pastoralism in west Africa, including the I.A.I. Seminar on Pastoralism in Tropical Africa (1972), and the Dalby and Harrison Church symposium, Drought in Africa (1973). A detailed and extensive mapping of transhumance movements in the six Sahel-Sudan states is presented by Poncet (1973). (Transhumance refers to the seasonal investment of herders following climatic changes.) Map 2 illustrates the symbiotic relationship of herders and farmers in the region and also the population distribution by climatic zone. Specific migration patterns of pastoralists ethnic groups will be considered later.

1.3.4 Impact of the drought on mobility: The impact of the drought in west Africa on human mobility has not been documented in



Map 2. Transhumance Patterns.

any systematic way. It may be of considerable importance to set up "human tracking stations," in order to keep abreast of the magnitude and direction of human mobility patterns. The few indicators that do exist at present seem to suggest considerable mobility (much of which has a clear ethnic base). Thus, for example, in May 1974 the International Red Cross estimated that 50,000 to 100,000 "starving nomads" have moved into the environs of Niamey. The census figures released in spring 1974 for Nigeria indicate massive increases in the four northern states, i.e., those which seem to be attracting groups from across international borders. Thus, for example, Kano State has doubled its population from five million in 1963 to ten million in 1973. Northeastern State has swollen to fifteen million. Nigerian ethnic groups from Sudan are even migrating back to Nigeria by way of Chad. Transit camps have been set up in Chad and in Maidugari for these Nigerian returnees. (It is estimated that two million to three million Nigerians have settled in various parts of Sudan over the past one hundred years as a result of flights from conquest in west Africa or aspirations to make the pilgrimage to Mecca.)

In April 1974, West Africa estimated that "perhaps half a million people have gone south to Nigeria (from Niger), while similar numbers have wandered into Niger from her neighbors." (April 22, page 454) This emigration figure represents one eighth of the total population of Niger. Some of these migrations within Niger have resulted in clashes between pastoralists, or between pastoralists and agriculturalists.

West Africa also suggests: "A most dangerous aspect of the drought situation is the flight of thousands of farmers and herdsmen with their cattle, from their traditional grazing zones. This large-scale exodus in search of water and pasture presents a great threat to peace. In a few cases it has culminated in bloody disputes between

what one might call the 'residential nomads' in certain areas and the 'invading nomads.' This has usually been a north-south movement which completely ignores the artificial international borders. In the face of the wide scale migration and in the aftermath of some violent clashes, the borders between Mali and Niger, Upper Volta, and to a lesser degree, Ivory Coast (but not Guinea) were declared open. It was felt that nomads could hardly be expected to smuggle goods such as radios and alcoholic beverages..." (September 10, 1973, page 1263)

In short, the drought situation has produced migration and mobility patterns of a magnitude unprecedented since the time of colonial conquest. These migrations are occurring within nations (often to the urban centers) and across national boundaries (in a north to south direction). While it is not the conclusion of our report that there is need for massive resettlement of peoples out of the current drought areas, it is clear that very little can be done to ebb the spontaneous flow of peoples. In our judgement, the magnitude, direction and impact of this flow might be examined in detail by microsampling techniques, and the receiving centers of such immigration might be assisted in a long-term way to avoid the destitution and political instability which will most likely occur if nothing is done.

With regard to the "regrcupment centers" which have been set up in many of the Sahel-Sudan states for relief purposes, some effort might be made to have the groups themselves select representatives who can participate in crash training courses on some of the new modes of environmental adaptation which will be necessary during and after the drought, and who can act as intermediaries between the government and the traditional authorities within the destitute groups. Such

representatives might form a core for a future "community development" effort at the grassroots level. Thus, rather than regarding the refugee camps as simply a part of the immediate relief effort, they might be regarded as potential nuclei for long-range solutions. These solutions will vary from place to place but the organizational principles remain the same. The organization of refugees in camps has been demonstrated in many parts of the world to be useful for both political and economic purposes.

1.3.5 Problems and prospects: There has been a long history of pastoral transhumance in the Sahel-Sudan region. Much of the meat supply in the coastal zone is dependent on this pattern. The exact routes and symbiotic relationships of the pastoralists are reasonably well known. With the onslaught of the drought these patterns have been disrupted and the potential for human conflict has increased. This is a regional and not merely a national or local problem. A regional "Commission on Pastoralism," consisting of political, technical, and pastoralist representatives might be in a good position to facilitate the movement or resettlement of these groups. Any attempt to deal with this on a national basis alone is less likely to succeed.

Other forms of mobility in west Africa should be studied in terms of direction, magnitude, and impact. While there has been a considerable amount of such migration traditionally, much of which has been peaceful, during times of crisis there has been a tendency for complementary relationships to become conflictful relationships. The political and legal status of such migrants might be clarified and guaranteed by the national governments of west Africa working within a regionalist framework, such as the West African Economic Community (to be discussed later).

As with urbanization, there is little governments can do to affect migration without resort to repressive measures. Thus, it becomes important to explore the opportunity structure for migration, and to deal with incentives for migration patterns which are constructive to the overall needs of the region. We will consider this in more detail in Part II of this report.

The relationship of migration to urbanization should be taken into account in any study. The consequences of urbanization and migration have resulted in spatial disparities in population growth, and have skewed the reward structure.

The consequences of an unprecedented rate of urbanization and increased migration may have a significant impact on variations in population growth rates from area to area, and promises to have an ever greater impact in the future. We have noted that urban populations are expanding at an overall rate of 7 percent per annum. The important correlary here is that the rural areas are also severely affected. An entire state, such as Upper Volta, may lose a significant portion of its manpower to the urban centers of coastal states. The same principle holds for migration from rural to urban areas within a country. The great majority of migrants fall into the less-than-thirty, male category with significant impact on age, skill, manpower, and growth rates of the rural areas.

In the absence of countervailing policies, we might expect a general pattern of population growth rate as follows:

(1) high growth rates in fast developing cities, or core areas, with overall population increase exceeding the rate of natural increase,

(2) a peripheral zone adjacent to the fast developing cities, or core areas, with overall population increase somewhere nearer the rate of natural increase, and

(3) more distant or fringe areas lying further beyond the peripheral zone from which a net exodus of people takes place, resulting in population growth-rates falling below the rate of natural increase.

We would also expect that the colonial and post-colonial pattern of migration from the inland states to the coastal states will continue. The coastal regions have offered the greatest opportunity for participation in economic activities. The differential opportunities afforded by the development of a modern economic system in the coastal areas, particularly the coastal areas to the southwest of the Sahel-Sudan region, have resulted in a migratory trend toward this region--especially to the coastal cities of Dakar, Lagos, Abidjan and Accra. Again, this is a regional pattern and national solutions are not likely to be effective.

Population movement must be taken into account in development strategies for the region. In all probability a balance sheet of gains and losses to the Sahel-Sudan countries of in-migration and out-migration will show a net loss of labor and skills, including scarce and essential entrepreneurial talents for areas/regions/countries of the out-migration. Resocialization, destruction of community solidarity, and the necessity of restructuring institutions to accommodate changed populations figure prominently in the social impact of migration. If the present urbanization and migration trends continue, we might expect a regular increase in the gap between:

(1) the urban and rural sectors of the national economics, e.g., and intensification of the "dual-society" phenomenon, and

(2) a regular increase in the gap between the needs of the Sahel-Sudan region and the production capacities of these countries.

At a general level, the experience of this region is a repetition of that in other technologically underdeveloped areas, although the details differ greatly. Workers have, over the years, been induced

to enter into new forms of activity by measures ranging from direct coercion to the indirect appeal of goods that only money can buy. The fact that a large amount of migration in this region has been of a seasonal or temporary nature also means that the development of a genuinely stable and committed labor force has been slow to emerge.

The potential positive functions of immigration and urbanization should be considered as well. Given the fact that urbanization is a strong trend in the region, and that the reversal of this trend may well be out of the range of influence of planners in these societies, it seems wise to examine the potential benefits of this trend. According to Pai:

Regional planning practices have traditionally given high value status to decentralization policies where perhaps it may be more feasible, given a nation's limited resources, to emphasize the genuine need for more centralization as a means of absorbing rural population overspill, which would make more possible increased capitalization of agricultural production, and allowing a more internalized and concentrated urban regional base for industrial development. In the particular case of developing countries where it is enormously important to derive maximum gains from minimum resources, it may be necessary for economies of scale to develop on a more centralized basis, thus minimizing the problems of linkages while internalizing costs and maximizing output per unit of input. Within the time scale of developing countries, this would represent a short run objective which would then allow the maximum capitalization of industrial production, utilizing economies of scale, agglomeration, inter-industrial linkages as well as backward and forward linkages, in addition to the most efficient exploitation of capital and raw materials. In regard to international import and export demands, location along key infrastructural points such as rivers or ports can accelerate and facilitate movement of goods and commodities while reducing transport, handling, distribution and inventory costs. Because of the tendency of developing countries to exhibit extremely low per capita incomes and limited amounts of goods and services in the face of high population growth rates, development possibilities must be exploited to the fullest potential. Investment in decentralized infrastructure and production centers, in this regard, can be seen as potentially costly and dysfunctional as they can overly extend regional invest-

ments, while not achieving the multiple economies available through higher concentration. With the higher interinstitutional linkage effects and economics of scale available in urban areas, and the corresponding investments necessary for infrastructure, economic and social, it is advantageous if not necessary, to reduce such investments however possible through greater physical concentration. Moreover, urban centers play an important role in the qualitative elevation of labor potential, educational levels, and adaptability to increasingly complex technologies. With increasing demands for the capitalization of agriculture and the resulting shift to urban centers, the cities must be able to play a more central role in the modernizing process of developing countries. (Pai, 1973)

We would like to consider, therefore, the exodus of rural labor as an opportunity for scale expansion of the rural production units, and the introduction of more effective methods of farming. Urban labor exchanges might also be geared to training in farm management techniques, and encourage return migration.

A report by the United Nations concluded:

(1) That even large urban centers were important agents of economic development, and that on strictly economic grounds, their continued growth should not be restricted until that point at which marginal costs exceeded marginal incomes.

(2) That uncontrolled urban settlement was a manifestation of the normal urban growth process under historically abnormal conditions. In other words, it was not the existence of urban settlements that was considered to be the problem, but rather that institutional structures had not been able to adjust development formulas to include the problem.

(3) That uncontrolled settlements were vehicles for social change. The second hypothesis was implicit in the first: If the process of producing uncontrolled settlements was essentially the normal process of urban growth, it followed that urban settlement was both the product of and the vehicle for activities which were essential to the process of modernization, it being assumed that a relatively high degree of urbanization was a prerequisite for modernization. (Report on the United Nations Inter-Regional Seminar on Development Policies and Planning in Relation to Urbanization, 1966)

The problem then, may be seen as one in which there is a failure of institutional adaptation. Institutions have failed to adjust their

norms and values to the conditions and aspirations of the greater proportion of the modernizing society, and failed to transform the tremendous productive potential of people into direct forms of production and development. The decision-making elite may have lacked the capacity for creative readjustment of development policies. This reverses the problem as it is usually conceptualized. Here it is the rigidity and lack of innovation in the modern sector which has failed to respond creatively to the new demands, capacities, and aspirations of a broad spectrum of rural society.

Urbanization and migration are obviously key elements in the development process. Population movements tend to be responses to economic incentives, thereby reflecting economic differentials from area to area. The fact that there is a great deal of spatial disparity in development, as demonstrated by these indices of growth from area to area, is indicative of the urgent need for urban and regional planning.

The aims of urban and regional planning are summarized by Green and Malone in their Ford Foundation report (1972):

(1) to establish the nature, location and dimensions of the changes taking place in the rural and urban areas, with emphasis on the spatial aspects of such changes;

(2) to identify the problems of development arising from these changes, particularly concerning the location of the problems, their repercussions on the countries expanding physical framework of cities, towns, villages and inter-connecting roads and railways, and their implications for the rapidly growing movement of people and goods from place to place; and

(3) to formulate possible public policies in regard to the location of future investment in economic activities, urban and rural infrastructure, communication networks and the like, which are designed to deal with urban and regional opportunities, aspirations and problems as they arise, and before they become unmanageable in regard to the best interests of the nation, region and small locale.

We will consider additional aspects of urbanization and migration in other portions of this report.

2. THE CULTURAL BASELINE

In this section we will examine patterns of culture clusters, cultural modes of livelihood, cultural authority patterns, ethnic mobility and interaction, religious structure and culture, and traditional patterns of land tenure.

The importance of a cultural baseline in any socio-political analysis is that it adds social meaning to the demographic and ecological patterns, and, in fact, may provide the single most important predictive element in any analysis. In the Sahel-Sudan region, there are significant similarities and differences in the cultural baseline. There are an unusually large number of distinct language groups in the region: approximately 75 in all (i.e., three languages per million population). There are also a large number of "ethnic identity" groups at various levels of inclusion (e.g., clan, lineage, and various macro-levels), which are more susceptible to fluctuation since they are based on social perception and definition. Yet many of these groups share similar cultural patterns. An overall interpretation of the cultural patterns in the region is provided by Skinner (1974). We will elaborate and analyze selected patterns in more detail below.

An important caveat should be introduced here. We do not mean to suggest by our analysis of cultural patterns that these patterns either <u>must</u> or <u>should</u> be maintained. We do not, in any way, intend to suggest a static situation. On the contrary, cultural patterns are always subject to change when conditions change. The adaptability of the Sahelian peoples has been well demonstrated. For example, the relative facility with which the Fulani passed from one type of pastoralism to the other, and became sedentary mixed cultivators, was proof of their ability to adapt to changing conditions. Our cultural analysis is intended merely to provide us with rough

estimates of the existing cultural baseline--not to suggest that these patterns are impervious to changing conditions.

2.1 Culture Cluster Analysis

In this section we will examine the idea of culture cluster analysis, the selection of variables, a summary of patterns in the region, a composite of patterns by country, and problems and prospects.

2.1.1 The Idea of Culture Cluster Analysis: If the populations of the Sahel-Sudan region are to survive and improve their quality of life, it may be very useful for planners to take into account their pre-existing forms of economic, social and political organization. Although urbanization may have an impact on traditional cultural patterns, the vast majority of Sahel-Sudan peoples are still rural and have retained their traditional cultures. In such rural areas, the primary basis of cultural organization is not the individual or his family, but rather larger groupings, usually with distinct identities and common bonds. Such groups may be characterized by distinct languages. For our purposes, however, we are more interested in the underlying cultural premises of groups rather than the more immediate questions of ethnic identity. Consequently, we have attempted to identify within each country the major cultural groups within that country, using a formula which accounts for at least 80 percent of each national population and which includes every identity group in the country of more than 5 percent of the total population (for fuller discussion, see Morrison, et al. 1972). In most countries there are four or five such macro-cultural clusters. For the Sahel-Sudan region as a whole we have identified twenty-four culture clusters. We would emphasize that such cultural area analysis is radically different in its assumptions and procedures from ethnic identity

analysis or ethnic social distance analysis. We are concerned with lumping together identity groups which are similar in their basic premises of social organization regardless of whether they share a sense of common identity. In one important case, we have identified two cultural groups within a single language group (i.e., the Bororo-Fulani who are herders, and the Tukulor-Fulani who are farmers). We have usually designated our cultural clusters, however, with the identity name of a major group within that cluster. It is equally possible to drop such identity names altogether and to use a numerical identity system. Since we have aggregated at the national level rather than at the regional level we can further consolidate our cultural groupings across national boundaries. We have tried to do this, on specific cultural variables, later in this section. In Appendix 2, we present a Q-type factor analysis of culture groups in the regions.

The 24 distinct cultural groups in the six states under consideration are shown in Table 7. Four of the ethnic clusters are represented in more than one country as shown in Table 8. The list of these groups by country with their total population and percent of population is listed in Table 9. The identity/language group components of these clusters are listed in Appendix 2. The rank order by size of these groups (including addition of populations when a group is in more than one country) is given in Table 10 in which these groups are also divided into five segments based on population increments of one-half million.

By superimposing a map of the geographic distribution of these groups on a map of climate zones in west Africa, we find that the twenty-four groups fall into seven categories: 1) Desert; 2) Desert/Sahel; 3) Sahel; 4) Sahel/Sudan; 5) Sudan; 6) Sudan/Woodland;

Table 7

CULTURE CLUSTERS IN THE SAHEL-SUDAN

Asben (Tuareg)	Mossi
Bambara	Ouadai (Wadai)
Bisa	Sara
Bobo	Senufo
Bororo (Fulani)	Serer
Diola	Shuwa (Arab)
Grunshi (Kusasi)	Songhai
Gurma	Soninki
Hausa	Soninki
Kanuri	Teda
Lobi	Tukulor-Fulani
Malinki	Wolof
	Zenaga (Moorish/Arab)

Table 8

CULTURE CLUSTERS IN MORE THAN ONE COUNTRY

1.	Tuareg (Asben):	Mali, Niger
2a.	Bororo-Fulani:	Mali, Niger, Upper Volta
2b.	Tukulor-Fulani:	Senegal, Mauritania
3.	Senufo:	Mali, Upper Volta
4.	Songhai:	Mali, Niger

Table 9

CULTURE CLUSTERS: POPULATION AND COUNTRY DISTRIBUTION

			Total Pop.	% Country
Chad (1967)	1.	Arab type Shuwa	1,570,000	56%
	2.	Sudanic cluster Sara	955,000	28%
	3.	Nilotic cluster Wadai	324,000	9.5%
	4.	Saharan cluster Teda	239,000	7%
Mali (1967)	1.	Mande type Bambara (Malinke)	2,040,000	43%
	2.	Fulani	949,000	20%
	3.	Senufo	712,000	8%
	4.	Soninke (Sarahole)	380,000	8%
	5.	Tuareg	303,000	6%
	6.	Songhai	289,000	6%
Mauri-tania (1967)	1.	Moor (Zenaga)	902,000	82%
	2.	Tukulor-Fulani	143,000	13%
Niger (1967)	1.	Hausa	1,631,000	46%
	2.	Derma-Songhai	674,000	19%
	3.	Fulani	461,000	13%
	4.	Tuareg (Asben)	355,000	10%
	5.	Kanuri	177,000	5%
Senegal (1967)	1.	Wolof type	1,358,000	37%
	2.	Fulani-Tukulor	880,000	24%
	3.	Serer	587,000	16%
	4.	Diola	330,000	9%
	5.	Mande type (Malinke)	257,000	7%
Upper Volta (1967)	1.	Mossi	2,542,000	50%
	2.	Western Mundi (Bobo)	880,000	16%
	3.	Senufo type	363,000	7%
	4.	Grunshi (Kusasi	341,000	6%
	5.	Fulani	313,000	6%
	6.	Lobi	291,000	5%
	7.	Gurma	275,000	5%
	8.	Busansi	272,000	5%

Table 10

CULTURE CLUSTERS:

Rank Order (Size): 1967

(000)

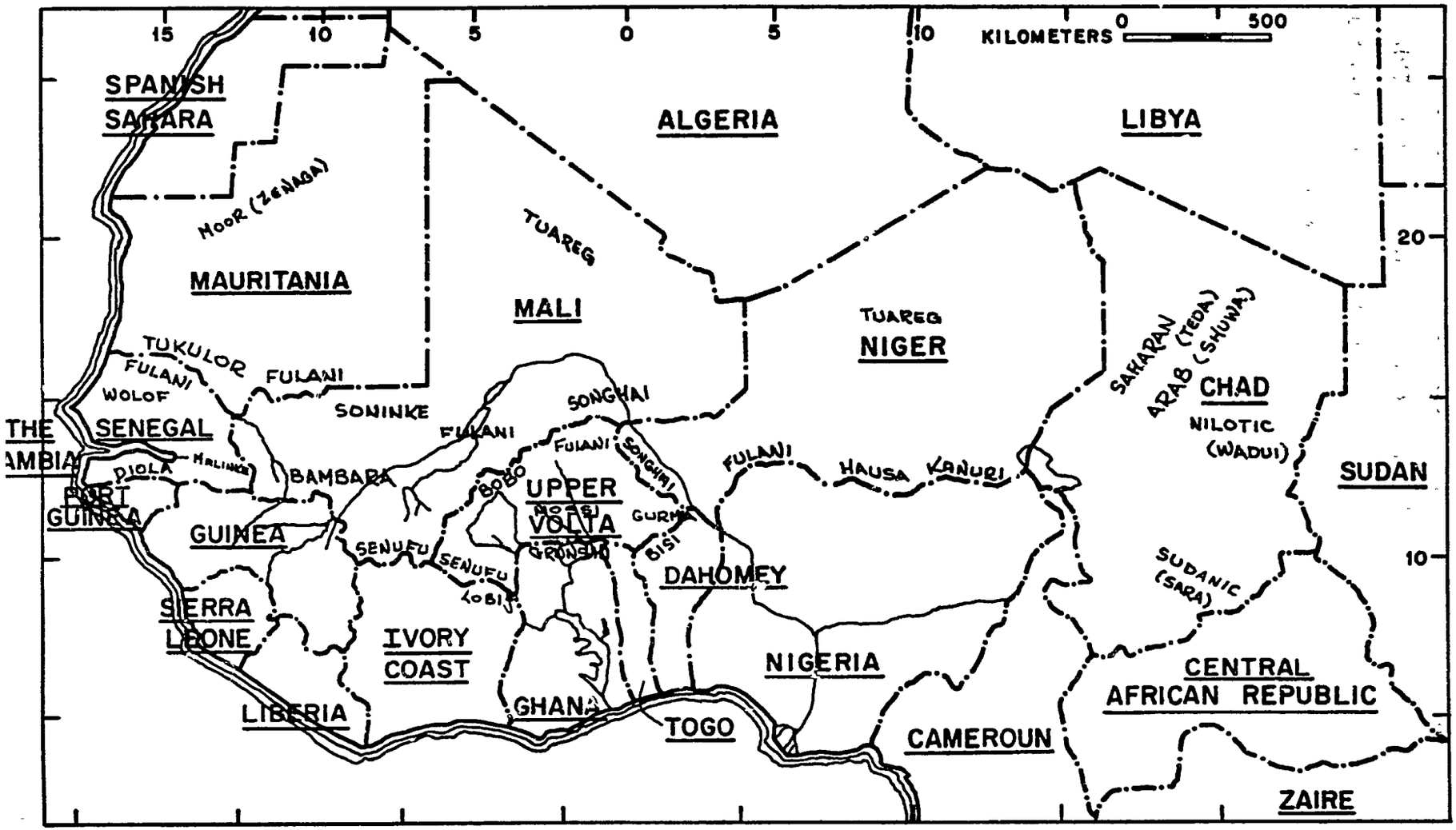
1	Mossi	2,542
	Bambara	2,040
2	Borcro Fulani	1,723
	Hausa	1,631
	Arab (Shuwa)	1,570
3	Wolof	1,358
	Senufu	1,075
	Tukulor-Fulani	1,023
4	Songhai	963
	Sara	955
	Zenaga (Moor)	902
	Bobo	880
	Tuareg (Asben)	658
	Sever	587
5	Soninke	380
	Kusasi	341
	Diola	330
	Wadai	324
	Lobi	291
	Gurma	275
	Malinke	257
	Bisa	242
	Teda	239
	Kanuri	177
	Total	20,763

7) Woodland. In more simplified terms, the groups fall into two zones: Sahel and Sudan, with only one group (Fulani) in both. This may be seen in Map 3. The distributionsby number of culture clusters and by total population are given in Table 11 and Table 12. Only seven groups are in the Sahel zone (1-4) and seventeen groups are in the Sudanic zone (5-7). With regard to population distribution, 6.292 million live in the Sahel zone (1-4) and 14.471 million live in the Sudanic zone (5-7).

2.1.2 The selection of cultural variables: We have constructed variables which reflect four major categories of cultural patterns: mode of living, social organization, authority patterns, and inheritance patterns. These categories were felt to have special significance in assessing the impact of the drought in the Sahel-Sudan region, and in mobilizing people to meet some of the technical and organizational requirements of ecological reconstruction. We are interested in the possibility of extensive social change in some cases, and hence any elements of traditional culture that bear on propensity for social change should be considered. The variables are defined in detail in Appendix 2.

With regard to mode of livelihood, we have six variables: approximate percentage of dependence on agriculture; principal crop; approximate percentage of dependence on animal husbandry; type of animal husbandry; approximate percentage of dependence on fishing; approximate percentage of dependence on hunting.

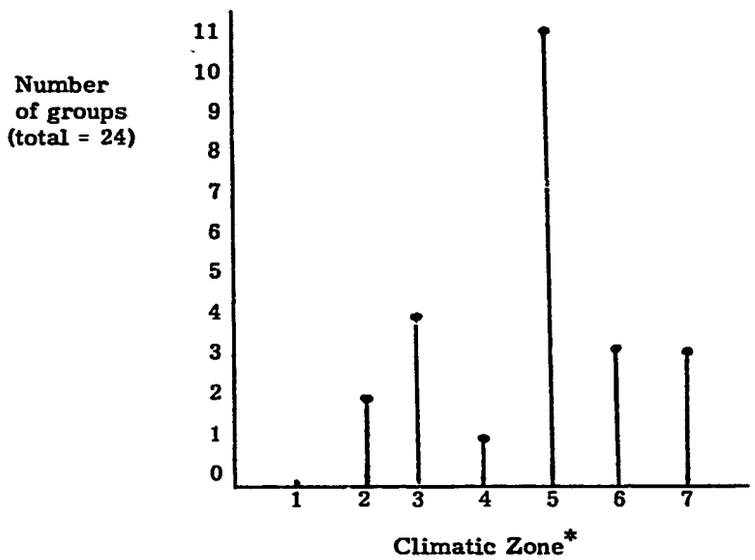
On social organization, we have three variables: settlement patterns (ranging from fully migratory or nomadic, to permanent complex settlements); community organization (ranging from local/small scale/endogamous communities, to larger/clan based/exogamous communities); patrilineal kin groups (ranging from small scale/kinship groups, to large scale/kinship groups).



Map 3. Geographic Distribution of Culture Groups.

Table 11

Culture Clusters by Climatic Zone

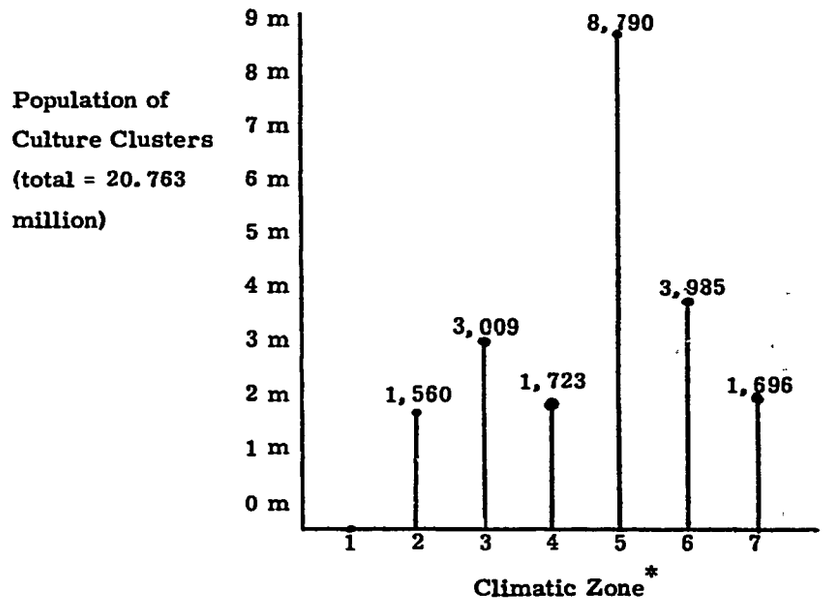


Key to Climatic Zone:

1 = Desert
2 = Desert/Sahel
3 = Sahel
4 = Sahel-Sudan
5 = Sudan
6 = Sudan/Woodland
7 = Woodland

Table 12

Population of Culture Clusters by Climatic Zone



Key to Climatic Zone:

1 = Desert;
2 = Desert/Sahel
3 = Sahel
4 = Sahel-Sudan
5 = Sudan
6 = Sudan/Woodland
7 = Woodland

We have three variables reflecting authority patterns: a mode-of-decision-making authority scale (ranging from segmental decision-making in which decentralized, widespread participation is involved, to hierarchical decision-making in which centralized, limited participation is involved); hierarchy above the family (ranging from stateless societies to larger kingdoms); succession-to-authority patterns (ranging from non-hereditary succession to succession by a son).

We have two variables regarding inheritance: general inheritance (ranging from absence of rules, to patrilineal inheritance by son or sons); inheritance of moveable property (ranging from absence of rules to patrilineal inheritance by son or sons). We will discuss land tenure (and inheritance) in a separate section.

2.1.3 Summary of cultural patterns: A histograph and data rank order display is included in Appendix 2 for all variable distributions. In this section, broader patterns will be summarized.

With regard to mode of livelihood, there are three main clusters: farmers, herders, and mixed farmers/herders. These patterns are shown in Table 13.

In effect, however, there is a bi-modal distribution into two groups, herders and farmers. This is strongly confirmed in the Q-type factor analysis (see Appendix 2). Significantly, there are only four groups with more than a 50 percent dependence on animals: the Fulani (Bororo), Tuareg (Asben), Arabs (Shuwa), and Moors (Zenaga). With regard to types of animals, all of the culture clusters are engaged in cattle rearing, three groups are involved with camels, and two groups (in Upper Volta) primarily with sheep and goats.

There are three groups engaged in fishing: two in Senegal (Diola and Serer) along the coast, and one on the Niger River (Songhai).

Table 13

Cultural Clusters: Mode of Livelihood by Demographic Variables

Cultural Cluster	Mode of Livelihood Agri	Anim	Fish	Hunt	Climatic Zone	Population (1967) (000)	Rank Size (1=large)	Spill Over Into Coastal States
I. High Agriculture								
Wadai	7	3	0	0	Sudanic (5)	324 (Ch)	5	-
Senufu	7	1	0	0	Woodland (7)	712 (Mal) & 363 (UV) = 1,075 (total)	3	Ivory Coast
Soninke	7	2	0	0	Sudanic (5)	380 (Mal)	5	-
Hausa	7	2	0	0	Sudanic (5)	1,631 (Nig)	2	Nigeria
Bobo	7	2	0	1	Sudanic (5)	880 (UV)	4	-
Kusasi	7	3	0	0	Sudanic (5)	341 (UV)	5	Ghana
Bisa	7	1	0	1	Sudanic (5)	242 (UV)	5	Dahomey
Sara	6	3	0	1	Sudanic (5)	955 (Ch)	4	Cameroon
Kanuri	6	2	1	0	Sahel (3)	177 (Nig)	5	Nigeria
Wolof	6	3	1	0	Woodland/ Sudanic (6)	1,358 (Sen)	3	Gambia
Malinke	6	1	1	1	Sudanic (5)	257 (Sen)	5	Guinea
Lobi	6	2	0	1	Woodlands (7)	291 (UV)	5	Ivory Coast
Gurma	6	2	1	1	Sudanic (5)	275 (UV)	5	-
II. Mixed Agriculture								
Teda	5	3	0	0	Sahel (3)	239 (Ch)	5	-
Bambara	5	2	1	0	Sudanic/Wood (6)	2,040 (Mal)	1	-
Songhai	5	3	2	0	Sudanic (5)	289 (Mal) & 674 (Nig) = 963	4	-
Tukulor	5	4	1	0	Sahel (3)	143 (Maur) & 880 (Sen) = 1,023	3	-
Serer	5	2	2	0	Sudanic/Wood (6)	587 (Sen)	4	-
Mossi	5	2	0	1	Sudanic (5)	2,542 (UV)	1	-
III. Low Agriculture								
Asben (Tuareg)	4	6	0	0	Sahel/Desert (2)	303 (Mal) & 355 355 (Nig) = 658	2	Nigeria
Diola	4	2	3	0	Woodland (7)	330 (Sen)	5	Gambia
Zenaga (Maur/Arab)	3	7	0	0	Sahel/Desert (2)	902 (Maur)	4	-
Shuwa (Arab)	2	6	0	1	Sahel (3)	1,570 (Ch)	2	Cameroon/Nigeria
Bororo (Fulani)	2	8	0	0	Sudani/Sahel (4)	949 (Mal) & 461 = (Nig) & 313 (UV) = 1,723	2	Nigeria/Guinea Ivory Coast

There are eight groups marginally involved in hunting.

Among the farmers, there is little variance in type of crop, since all groups are engaged in the production of cereals. (One group--the Teda--is substantially involved in tree fruits.)

The relationship between climatic zone and mode of livelihood makes it clear that most of the groups highly dependent on agriculture are located in the Sudan zone, and thus have access to higher rainfall. The groups involved in animal husbandry are often located in the Sahel zone. Notably, the Fulani group straddles all ecological zones. There is no clear systematic relationship between population size and mode of livelihood, and the Arab/Fulani groups are among the largest in population.

Patterns concerning modes of community organization indicate that the four herder groups are also the most migratory/nomadic. At the other extreme, most of the permanently settled groups are highly dependent on farming. Regarding scale, there is clearly a bi-modal distribution between endogamous and exogamous communities. With regard to patrilineages, the standard deviation is high, indicating considerable variation in scale.

Authority patterns demonstrate that the average for all groups is closest to hierarchical. Yet there is an important cluster of groups (mainly in Upper Volta) that are segmental. With regard to hierarchy above the family, the average is the medium sized paramount chiefdom. There is considerable variation concerning succession to the office of head man.

The expected values for Muslim groups on both inheritance variables would be all children getting a portion, but with daughters getting less than sons. The actual average was in this direction, but with considerable variation, including some groups that are matrilineal

and some strongly patrilineal.

A summary of cultural variables is included in Tables 14, 15, and 16.

2.1.4 National composites of cultural patterns: We have reaggregated the culture clusters by national units to examine whether there are significant variations. The tables showing these variations are included in Appendix 2.

Table 17 shows there is significant variation between Mauritania (which is more dependent on animals, and less on farming) and Upper Volta (the reverse) in mode of livelihood.

Social organization patterns indicate some variation between Chad/Mauritania and the others, perhaps reflecting the more nomadic populations in these areas. (See Table 18.)

Authority patterns demonstrate significant variation between Mauritania (with its hierarchical central tendency) and Upper Volta (with its segmental system). At the same time, the hierarchy above the family in Mauritania is low, since the lineage systems are not part of larger political organizations. (See Table 19.)

With regard to inheritance, Mauritania and Niger conform to the Islamic expectation, while the other four states are mixed. (See Table 20.)

2.1.5 Problems and prospects: Any planning strategy which does not consider the cultural patterns of the peoples of the Sahel-Sudan region will probably run into trouble. We are aware that the colonial policy in this area did not take cultural factors into account to the extent undertaken in other parts of west Africa. There was, perhaps, a concern that any recognition of cultural diversity might kindle divisiveness among peoples, and also undermine the assimilation process into European culture. This policy, which will be discussed throughout this report, has probably resulted in lower levels of

Table 14

Social Organization

PATRLINEAL KINSHIP GROUPS

RANGE = 3.00
MEAN = 3.00
STANDARD DEVIATION = 1.15

POPULATION PERCENT CUM.	POPULATION PERCENT REGION	ETHNIC GROUP RANK	ETHNIC GROUP NAME	VALUE	RANGE DECILE
7.6	7.6	6.0	SHUWA	4	1
8.7	1.1	6.0	TEDA	4	
18.5	9.8	6.0	BAMBARA	4	
23.7	5.2	6.0	SENUFO	4	
25.5	1.8	6.0	SONINKI	4	
29.9	4.3	6.0	ZENAGA	4	
34.8	4.9	6.0	TUKULOR	4	
36.1	1.2	6.0	MALINKI	4	
48.3	12.2	6.0	MOSSI	4	
49.9	1.6	6.0	KUSASI	4	
51.1	1.1	6.0	BISA	4	
55.7	4.6	15.0	SARA	3	4
60.3	4.6	15.0	SONGHAI	3	
68.2	7.9	15.0	HAUSA	3	
74.7	6.5	15.0	WOLOF	3	
76.3	1.6	15.0	DIOLA	3	
80.5	4.2	15.0	BOBO	3	
81.8	1.3	15.0	GURMA	3	
84.7	2.8	19.0	SERER	2	7
86.2	1.6	20.0	OUIDAI	1	10
94.5	8.3	21.0	BORORO	1	
97.7	3.2	22.0	ASBEN-TUAREG	1	
98.6	.9	23.0	KANURI	1	
100.0	1.4	24.0	LOBI	1	

SETTLEMENT PATTERNS

RANGE = 7.00
MEAN = 5.33
STANDARD DEVIATION = 2.09

POPULATION PERCENT CUM.	POPULATION PERCENT REGION	ETHNIC GROUP RANK	ETHNIC GROUP NAME	VALUE	RANGE DECILE
1.6	1.6	1.0	OUIDAI	8	1
11.4	9.8	7.0	BAMBARA	7	2
16.6	5.2	7.0	SENUFO	7	
18.4	1.8	7.0	SONINKI	7	
23.0	4.6	7.0	SONGHAI	7	
28.0	4.9	7.0	TUKULOR	7	
35.8	7.9	7.0	HAUSA	7	
36.7	.9	7.0	KANURI	7	
38.3	1.6	7.0	DIOLA	7	
39.5	1.2	7.0	MALINKI	7	
40.8	1.3	7.0	GURMA	7	
41.9	1.1	7.0	BISA	7	
46.5	4.6	15.5	SARA	5	5
49.4	2.8	15.5	SERER	5	
61.6	12.2	15.5	MOSSI	5	
65.9	4.2	15.5	BOBO	5	
67.5	1.6	15.5	KUSASI	5	
68.9	1.4	15.5	LOBI	5	
75.4	6.5	19.0	WOLOF	4	6
83.7	8.3	20.0	BORORO	3	8
84.9	1.1	21.5	TEDA	2	9
89.2	4.3	21.5	ZENAGA	2	
96.8	7.6	23.0	SHUWA	1	10
100.0	3.2	24.0	ASBEN-TUAREG	1	

COMMUNITY ORGANIZATION

RANGE = 4.00
MEAN = 3.58
STANDARD DEVIATION = 1.61

POPULATION PERCENT CUM.	POPULATION PERCENT REGION	ETHNIC GROUP RANK	ETHNIC GROUP NAME	VALUE	RANGE DECILE
4.6	4.6	3.5	SARA	6	1
9.5	4.9	3.5	TUKULOR	6	
16.1	6.5	3.5	WOLOF	6	
17.7	1.6	3.5	KUSASI	6	
19.0	1.3	3.5	GURMA	6	
20.1	1.1	3.5	BISA	6	
21.3	1.1	7.5	TEDA	5	3
29.6	8.3	7.5	BORORO	5	
39.4	9.8	12.5	BAMBARA	3	8
44.6	5.2	12.5	SENUFO	3	
48.9	4.3	12.5	ZENAGA	3	
56.8	7.9	12.5	HAUSA	3	
57.7	.9	12.5	KANURI	3	
59.2	1.6	12.5	DIOLA	3	
71.5	12.2	12.5	MOSSI	3	
75.7	4.2	12.5	BOBO	3	
83.3	7.6	17.0	SHUWA	2	10
84.8	1.6	18.0	OUIDAI	2	
86.7	1.8	19.0	SONINKI	2	
89.8	3.2	20.0	ASBEN-TUAREG	2	
94.5	4.6	21.0	SONGHAI	2	
97.3	2.8	22.0	SERER	2	
98.6	1.2	23.0	MALINKI	2	
100.0	1.4	24.0	LOBI	2	

Table 15

Authority Patterns

APTER AUTHORITY MEASURE

RANGE = 2.00
MEAN = 2.27
STANDARD DEVIATION = .86

POPULATION PERCENT CUM.	POPULATION PERCENT REGION	ETHNIC GROUP RANK	ETHNIC GROUP NAME	VALUE	RANGE DECILE
7.6	7.6	6.5	SHUWA	3	1
9.1	1.6	6.5	OUIDAI	3	
18.9	9.8	6.5	BAMBARA	3	
27.2	8.3	6.5	BORORO	3	
32.4	5.2	6.5	SENUFO	3	
34.3	1.8	6.5	SONINKI	3	
38.6	4.3	6.5	ZENAGA	3	
43.5	4.9	6.5	TUKULOR	3	
50.1	6.5	6.5	WOLOF	3	
52.9	2.8	6.5	SERER	3	
54.5	1.6	6.5	DIOLA	3	
55.8	1.3	6.5	GURMA	3	
57.0	1.1	14.5	TEDA	2	5
60.1	3.2	14.5	ASBEN-TUAREG	2	
68.0	7.9	14.5	HAUSA	2	
80.2	12.2	14.5	MOSSI	2	
84.8	4.6	17.0	SARA	1	10
86.1	1.2	18.0	MALINKI	1	
90.3	4.2	19.0	BOBO	1	
91.9	1.6	20.0	KUSASI	1	
93.3	1.4	21.0	LOBI	1	
94.5	1.1	22.0	BISA	1	

DATA NOT AVAILABLE FOR THE FOLLOWING GROUPS

SONGHAI KANURI

HEIRARCHY ABOVE FAMILY

RANGE = 2.00
MEAN = 1.88
STANDARD DEVIATION = .67

POPULATION PERCENT CUM.	POPULATION PERCENT REGION	ETHNIC GROUP RANK	ETHNIC GROUP NAME	VALUE	RANGE DECILE
1.6	1.6	2.5	OUIDAI	3	1
6.2	4.6	2.5	SONGHAI	3	
7.0	.9	2.5	KANURI	3	
19.3	12.2	2.5	MOSSI	3	
26.8	7.6	11.0	SHUWA	2	5
28.0	1.1	11.0	TEDA	2	
37.8	9.8	11.0	BAMBARA	2	
43.0	5.2	11.0	SENUFO	2	
44.8	1.8	11.0	SONINKI	2	
48.0	3.2	11.0	ASBEN-TUAREG	2	
52.3	4.3	11.0	ZENAGA	2	
57.3	4.9	11.0	TUKULOR	2	
65.1	7.9	11.0	HAUSA	2	
71.7	6.5	11.0	WOLOF	2	
74.5	2.8	11.0	SERER	2	
75.7	1.2	11.0	MALINKI	2	
77.1	1.3	11.0	GURMA	2	
81.7	4.6	18.0	SARA	1	10
90.0	8.3	19.0	BORORO	1	
91.6	1.6	20.0	DIOLA	1	
95.8	4.2	21.0	BOBO	1	
97.4	1.6	22.0	KUSASI	1	
98.8	1.4	23.0	LOBI	1	
100.0	1.2	24.0	BISA	1	

SUCCESSION PATTERNS

RANGE = 4.00
MEAN = 3.92
STANDARD DEVIATION = 1.22

POPULATION PERCENT CUM.	POPULATION PERCENT REGION	ETHNIC GROUP RANK	ETHNIC GROUP NAME	VALUE	RANGE DECILE
7.6	7.6	2.5	SHUWA	6	1
9.4	1.8	2.5	SONINKI	6	
21.6	12.2	2.5	MOSSI	6	
22.7	1.1	2.5	BISA	6	
24.1	1.4	5.0	LOBI	5	3
34.0	9.8	11.5	BAMBARA	4	5
39.2	5.2	11.5	SENUFO	4	
42.3	3.2	11.5	ASBEN-TUAREG	4	
47.0	4.6	11.5	SONGHAI	4	
54.8	7.9	11.5	HAUSA	4	
55.7	.9	11.5	KANURI	4	
62.2	6.5	11.5	WOLOF	4	
65.0	2.8	11.5	SERER	4	
66.6	1.6	11.5	DIOLA	4	
67.9	1.2	11.5	MALINKI	4	
72.1	4.2	11.5	BOBO	4	
73.8	1.6	11.5	KUSASI	4	
74.9	1.1	19.0	TEDA	3	8
83.2	8.3	19.0	BORORO	3	
88.1	4.9	19.0	TUKULOR	3	
92.7	4.6	21.0	SARA	2	10
94.3	1.6	22.0	OUIDAI	2	
98.6	4.3	23.0	ZENAGA	2	
100.0	1.3	24.0	GURMA	2	

Table 16

Inheritance

GENERAL INHERITANCE

RANGE = 5.00
MEAN = 3.67
STANDARD DEVIATION = 1.80

POPULATION PERCENT CUM.	POPULATION PERCENT REGION	ETHNIC GROUP RANK	ETHNIC GROUP NAME	VALUE	RANGE DECILE
1.8	1.8	4.0	SONINKI	6	1
6.2	4.3	4.0	ZENAGA	6	
11.1	4.9	4.0	TUKULOR	6	
19.0	7.9	4.0	HAUSA	6	
31.2	12.2	4.0	MOSSI	6	
32.5	1.3	4.0	GURMA	6	
33.6	1.1	4.0	BISA	6	
36.8	3.2	8.0	ASBEN-TUAREG	5	2
38.4	1.6	11.0	OUIDAI	4	4
39.5	1.1	11.0	TEDA	4	5
44.2	4.6	11.0	SONGHAI	4	
45.0	.9	11.0	KANURI	4	
51.5	6.5	11.0	WOLOF	4	
52.9	1.4	14.0	LOBI	3	6
57.5	4.6	18.5	SARA	2	8
67.4	9.8	18.5	BAMBARA	2	9
72.6	5.2	18.5	SENUFO	2	
75.4	2.8	18.5	SERER	2	
77.0	1.6	18.5	DIOLA	2	
78.2	1.2	18.5	MALINKI	2	
82.5	4.2	18.5	BOBO	2	
84.1	1.6	18.5	KUSASI	2	
91.7	7.6	23.0	SHUWA	1	10
100.0	8.3	24.0	BORORO	1	

INHERITANCE OF MOVEABLE PROPERTY

RANGE = 4.00
MEAN = 4.29
STANDARD DEVIATION = 1.46

POPULATION PERCENT CUM.	POPULATION PERCENT REGION	ETHNIC GROUP RANK	ETHNIC GROUP NAME	VALUE	RANGE DECILE
7.6	7.6	4.5	SHUWA	6	1
15.9	8.3	4.5	BORORO	6	
21.0	5.2	4.5	SENUFO	6	
23.9	2.8	4.5	SERER	6	
36.1	12.2	4.5	MOSSI	6	
37.7	1.6	4.5	KUSASI	6	
39.1	1.3	4.5	GURMA	6	
40.2	1.1	4.5	BISA	6	
41.6	1.4	9.0	LOBI	5	3
43.1	1.6	14.5	OUIDAI	4	5
44.3	1.1	14.5	TEDA	4	
46.1	1.8	14.5	SONINKI	4	
49.3	3.2	14.5	ASBEN-TUAREG	4	
53.9	4.6	14.5	SONGHAI	4	
58.3	4.3	14.5	ZENAGA	4	
63.2	4.9	14.5	TUKULOR	4	
71.1	7.9	14.5	HAUSA	4	
71.9	.9	14.5	KANURI	4	
78.5	6.5	14.5	WOLOF	4	
83.1	4.6	20.0	SARA	2	10
92.9	9.8	21.0	BAMBARA	2	
94.5	1.6	22.0	DIOLA	2	
95.7	1.2	23.0	MALINKI	2	
100.0	4.2	24.0	BOBO	2	

Table 17

Mode of Livelihood

Dependence on Animal Husbandry-Mean

Range = 3.80 Mean = 3.83 Standard Deviation = 1.22

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
5.1	5.1	1.0	Mauritania	6	1
22.4	17.4	2.0	Niger	4	6
44.1	21.7	3.0	Mali	3	7
60.9	16.8	4.0	Senegal	3	8
76.5	15.6	5.0	Chad	3	9
100.0	23.5	6.0	Upper Volta	2	10

Dependence on Agriculture-Mean

Range = 2.60 Mean = 4.82 Standard Deviation = .78

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
23.5	23.5	1.0	Upper Volta	5	1
39.1	15.6	2.0	Chad	5	3
60.8	21.7	3.0	Mali	5	4
78.1	17.4	4.0	Niger	4	5
94.9	16.8	5.0	Senegal	4	
100.0	5.1	6.0	Mauritania	3	10

Table 18

Social Organization

Settlement Patterns-Mean

Range = 1.50 Mean = 5.00 Standard Deviation = .53

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.5	Senegal	5	1
40.3	23.5	1.5	Upper Volta	5	
62.0	21.7	3.0	Mali	5	2
79.3	17.4	4.0	Niger	5	4
94.9	15.6	5.0	Chad	4	6
100.0	5.1	6.0	Mauritania	4	10

Patrilineal Kin Groups-Mean

Range = 1.40 Mean = 2.77 Standard Deviation = .45

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
15.6	15.6	1.0	Chad	3	1
20.7	5.1	2.5	Mauritania	3	2
44.1	23.5	2.5	Upper Volta	3	
65.8	21.7	4.5	Mali	2	3
82.6	16.8	4.5	Senegal	2	
100.0	17.4	6.0	Niger	1	10

Table 19

Authority Patterns

Apter Authority Measure

Range = 1.10 Mean = 2.23 Standard Deviation = .37

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
5.1	5.1	1.0	Mauritania	3	1
26.8	21.7	2.0	Mali	2	7
43.6	16.8	3.0	Senegal	2	8
59.2	15.6	4.5	Chad	2	10
76.5	17.4	4.5	Niger	2	
100.0	23.5	6.0	Upper Volta	1	

Hierarchy Above Family-Mean

Range = .90 Mean = 1.82 Standard Deviation = .29

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
17.4	17.4	1.0	Niger	2	1
33.0	15.6	2.5	Chad	2	3
54.7	21.7	2.5	Mali	2	
59.7	5.1	4.5	Mauritania	1	6
76.5	16.8	4.5	Senegal	1	
100.0	23.5	6.0	Upper Volta	1	10

Table 20

Inheritance

Inheritance-Mean

Range = 1.50 Mean = 3.57 Standard Deviation = .48

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
5.1	5.1	1.0	Mauritania	4	1
22.4	17.4	2.0	Niger	4	2
38.0	15.6	3.5	Chad	3	6
61.5	23.5	3.5	Upper Volta	3	
83.2	21.7	5.0	Mali	3	7
100.0	16.8	6.0	Senegal	2	10

inter-ethnic conflict than in other parts of west Africa, but at a cost of increasing the cultural gap between ordinary people (especially rural peoples), and the "new elites." It is not our intention to suggest that policy planning systematically take into account all of the "ethnic arithmetic" which is often common in any country (since such arithmetic is always changing, and is almost always beyond the knowledge of the planner). We do suggest taking into account the broad culture groups, which are relatively durable in terms of their behavior patterns and sets of social meaning. We do not feel this will jeopardize national integration, but on the contrary, strengthen it by linking the rural masses to their governments.

In this section we have identified specific peoples who are engaged in pastoral herding, in farming, in mixed farming, and in fishing. We do not suggest that these patterns must continue into the future, but it does seem adviseable to consider them as a rough approximation to the cultural baseline in planning change. These patterns also represent an enormous resource--the skills and traditions of peoples--and they might be harnessed to the cause of ecological survival and reconstruction.

We will be making clear throughout this report the opportunities which now exist to "normalize" the situation with regard to the recognition of grassroots culture. If it is the premise of planners that they have to make Europeans out of herders and farmers before they can deal with problems of ecological survival, it is unlikely that much progress will be made before the end of this century. We will be exploring ways of harnessing cultural energy throughout this report. We note that this is a policy decision and costs and benefits remain to be assessed.

With specific reference to the herders, who are most affected by the current drought, we will be suggesting that the formation of a

West African Regional Commission on Pastoralism could link regional, national, and local interests in a coordinated way. We should recognize, however, that the position of pastoralists does differ by country and by ethnic group. The Fulani are by far the dominant group of herders and they are spread throughout west Africa. They have important linkages to the coastal areas. The potential for meat production in the area and the need for rational management suggests that we explore in more detail the possibilities of harnessing the cultural skills of the Fulani to modern ranching options, as well as more appropriate transhumance patterns of grazing.

The way of life of the Tuareg has been severely affected by the drought, and their former trans-Saharan trade (utilizing camels) does not seem to provide much promise for a means of livelihood for the future. Resettlement and retraining might be an option. Many Tuareg have already settled in urban refugee camps.

The Moors stand out in that they are not a minority in their country. In fact, they are in control of the country. Unlike some of the other pastoral groups who are often remote from their national governments, the Mauritanians have the machinery in hand for certain types of solutions, including reclustering and retraining in cities. However, even here certain problems may arise. Skinner (1974) comments: "Every extension of the central regime into the traditional economic and social relations of the nomads and the sedentaries, whether it was the colonial regime, or the African nation-states, has eroded nomad dominance or privilege. The exception has been Mauritania where the demographic superiority of the nomadic people linked to Islam and Arabism, has resulted in loss of the colonial-derived high status of many sedentaries. However, even here the nomads may be at a disadvantage since they may be victims of an alliance

between the sedentarized nomadic peoples and the agriculturalists against those who remain truly nomadic. The split between the Town Fulani (Gidda) and the 'Bush' Fulani (Boroje) that occurred in Nigeria may well be replicated in the western Sahel. There, the ethnic factor which linked the two Fulani communities, became less important than those factors that linked the Town-dwelling Fulani and the Town-dwelling Hausa."

The situation in Chad is very different from that in Mauritania. There the pastoralists have had little contact with the national government (outside of taxation), although they have had historic and cultural ties with Libya and Sudan. Thus, if resettlement is to occur it might be to the north as well as to the south.

Because of the importance to this report of considering herders and farmers, we will look in more detail in the next section at the cultural correlations between different modes of livelihood. We will examine in particular, the patterns of traditional authority which are associated with different groups. It is our hypothesis that cultural modes of authority can play a significant role in the mobilization of rural peoples.

2.2 Mode of Livelihood and Authority Patterns

In this section we will examine the mode of livelihood cross-tabulations; authority pattern cross-tabulations; pastoral social/authority patterns; problems and prospects.

2.2.1 Mode of livelihood cross-tabulations: We have examined the pattern of relations between dependence on agriculture and demographic/climatic variables in the preceding section. The detailed results are presented in Appendix 2. We summarize below the relationship of dependence on agriculture to the other cultural variables. The statistical cross-tabulations are presented in Appendix 2.

There is an obvious inverse relationship between dependence on agriculture and dependence on animal husbandry. This is significant in interpreting further cross-tabulations--because in our continuum from high agriculture, through mixed agriculture, through low agriculture, we are also measuring (inversely) dependence on animal husbandry.

Community organization. There is a mixed pattern, and no apparent correlation between our endogamy/exogamy scale, and agriculture. It is hypothesized that exogamy would be more associated with the prospect of scale expansion than endogamy.

Patrilineal kinship. Most of the large scale kinship groups are associated with high agriculture. With regard to settlement patterns, the pattern confirms common sense: i.e., that the permanent settlement groups are high in agriculture, and the nomadic groups are low in agriculture.

Hierarchy above the family. There is a mixed pattern, although none of the low agriculture groups have chiefdoms, the high agriculture groups are divided between stateless (five groups), paramount groups (six groups), and chiefdoms (2 groups).

Succession patterns. 42% of the ethnic groups are both highly dependent on agriculture and have succession patterns whereby succession is passed to relatives, not just children. The low agriculture groups are evenly divided between those with succession to the son or sons, and those for which there are no definite rules.

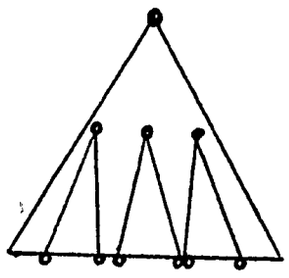
Inheritance. The groups highly dependent on agriculture are divided between those whose inheritance goes to non-children (five groups), children but with daughters less (three groups), and those where the inheritance goes exclusively to the sons (four groups). Interestingly, the two main low agriculture groups (Fulani and Arab) do not have generalizable rules of inheritance. But with regard to inheritance of moveable property, the two low agriculture groups (Fulani

and Arab) give such property exclusively to sons. The Tuareg pattern is different and women inherit more. The high agriculture groups are divided between those that do not give inheritance to their own children (three groups), those who give to their children, but daughters less (five groups), those where the daughters are the only inheritors (one group), and those where the sons are the inheritors (four groups).

The point of the above analysis, is to suggest that generalizations about "farmers," in terms of cultural patterns, are difficult to make. Much of the problem of planning in the Sahel-Sudan area is that principles of social action which may suit one area are non-transferable to another area, due in part to variation in cultural patterns.

The patterns exhibited by herders are more consistent, but the Tuareg always seem to fall into a category by themselves in terms of cultural characteristics. Since there are only four groups of herders, it might be more fruitful to examine them on a case by case basis. We will do this in another section.

2.2.2 Authority pattern cross tabulations: We have examined the pattern of relations between authority patterns and other cultural variables. The authority measure is a three point scale, ranging from segmental, to pyramidal, to hierarchical. The segmental and hierarchical concepts have been introduced in the previous section. Pyramidal refers to council or representational decision-making. These concepts were elaborated by Apter (1965) and are discussed by Morrison,et al. (1972). Thus, the three prototypes may be represented as follows:



hierarchical system (one man decides)
pyramidal system (representatives decide)
segmental system (mass participation in decisions)

Figure 2. Authority Patterns.

We hypothesize that it is easier to mobilize a hierarchical system than a segmental system, since there are fewer persons to persuade (or coerce). On the other hand, there is some evidence (from Nigeria) to suggest that segmental systems allow individuals to adapt to social change at their own pace, and individuals are used to making their own decisions about such matters. Thus, a rural mobilization strategy would presumably differ, depending on the authority structure. We recognize that there are other considerations in mobilization, and it is difficult to assign causal importance to any single variable (such as authority). We also recognize that the colonial legacy has had its impact on these authority structures, and in some areas of high contact, there are few "authorities" left.

Significantly, the pastoral groups had least contact with the colonial regime, and hence their authority structures are more or less intact.

Let us turn now to the cross tabulations of authority with other variables. The exact tabulations are in Appendix 2.

Dependence on agriculture. The pastoralists are all hierarchical. The groups which are highly dependent on agriculture divide almost evenly between segmental (six groups) and hierarchical (five groups), with one group in the pyramidal category. There are no segmental groups in the mixed agriculture category. This may be due to the inclusion of several segmental groups from Upper Volta (from the non-Muslim areas) who are highly dependent on agriculture. It is of further interest to note that all of the groups with any dependence on fishing (six groups) are hierarchical. In short, fishermen and herders are hierarchical, and farmers are evenly divided.

Settlement patterns. The more migratory a group, the more

likely it is to be hierarchical. Farmers who are part of large scale permanent settlements are likely to be hierarchical, and those between migratory and permanent are likely to be segmental. The pattern of community organization (endogamous/exogamous) is mixed, as in the pattern of patrilineal kin groups (i.e., scale of patrilineage).

Hierarchy above the family. Five stateless groups are segmental, but two stateless groups are hierarchical. (This latter is not a contradiction, since the hierarchical system may exist within a limited clan or lineage.) The paramount chiefdoms are divided between pyramidal and hierarchical.

Succession. There is a mixed pattern. Interestingly, three of the four non-hereditary succession groups are hierarchical. Those groups with succession going to relatives are divided between segmental (three groups) and hierarchical (five groups). The one case of succession going to sister's son is segmental.

Inheritance. In general, those groups with inheritance going to non-children are equally divided between segmental (four groups) and hierarchical (four groups). Those groups with children receiving inheritance, but daughters less, tend to be hierarchical, as do those with sons getting the full inheritance. The one case of matrilineal inheritance is the Tuareg, who are pyramidal. The same pattern holds for moveable property.

In short, there are many permutations on cultural modes in the Sahel-Sudan region. Authority patterns vary widely with mode of livelihood, social organization, and inheritance patterns. We are also aware that under the impact of the drought, some of these social patterns may be changing. Thus, if the leadership level dies out, the remainder of the group may or may not continue with those patterns in a new environment. In general, the cultural exception to the region as a whole is the cluster of groups in Upper Volta. This may

be related to religious factors, which will be discussed in a later section. For a summary of authority and agriculture cross-tabulations, see Table 21.

2.2.3 Pastoral social/authority patterns: As mentioned above the four major groups of pastoral herders are the Fulani, Tuareg, Moors, and Arabs. In this section we will illustrate how Fulani authority patterns interact within their social system. Fulani society is probably the most complicated, and numerically significant, insofar as lineages cross occupational, cultural, and geographic zones throughout west Africa. The importance of the Fulani illustrates the need for case studies of cultural groups.

The Fulani describe themselves as living in three different life styles: the pastoral nomads (called Bororo); the rural settled Fulani who mix farming with animal husbandry; and the urban Fulani who throughout the nineteenth and twentieth centuries have been associated with the administration of large scale kingdoms. In this section we will describe the authority patterns of the Bororo, while recognizing that many of these patterns seem to carry over into the other two categories, but with modifications.

In Bororo society, authority is vested with the lineage leader, or ardo. The ardo may have responsibility for lineages of about three generations. He does not have formal power, but has the authority to make decisions when necessary. There is usually discussion and consultation among the sons and grandsons before a decision is made. When an ardo becomes too old to function, he may keep his title, but the decision process is handled by his sons or brothers or grandsons.

Succession to authority is regarded as a matter of inheritance, although there are no specific rules of inheritance, and any male heir can (in theory) succeed to authority.

Table 21

Association of Dependence on Agriculture and Authority Patterns with Selected Key Variables for the 24 Sahel-Sudan Region Culture Clusters

Variable	Association With: Authority Patterns	Dependence on Agriculture
Dependence on Agriculture	(I)	---
Dependence on Animal Husbandry	---	(-)
Community Organization	(?)	(?)
Patrilineal Kinship	(?)	(+)
Settlement Patterns	(-)	(+)
Hierarchy Above Family	(I)	(?)
Succession Patterns	(?)	(I)
Inheritance Rules	(I)	(I)

KEY

(+) = positive association
(-) = negative association
(?) = ambiguous, mixed association
(I) = interactive association
--- = association not analyzed

The clan structure among the Fulani is the basis of their authority patterns. The basic unit is the "room" (sudu) within a family, which contains the children of one mother. The household itself (sare) implies a functional family, but not necessarily a physical location. The next scale of relations is dependents (iyalu), and relatives (bandirawo, pl. bandirabe). Increasingly sudu is used to imply patrilineal kinship, or clan. The notion of "tribe" (lenyol) implies language and kinship. The Fulani concept of nationhood is called ummatore and refers to cultural and linguistic unity. The Fulani refer to themselves as Pullo (singular) and Fulbe (plural). The French word "Peuhl" derives from Pullo. Thus, there is a concept of Fulani nationality, although the functional unit is the clan or lineage.

2.2.4 Problems and prospects: The cross-tabulations presented in this section should give the planner within a particular area some idea of the kinds of variables which are felt to bear on the question of rural mobilization and social change. If planning were more of a local matter (in consultation with various on-the-spot groups) these matters would perhaps resolve themselves. If planning is to continue at the national (and even regional level), the necessity for focused social research should be clear. It is a continuing suggestion of this report that since the ecological problems of the region often transcend national boundaries, and since the cultural groups often transcend national boundaries, there should be coordinated planning of all levels. We would include participation of the peoples involved in this planning. The question as to the basis of that participation may be related to the cultural traditions of the particular area.

There has been some experimentation since independence in the Sahel-Sudan region on the matter of consultation with chiefs. More commonly, in other parts of west Africa, where the military has taken

control of the country, there has been a marked tendency for them to consult with traditional elders and chiefs (perhaps in place of the politicians). In the Sahel-Sudan region, the policy of consultation has not really been engendered. In Niger (under the civilian regime) there was a ministry of nomadism, but it was less for the purpose of consultation, than for administrative purposes.

As the impact of the drought affects groups differentially, and hence creates the possibility of regrouping and resettlement (to be discussed in a later section), the question as to whether cultural criteria will be taken into account or not may become increasingly important. The case of the pastoralists is particularly pressing, both in short term and long term consequence. The cultural patterns of small scale (e.g., lineage) groups with relatively centralized leadership may be a help or a hindrance, depending on how government policy treats the matter.

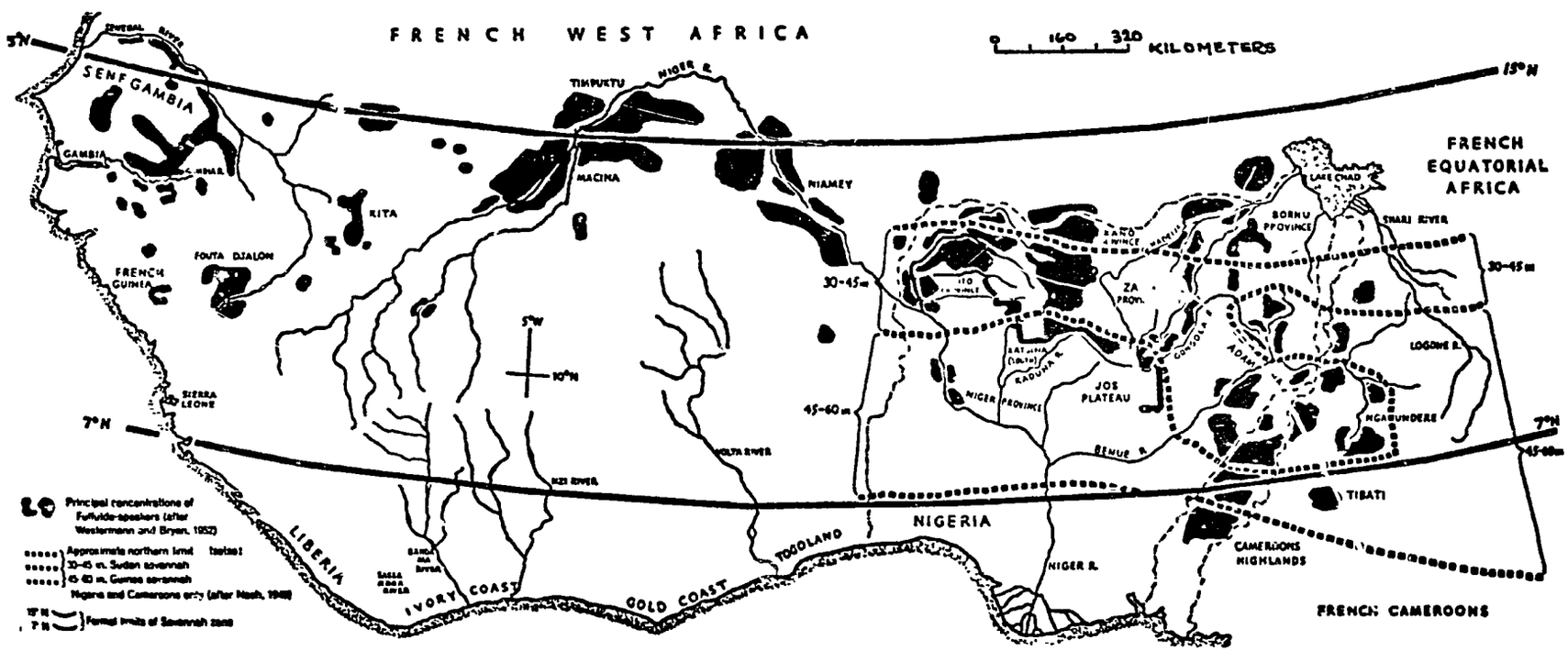
2.3 Ethnic Mobility and Interaction

The question of ethnic mobility and interaction in west Africa is of central importance to the issue of human adaptation to the drought and to the question of human relations (i.e., inter-group behavior) in the region. There is a considerable amount of literature on this subject, and selections are included in the reference bibliography. The regional implications of such movements are suggested by Mabogunje (1972), who argues that regional mobility is vital to the economic growth and resource development of west Africa. He is concerned with diffusion of techniques, material objects, cultural values, and the linkage which this mobility serves throughout west Africa. The general trend of migration has been mentioned in an earlier section. In this section we will examine ethnic transhumance, trade and ethnicity, farmers and fishermen, modes of interaction, and problems and prospects.

2.3.1 Ethnic transhumance and pastoral migration: The four major groups of pastoralists have been mentioned earlier: the Fulani (Peuhl) of Senegal, Mauritania, Mali, Niger, Chad, northern Nigeria and northern Cameroon; the Taureg of Mali and Niger; the Moor (Maur) of Mauritania; and the Arabs of Chad. There are two patterns of ethnic migration of interest to this report: general drift/ migration patterns, specific transhumance patterns.

For the Fulani the general trend over the past four centuries has been a movement from west to east: i.e., from the Senegal (Futo Toro) and Guinea (Futa Jallon) region along the Niger River, and into the savannalands of northern Nigeria and northern Cameroon. This migration pattern accounts for the current distribution pattern of the Fulani in west Africa (see Map 4). Having established this pattern, the seasonal transhumance (i.e., following of the weather from one climatic zone to another) direction proceeds from north to south. Thus, cattle are bred in the Sahel zone, and during the dry season are grazed further south in the Savanna zone. Fulani relationship to the settled agricultural communities is symbiotic: milk and animal fertilizer are exchanged for grain, fodder and food stuffs. Finally, at the time of slaughter, the Fulani herdsmen usually drive a significant portion of their cattle even further south, into the woodlands and rain forest belt, and sell them in the large markets (see Abner Cohen, 1969). Since this means the cattle are entering the tsetse fly zone, they must be sold to "southern" butchers within a week or so, or the cattle will die of disease. (Note: it is required by Muslim law that cattle be slaughtered in a Kosher manner, before the animal dies of natural causes.)

These transhumance patterns of the Fulani pastoralists are known in considerable detail (see, for example, Okediji, 1973). There have been studies of different patrilineage (clan) groups throughout west



Map 4. Distribution of Fulani in Relation to the Savanna zone of west Africa.

Africa (see reference bibliography).

The pattern of Moorish pastoralism is also known. Since their contact is less with settled agricultural peoples, the transhumance patterns are a reflection more of ecological and kinship patterns. This is illustrated in Map 5.

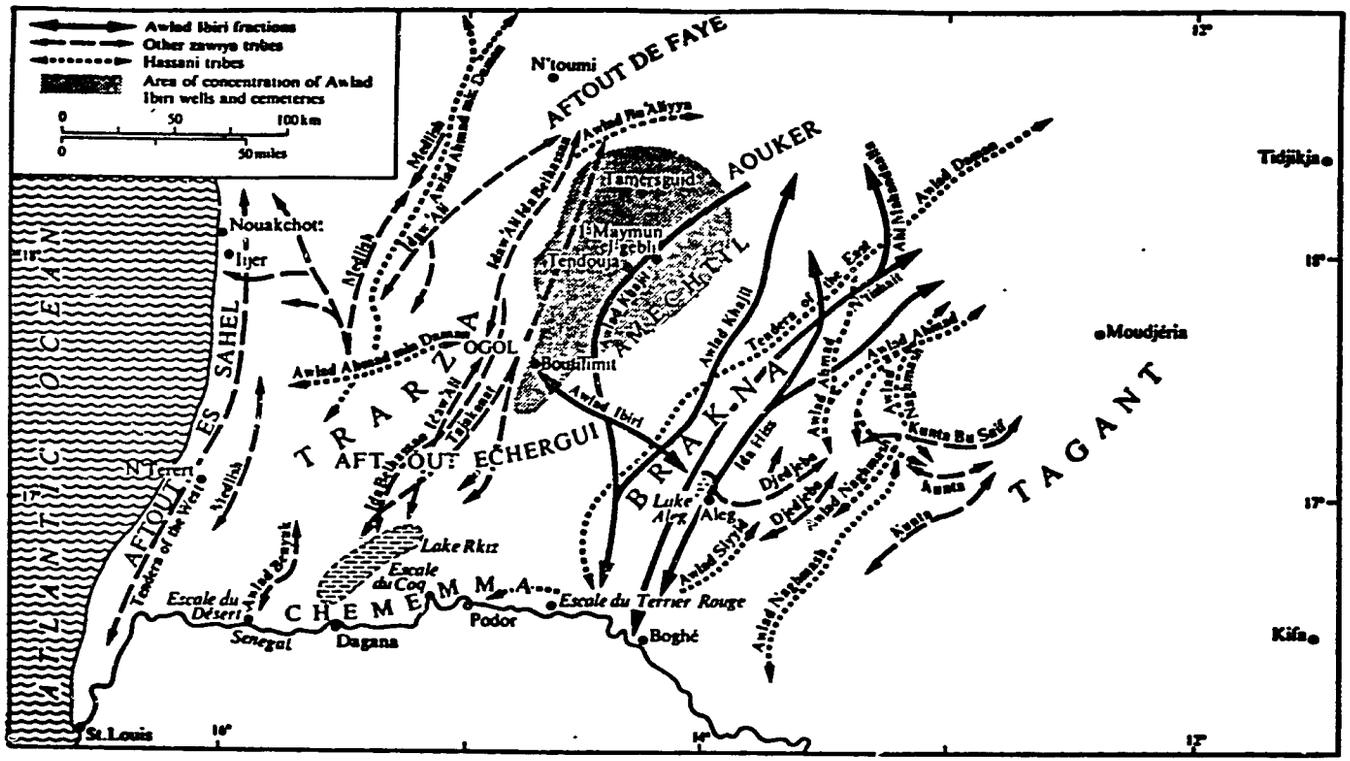
The background migration trend for Tuareg nomadism in Mali and Niger has been to spread along the caravan routes across the Sahara. In fact, the Tuareg with their camels controlled much of the trans-Saharan trade. This has meant a north/south pattern, rather than east/west. Thus the Tuareg have important kinship linkages in both northern Africa (especially Algeria) and northern Nigeria (especially Kano). For a discussion of both transhumance and caravan routes, see Nicholaisen (1963).

The transhumance/migration patterns of Arabs in northern Chad are less well known in detail, but reflect kinship patterns, as in the case of Mauritania.

The overall patterns of transhumance have been presented earlier in the map by Poncet (1973).

An additional topic related to pastoralism is the migration of Fulani into the cities, a phenomenon which has occurred throughout west Africa. For a description of this in Senegal, see Diop, (1965); for a description on northern Nigeria, see Paden (1973).

2.3.2 Trade and ethnicity: The long distance traders in west Africa have been a most significant example of regional mobility, but the trade patterns have frequently been the monopoly of specific ethnic groups. The most notable of these groups have been the Mande (including Malinke, Dyula, Bambara, Soninke) and the Hausa. The Zerma(Djerma)/Songhai and the Yoruba have also participated in long distance trade. The Dyula and Hausa languages have come to be the major trade languages of west Africa, even along



Map 5. Nomadic Patterns in Mauritania

This abbreviated map of nomadic patterns is taken from F. Bonnet-Dupeyron, *Transhumance et nomadisme en Basse-Mauritanie vers l'est: jusqu'à Aloun el Atrouss, carte provisoire* (Office de la Recherche Scientifique Coloniale, Bureau d'Études Humaines, Paris, 1950).

Indications from the placement of wells and cemeteries of the Awlad Ibiri suggest that the present nomadic patterns of that tribe are fifty to seventy-five km. to the east of their patterns of nomadism in the mid-nineteenth century.

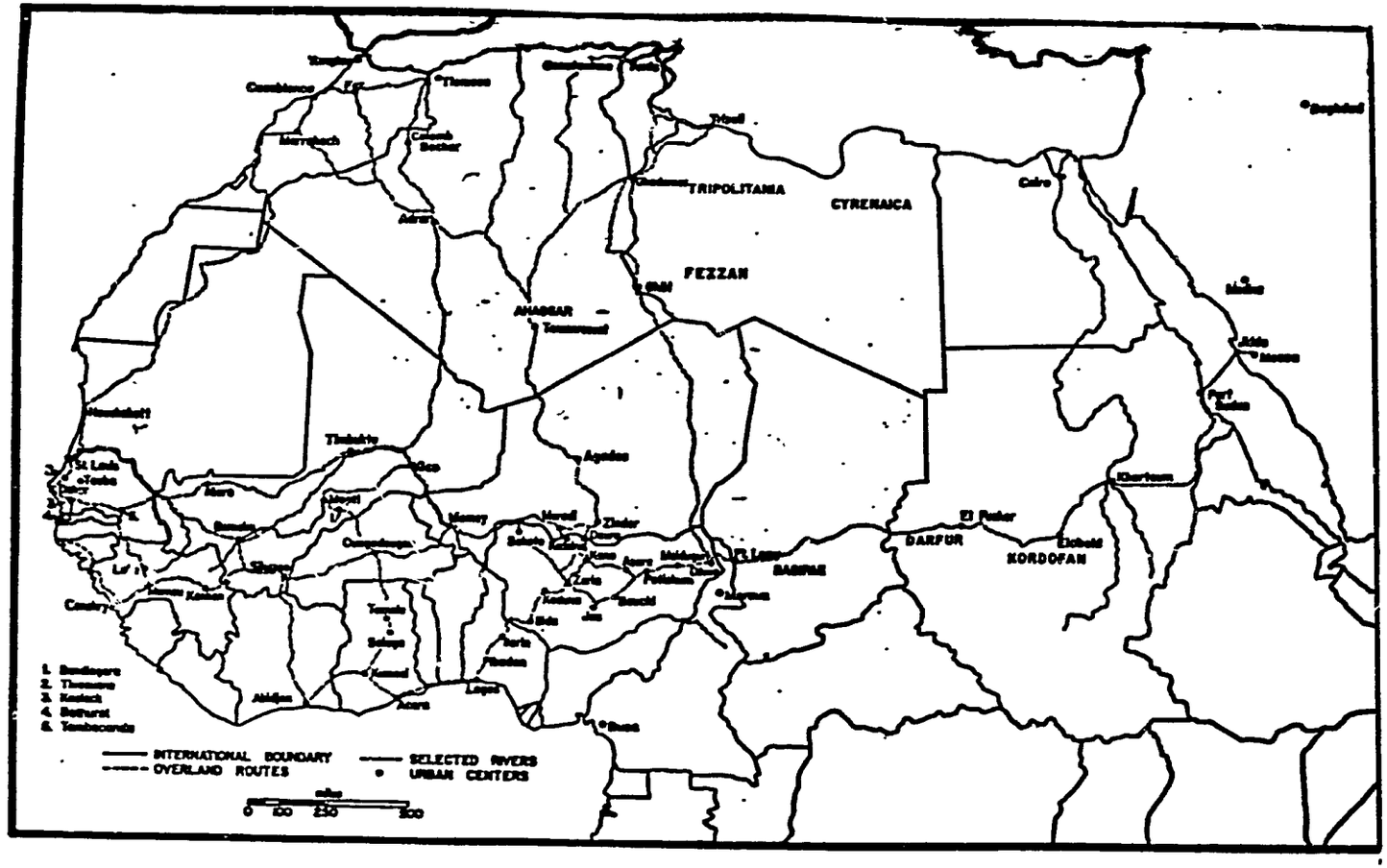
source: Stewart: Islam and Social Order in Mauritania, Cambridge 1973

the coast. In every coastal city there is a significant "section" of town where these groups live and trade. The mobility patterns usually follow the rail and road routes, but coastal shipping facilities and air routes are increasingly being used. The major routes used by these traders are shown in Map 6. These traders have considerable potential for the diffusion of both material and ideational innovation. The fact that both of these major groups are Muslim (to be discussed in the next section) has aided the spread of Islam in the area.

2.3.3 Farmers, fishermen, and ethnicity: A significant example of the migration of fishermen in the Sahel-Sudan region is found among the Songhai, especially a sub-group called Sorkawa. These people have their "home base" in northern Nigeria, but have extended themselves as far up the Niger as Timbuktu (Mali), and as far south as Onitsha/Aboh (Nigeria). In some areas, they have assimilated themselves into local Hausa society. A map of this migration, Map 7, is included. The migration of coastal fishermen is a more important facet of ethnic migration in west Africa, but the inland water routes have also attracted ethnic-based fishermen.

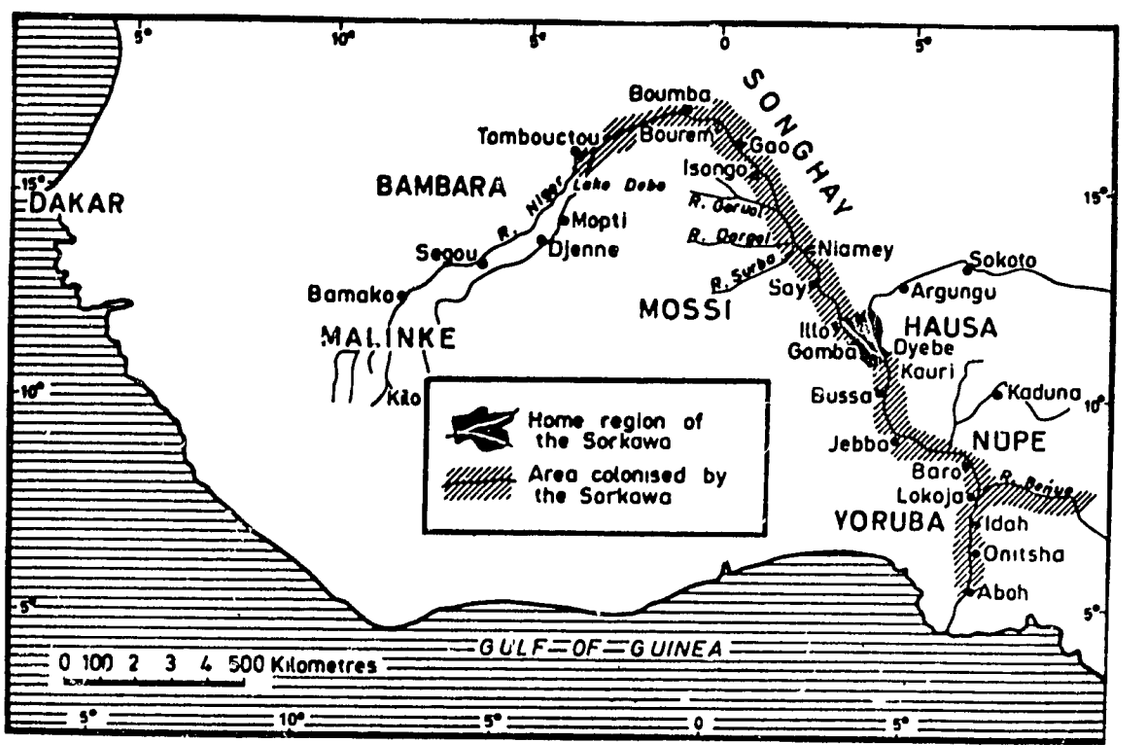
With regard to farmers, many of the migration patterns described in an earlier section follow ethnic lines. In particular instances, such as migration of Hausa from Niger into Nigeria, or Mossi of Upper Volta into Ghana, the magnitudes of the migrations are so large as to have impacts on inter-state division of labor. Thus, the Mossi began to move into Gold Coast (Ghana) from 1920 to 1950, and then shifted over into Ivory Coast. More than one-third of the active population of Upper Volta participates in these migration patterns. Voltaic manpower has become predominant in several modern sectors of the Ivory Coast (e.g., industrial plantations, dock workers, etc.), as well as in the village plantation economy.

The Lobi are another group in Upper Volta who have moved into Ivory Coast. This is illustrated in Map 8.)



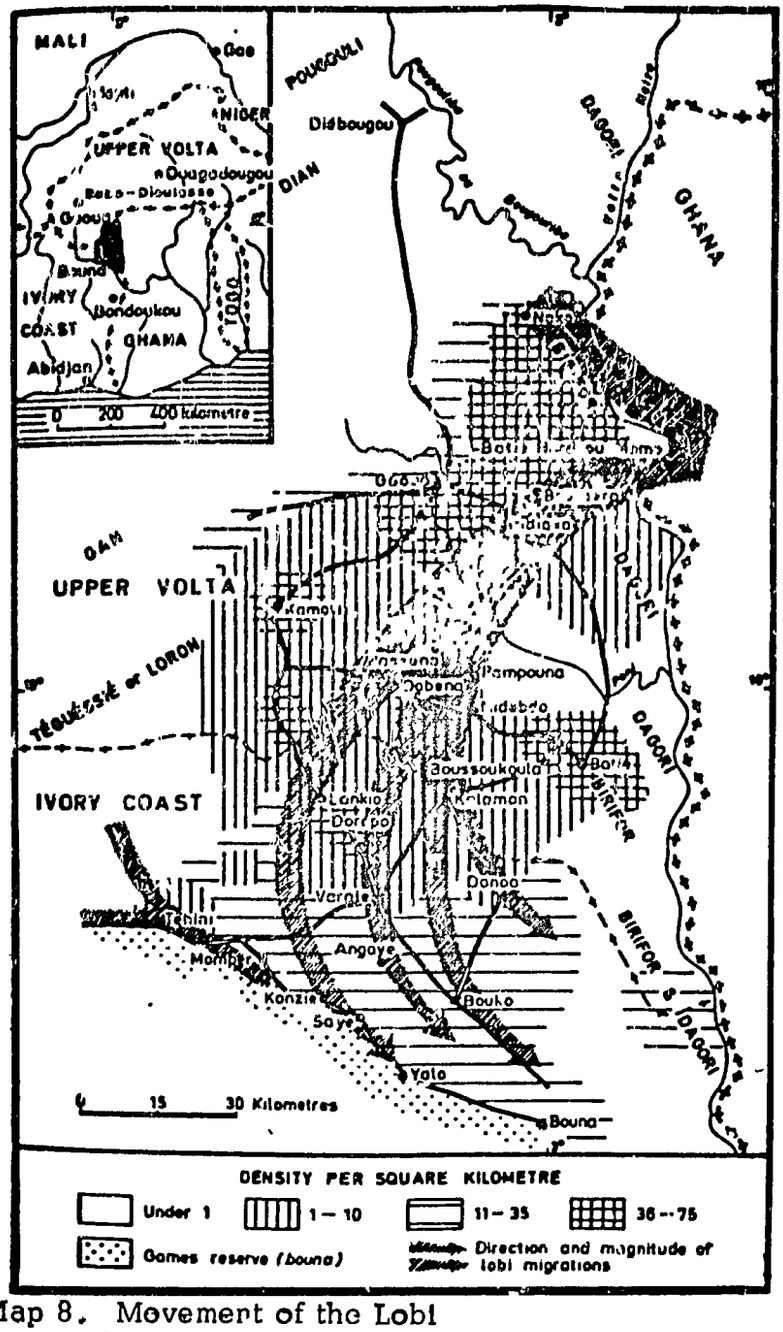
Map 6. Trade and Mobility Patterns in West Africa

Source: Paden, Religion and Political Culture in Kano, 1973



Map 7. Sorkawa Migration

Source: Jean Rouch. "Les Sorkawa, Pecheurs itinérants du moyen Niger," Africa, 20, No. 1 (January 1950): 6.



Map 8. Movement of the Lobi

Source: Georges Savonnet, "La colonisation du pays Koulango (Haute Côte d'Ivoire) par les Lobi de Haute-Volta," *Les Cahiers d'Outre Mer*, 15, no. 57 (January-March 1962): 29.

2.3.4 Modes of ethnic interaction: The prevailing mode of ethnic interaction stemming from migration has been cooperation rather than conflict. In some cases, ethnic migration, sponsored by colonial regimes, has caused tensions in the post-independence period, but this has been the exception rather than the rule. In short, there have been a number of mechanisms of economic cooperation created at the ethnic level in this region to accommodate inter-ethnic interaction and exchange. In some instances there have been social interactions as well, but this pattern has been influenced by the spread of universal religions in the area (to be discussed in a later section). Mabogunje (1972), estimates that in recent years "between two million and three million people move out of their ethnic areas into lands of other peoples or other countries." (p. 1) He notes that this is done spontaneously, and in most cases, without friction or conflict. He suggests that the major bottleneck to such migration and interaction has been political, rather than social or economic.

Patterns of bilingualism are closely associated with ethnic migration patterns, and ethnic voluntary associations exist in most urban centers of west Africa. The economic interdependence of different ethnic groups in west Africa has only recently been the object of social science investigation. Whether social distance attitudes (i.e., how close or how distant groups feel about each other) are dependent on economic interdependence, or cultural value congruence has been a matter of case study investigation (see Paden, 1975). One of the major mechanisms to accommodate inter-ethnic migration in west Africa has been "situational identity," i.e., the adaptation of ethnic identities to suit particular locations and needs.

Horowitz (1972) has looked at ethnic boundary maintenance in Niger and, particularly, relations between farming groups and pastoral

groups. He suggests that the "ethno-ecologic mosaic is maintained as a result of conscious choices of the individuals of the region." (p. 114) Thus, when ecology is out of balance, ethnic relations may also be out of balance. The greatest potential for conflict is between pastoral groups and settled groups.

2.3.5 Problems and prospects: Mabogunje (1972) concludes that the citizenship laws of most countries do not encourage migration on a transnational basis, and international migrants (often from the inland states to the coastal states) frequently try to hide their original identities and "blend in," or "pass." Mabogunje is concerned that in the original articles of the West African Economic Community (1967) the mobility of persons was not covered. However, in the draft treaty of 1974, the mobility of persons is included. While the final form of these agreements is still emerging, it appears that the possibility for free flow of persons would be beneficial in west Africa, and that the legalities might be worked out (including laissez-passer documentation, and certain residential rights of transit), along with the creation of social overhead facilities, to accommodate seasonal fluctuations in the economic/urban centers.

The permanent resettlement of farmer groups might be considered by national or subnational commissions of rehabilitation. Since this process is occurring at present in an unsystematic fashion, some consideration should be given by host governments to the implications of the three different types of situations which will most likely occur: "squatting" on land which already has a legal owner (which most often leads to conflict, legal or violent), share-cropping or tenant farming where the migrant farmer may work half of the week on the landlord's farm and half of the week on his own (which often leads to pauperization), or the assignment or purchase of unused land (which often results in political allegiance to traditional or modern authorities who monitor the land use situation).

It is also likely that many rural farmers who migrate during the off season to the cities will simply not return for the spring planting and will join the ranks of the urban unemployed. Since this could double the population of virtually every city in west Africa within one year, and further throw out the balance of ethnic relations, the question of urban migration policy and urban development policy is crucial to any orderly transition. Political stability in the urban centers may well be a function of how well this is handled. At present, there are a growing number of "town-planning" facilities in west Africa, but to deal with the present situation, large amounts of international aid would be necessary. The relationship of ethnic groups within cities is already part of the planning procedure in much of English-speaking Africa and some of these principles might be extended to the French-speaking area. With regard to herders, many of the Fulani clans are already migrating southward across international borders. Some of these groups are being encouraged by governments, even to the extent of clearing corridors for the movement of cattle. In other cases, movement is discouraged.

If a regional commission on pastoralism were established as part of the West African Economic Community, some of the previous efforts by national governments to coordinate partoralism, which have floundered partly because these groups transcend national boundaries, would be overcome. The realignment of patterns of ethnic pastoralism involves matters of both ecology and law. This is a matter which could be sorted out best on a cooperative basis by civil servants, ecologists, and pastoralists from west Africa. It should also be noted that, historically, the pastoralists have <u>not</u> been on good terms with the governments of many of the countries of west Africa, partly because of their tax jeopardy. (Thus, herders were taxed according to the size of their herds and hence tried to avoid accountability.) Veterinary services in many of the west African

states have been able to separate themselves from internal revenue services in dealing with pastoralists, and hopefully a regional commission on pastoralism would not become involved in matters of taxation, except as it might affect the efficient administration of transhumance patterns. The importance of Nigeria in such a commission is self-evident. The greatest number of Fulani in west Africa live in Nigeria. In northern Nigeria, the pre-colonial Sokoto Empire was administered by a corps of Fulani leaders. Many of the trained administrators, educators, and technicians in northern Nigeria are Fulani. They may be in a unique position to contribute to the solution of Fulani pastoralism in west Africa.

2.4 Religious Culture and Structure

We have undertaken a brief summary analysis of religious culture and structure in the Sahel-Sudan region. In the process we have focused on the Islamic areas because, in many ways, the Islamic heritage is more important than the ethnic heritage in determining cultural attitudes, values, mobility patterns, and authority structures. That is, the Islamic heritage is important in establishing specific behavior patterns of concern in this report. We will deal briefly with five topics in this section: (1) religious distribution patterns; (2) religious structure and organization; (3) religious beliefs (relevant to our concern with local level mobilization); (4) religious reform and modernization; (5) problems and prospects.

2.4.1 Religious distribution: The distribution of Muslims in the six states ranges from very high percentages in three states (Mauritania, Niger, Senegal), to approximately half in two states (Mali and Chad) to very few in Upper Volta. These patterns are summarized in Table 22 and in Map 9. The muslims in this area are Sunni (rather than Shiite) and follow Maliki law (rather than

Table 22

Religious Distribution Patterns

Estimate of Percent of Muslim Identifiers C1966

Range = 74.00 Mean = 65.83 Standard Deviation = 24.98

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
5.1	5.1	1.0	Mauritania	96	1
22.4	17.4	2.0	Niger	85	2
39.2	16.8	3.0	Senegal	82	
60.9	21.7	4.0	Mali	60	5
76.5	15.6	5.0	Chad	50	7
100.0	23.5	6.0	Upper Volta	22	10

Mitchell Estimate of Percent of Traditional Religious Adherents, 1966

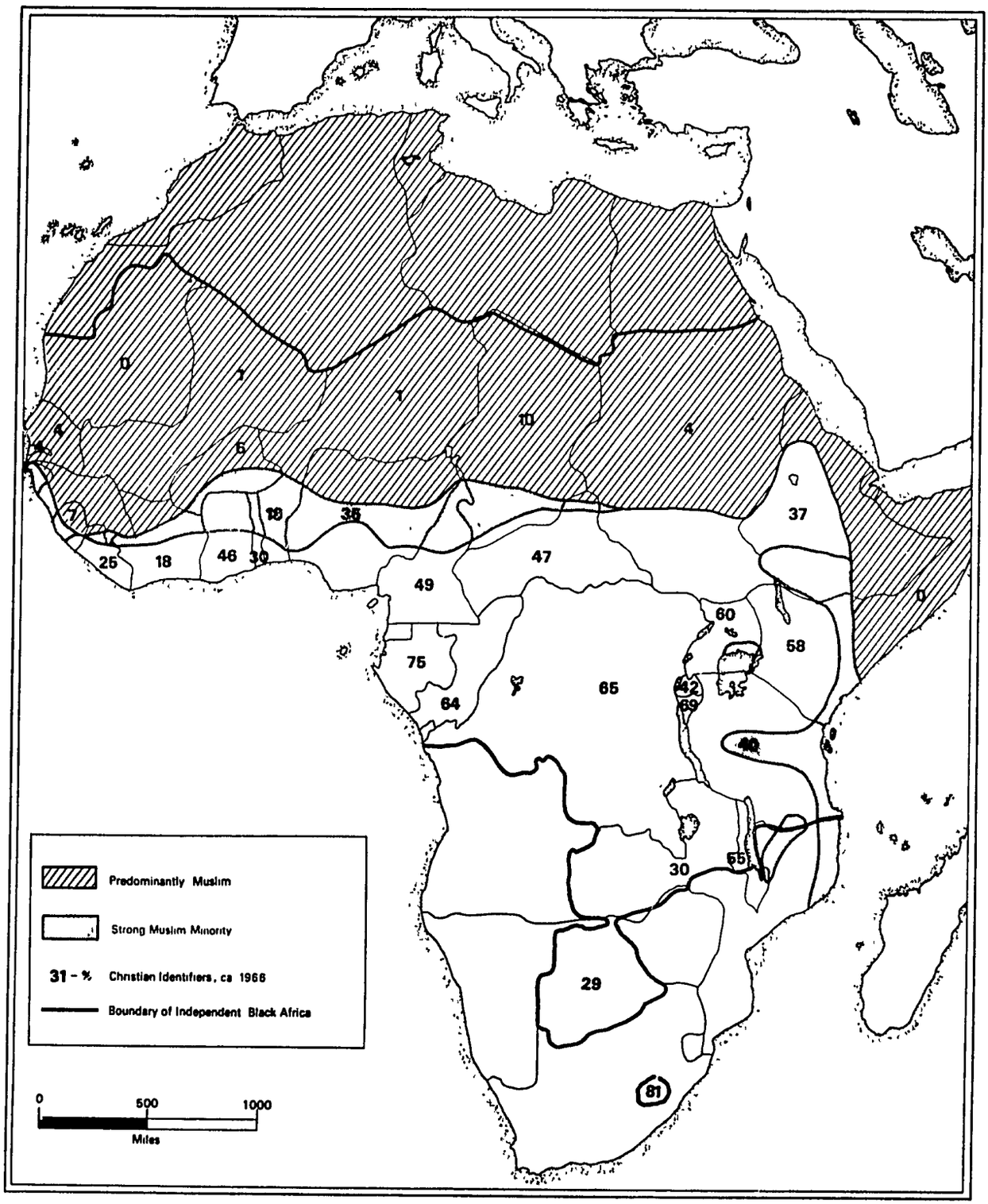
Range = 68.00 Mean = 30.50 Standard Deviation = 22.85

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
23.5	23.5	1.0	Upper Volta	72	1
39.1	15.6	2.0	Chad	40	5
60.8	21.7	3.0	Mali	39	
78.1	17.4	4.5	Niger	14	9
94.9	16.8	4.5	Senegal	14	
100.0	5.1	6.0	Mauritania	4	10

Estimate of Percent of Christian Identifiers Including Orthodox, 1966

Range = 10.00 Mean = 3.67 Standard Deviation = 3.50

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
15.6	15.6	1.0	Chad	10	1
39.1	23.5	2.0	Upper Volta	6	4
55.9	16.8	3.0	Senegal	4	6
77.6	21.7	4.5	Mali	1	9
94.9	17.4	4.5	Niger	1	10
100.0	5.1	6.0	Mauritania	0	



Map 9. Religious Distribution Patterns in Selected African Countries.

Source: Morrison, et al., 1972.

Hanifi, Shafii, or Hanbali).

When this distribution pattern is examined in terms of ethnic groups, all of the nomadic/pastoral groups (Fulani, Tuareg, Moor, Arab) are Islamic (at least nominally). Yet in recent years, Islam has come to be an urban religion in west Africa, in terms of organization and orthodoxy of beliefs, and the major centers of Islam are not the rural countryside, except in Mauritania (where there were virtually no towns or cities until after independence). In Mauritania, the religious patterns follow clan lines, as described by Stewart (1973). The trading groups (Hausa and Mande) are entirely Muslim, and the farmers and fishermen are mixed.

In Chad, the country is divided between Muslims in the north, and non-Muslims in the south. The pattern in Mali is different, with centers being Muslim and periphery areas being "traditional." The pattern in Upper Volta is unique, since the major group (Mossi) is predominantly "traditional," but with a few Muslim and Christian adherents.

Since much of the religious organization is located in non-rural areas, it raises the question of urban-rural relations, as well as inter-urban patterns of religious connectivity. We will discuss the Islamic brotherhoods (mainly Tijaniyya and Qadiriyya) in a later section. Thus, for example, Kaolack (Senegal) and Kano (Nigeria) are closely linked religiously through the reformed Tijaniyya brotherhood structure. Sokoto (Nigeria), Timbuktu (Mali), and parts of Guinea (e.g., Kankan) are linked through the Qadiriyya brotherhood.

In Senegal, the major religious centers for the Tijaniyya are Dakar (and the Senegal valley), Tivaouane (in the district of Thies) and Kaolack (in the Sine-Saloum). The Mourides are located in Touba. In Niger and Chad and Upper Volta, there are no major religious centers. The impact of northern Nigeria on the religious linkage throughout the

Sahel-Sudan states cannot be overemphasized, with the major centers being Kano (Tijaniyya, and reformed Qadiriyya) and Sokoto (Qadiriyya).

Within the pastoral groups, the head of the family or clan usually acts as the religious leader as well. Yet, in Mauritania, there has developed a religious class, which fits into the ethnic structure. To some extent, the same is true with the Fulani, and each Fulani clan may have its "learned men" who interact with each other in a cohesive manner.

Because the distribution of religion is such that the Islamic groups are those mainly affected by the drought (i.e., in the northern parts of each country), we will examine Islamic cultural patterns in more detail below.

2.4.2 Religious structure and organization: The major form of Islamic organization in west Africa is the brotherhood (*tariq*), or denomination. The two major brotherhoods are the Qadiriyya and the Tijaniyya. In Mauritania, the major group is the Qadiriyya, although the Tijaniyya are identified with particular sets of clans (e.g., the Idouw Ali). In Senegal the major group is the Mourides, which developed out of the Qadiriyya in the early twentieth century, and is mainly identified with the Wolof ethnic group. It does not have any counterpart in other states (see O'Brien , 1971, and Behrman, 1970). In Mali and Niger, the two brotherhoods are both important. In Chad, because of the lack of urban base in the northern areas, the brotherhoods are less important than traditional clan structure.

The authority patterns of the brotherhood structures vary from those which are highly centralized (e.g., Senegal and northern Nigeria) to the decentralized pattern of the pastoralists. The urban bases of Senegal and northern Nigeria act as poles in the organizational structure of the brotherhoods in west Africa, although the traditional centers of Mali (Timbuktu, Mopti, Gao) are all important centers.

The French designation of brotherhood leaders, "marabouts," is similar to the English Sheikh (shaykh). A "grand marabout" is equivalent, perhaps, to a "sultan" (e.g., in Sokoto). Although there is no theoretical basis for a clerical class within Islam, the "learned class" (ulema) and "leaders of prayer" (imams) do form an important class within Sudanic west Africa. The details of this authority structure are known historically, and the Centre de Hautes Etudes d'Administration Musulmane (CHEAM) in Paris has made numerous studies. After independence in Africa, the center changed its name to Centre de Hautes Etudes Administratives sur l'Afrique et l'Aise Modernes (CHEAM).

In Senegal and northern Nigeria, the brotherhood leaders have worked closely with the respective governments (in most cases), and would be in a good position to help in rural mobilization (although perhaps less with regard to pastoralists).

The mobility patterns within religious brotherhoods are equal in importance to ethnic mobility. Long distance traders are particularly important in this respect, but the pilgrimage routes through Sudanic west Africa also created a situation for exchange of ideas and connectivity. These patterns are known in broad outline, but not in some of the details, as to the composition of the migrants and their exact circulation systems.

Most importantly, as farmers and pastoralists affected by the drought migrate to the cities, the Islamic brotherhoods may be the major mechanism of incorporation into urban life. In short, the brotherhoods have replaced the ethnic groups in many areas as the social security community. There is considerable potential for cooperation in this area, especially since petty traders in the urban center often circulate in the rural hinterland area, and are engaged in religious as well as commercial activities.

2.4.3 <u>Religious beliefs and customs</u>: The pattern of

Islamic religious beliefs and customs varies among the pastoralists, the farmers, and the urbanites, generally ranging from more syncretistic forms of Islam to more orthodox forms of Islam.

In the case of the Fulani pastoralists, for example, the importance of age grade systems and the symbolic use of the Fulfulde language in their religious practices cannot be overemphasized (see Ba, 1966). Pastoral Fulani often do not undertake prayers five times daily until they have a son old enough to tend the cattle. Likewise, the pastoral functions of women preclude the custom of wife seclusion, often found in the cities.

In the case of farmers, Islamic beliefs and customs may blend with some form of pre-Islamic culture, often centering around the fertility of the soil and various forms of life. Children memorize selected chapters from the Koran, but learning is limited.

In the cities, the Islamic beliefs are often elaborate and usually center around the brotherhoods (see Paden, 1973). The use of Arabic is much higher in the cities, and Koranic education, even to a high level, is more common.

Of some potential significance in the drought areas, is the concept of Mahdi, or "savior" who is expected to come at the "end-of-the-world." This is a widespread belief throughout Sudanic west Africa, and transcends all brotherhoods. The symptoms of the end of the world are in many ways similar to the consequences of the drought (i.e., general destitution and confusion), and the expected timing is that the "Mahdi" will come at the end of a Muslim century. Since the Muslim year 1400 (AH) comes during the Christian calendar year 1979 (AD), the possibilities of a religious "revival" and the emergence of "saviors" is real. This might have the effect of undermining the <u>will</u> of farmers and pastoralists to deal constructively with their problems since if the world is coming to an end, there is

little incentive for long range planning (for a discussion of Mahdism in west Africa, see al Hajj, 1967; also Paden, 1973). There was a tendency for colonial governments dealing with the phenomenon of Mahdism in Africa (especially in the 1880's at the end of the last Muslim century and at the time of World War I) to be repressive. Yet it is clear that this simply confirms the popular impression that "things are getting worse," and a resistance to governments may develop which could be extremely dysfunctional to development processes. Historically, in west Africa Mahdi movements have emerged and spread in rural areas, rather than urban areas. While the matter of Mahdism should not be overemphasized, it illustrates the way in which religious beliefs and values bear on "survival and development" issues.

2.4.4 Religious reform and modernization: There have been at least four different usages of the concept of "Islamic reform" in west Africa: purification, modernization, westernization, and securalization. The concept of purification has a long history in Sudanic west Africa. It is usually contrasted with syncretism or obvious mixtures of Islamic culture with ethnic culture. The various "jihads" or "holy wars" through the Sahel-Sudan region in the 18th and 19th centuries were regarded as "reforms." To some extent, the wahabi movements in west Africa (comparable to the Wahabi movement in Saudi Arabia) were reactions to the traditional Islamic customs in the area, and a call for a return to "Koranic" Islam. In the post-war period in Francophone west Africa, there was significant wahabi movement in Mali, Upper Volta, Guinea, and Ivory Coast. This is described in detail by Kaba (1974). In this case, reform was also tied to the notion of "modernization," as exemplified by Egypt, and to educational reform in French West Africa.

With regard to modernization reform--i.e., reform which entails

among other things, mass participation, scale expansion, use of technology, universalistic criteria of membership, and usually urbanization--several of the brotherhoods in Senegal and Nigeria have clearly moved in this direction. This has often gone unnoticed, since these movements may be in the "traditional" sector, and do not utilize "western" modes of expression, such as language, dress, or culture. For a description of this pattern in Nigeria, Niger, and Senegal, see Paden (1973). These are significant movements, and are clearly identified with modern changes (economic, social, and political) in Africa.

With regard to "westernization" of Islam, the clearest examples are in the urban centers, and in the bureaucracies. Language of communication (English and French), educational structures, and dress and habit become essentially European. It is important to note, however, that westernization is not the same as modernization, and that <u>in addition</u> to the westernized sector, a non-western <u>modern</u> sector often exists which often links religious and economic activities.

With regard to "secularization" of Islam, i.e., the progressive diminution of the importance of religion in the daily life of an individual, this seems to be primarily an urban phenomenon.

Thus, in the rural areas, Islamic patterns of "reform," of most significance are "purification" and "modernization," since "westernization" and "secularization" have not yet developed. It is important to recognize that modernization of Islamic brotherhoods will have an impact on rural areas as they come to be linked by road or rail to the urban centers. The potential for rural mobilization and linkage is considerable.

Throughout the Sahel-Sudan region, many of the Islamic peoples (herders, farmers, and urbanites) believe <u>innovation</u> (<u>bid'a</u>) to be contrary to Maliki law (which "governs" traditional legalities throughout

the area). Thus, all behavior is divided into five categories: required, recommended, neutral, discouraged, prohibited. Many of the 18th and 19th century wars in west Africa resulted in solidifying Maliki conservatism and "purification." Anything not mentioned or practiced by the Prophet or his people was regarded as innovation, and hence "prohibited." Since much of modern technology fits into this category, the "reinterpretation" of "innovation" is important. This has been done in many of the urban areas, but if rural transformation is to occur, it is likely that some reassessment of the "Islamic" basis of change will have to occur. This is best done by people from the region, but administrators are often in the "secular" or "western" categories of Muslims, and are not as inclined to try to use Islamic beliefs to persuade people to change. Thus, the general interaction between rural and urban areas may have the effect of transmitting urban reassessments of issues such as "innovation." While a certain portion of technology would not fit into the religious/legalistic categories under discussion, the social behavior which accompanies technical change is covered by Maliki law.

2.4.5 Problems and prospects: To mobilize rural Muslim peoples requires understanding their religious belief system. During the colonial period, Islamic organizational structure was studied and manipulated, and even feared by some of the colonial and local elites. A new approach has been undertaken in northern Nigeria, with the founding in 1962 of Abdullahi Bayero College (ABC) in Kano; a branch of Ahmadu Bello University (ABU) dealing with Arabic and Islamic studies. The faculty and students at ABC have the potential to play a pivotal role in the interpretation and reinterpretation of the Islamic culture base in west Africa. At present, very little (if any) research is being done anywhere in the Sahel-Sudan region on the relationships of Islamic beliefs and structures to the possibilities for rural

transformation. Bayero College is developing a research capability which could be geared to this direction with the appropriate encouragement. The current proposal to establish an Islamic University in Niger (to be funded by the Libyan government) might provide another vehicle for empirical research.

Second, serious consideration could be given to the use of Islamic education structures in the Sahel states. Mauritania is currently experimenting with the use of Koranic schools to facilitate rural education. (The basic function of a Koranic school is to teach, usually through rote, at least the first ten chapters of the Koran, in Arabic.) Nigeria has had at least ten years experience with support for Koranic schools (in return for the introduction of certain subjects; notably health, and arithmetic). Since there are more than 50,000 Koranic schools in northern Nigeria alone, and perhaps 25,000 in the six Sahel-Sudan states, the potential is considerable. If non-formal educational alternatives are to be considered in rural mobilization (to be discussed later), the question as to utilization of the existing structures becomes essential.

Third, the Islamic structures in the Sahel-Sudan region tend to be hierarchically organized. Membership in a brotherhood requires one to have a shaykh, or master. This hierarchy could be included in a rural mobilization effort. It is a matter of national policy as to whether this should be utilized or not. In the future the legacy of distrust between marabouts and administrators may become less salient, as a new generation emerges without the experience of confrontation. This process could be greatly facilitated by deliberately devising strategies and techniques to reduce this distrust.

Fourth, potential communication channels between urban centers and rural populations should be explicitly explored. If effective problem defining and problem solving efforts are to occur, there is a necessity for joint analysis and understanding. There need to be

effective mechanisms for dissemination of information and ideas. At present, there is significant economic-cum-religious contact between urban centers and rural populations which could be used in establishing this type of flow.

Finally, the importance of Nigeria in all of the above suggestions should be underscored. (Nigeria has developed as perhaps the major Islamic center in west Africa.) The pattern of religious mobility in west Africa does not follow former colonial lines. In this brief summary we conclude by suggesting that the appropriate context to examine these questions is regional (including coastal states) rather than national. It should be noted, however, that the pastoralists do not fit into the same religious network as the urbanites or settled farmers. Yet the congruence of clan with religious identities among the herders invites a further assessment as to how pastoralists may be linked into the modern sector through religious networks.

2.5 Traditional Land Tenure Patterns

Land use and ownership are basically cultural matters. Just as there are variations in the Sahel-Sudan region on other cultural dimensions, the same is also true of land tenure. At the same time, the central tendency is so clear with regard to land tenure that we will restrict ourselves to an examination of the general pattern, and will try to elaborate some of the conceptual ramifications of these patterns. Where there are important exceptions to the rule, as in Senegal, we will so indicate.

We are aware that many agricultural economists working in the third world context have developed clear notions as to the kinds of land tenure changes they feel are required to "modernize" agriculture. These prescriptions generally argue that in order to increase incentives for improvement, to accommodate the transfer of technological

knowledge to the rural areas, and to encourage the accumulation of capital for investment, there is a need to "individualize" land use and land ownership. In our report, we will assess how this individualization might affect the larger situation, but we also try to examine other options as well, including working within the more traditional framework. In short, if land tenure is an integral part of cultural patterns of kinship and authority, the social and political costs of undermining these cultural systems may be so high (and take so long) as to be prohibitive. On the other hand, if communal patterns of land use can be harnessed to modern agricultural management and technology, the potential for rural mobilization may be greater than anticipated.

2.5.1 General patterns of land tenure: With reference to pre-industrial west Africa, Mabogunje writes:

"...access to land was determined by membership of particular families. A valid distinction was made between use--or usufruct--and ownership of land. The right to use land resided with the individual and could even be transferred to non-family members. The ownership of land was a different matter. It resided permanently in the family as a corporate entity and could not be alienated by any of its individual members." (1972, p. 26)

In short, a distinction between ownership and use is essential to understanding land tenure in west Africa. The "communal" ownership of land could refer to the family, the lineage, the clan, or a larger ethnic identity group. An individual has "rights" to land use by virtue of membership in a kinship or kinship-like group. Within each communal group, there is usually some constituted authority which allocates land use. The "rights" of the individual to use land continue only as long as he actually cultivates the soil. If a family cultivates a particular plot, the land reverts to the communal repository only if the land is not utilized, or on the death of the head of family. Thus, personal inheritance of land (outside the urban areas) is not possible. At the same time, it is customary for a son or sons to regain the same rights to land if they continue to work it. In some

cases, the trees on the land are inheritable, even though the land itself is not.

We have thus distinguished between land ownership, land use, land transfer, and land inheritance. Within any given area the custom may vary, and any planning must be done with attention to local detail. It is possible, however, to examine some of the consequences of this general land tenure situation.

According to the FAO report on land tenure in Nigeria, there have been several problem areas: resistance by traditional land-allocating authorities to tree-crop planting; maldistribution of land among adjoining communities; fragmentation of holdings; lack of security of tenure; and problems of migrant sharecroppers and leasees. The report concludes: "The system of communal ownership is not suited to present-day requirements in respect to the production of cash crops. Until unrestricted individual rights of ownership and inheritance are formally recognized, the occupier of any piece of agricultural land has no real incentive to try to maintain or improve the fertility of the land which he is working." (1965, p. 334). According to Mabogunje: "The development of an exchange economy is clearly imcompatable with such a [traditional] conception of the value of land." (1972, p. 27) Before examining the consequences of variations in land tenure, we will examine the impact of cash crop economy and the growth of larger scale estates--especially in Senegal.

2.5.2 <u>The impact of cash crop economies</u>: The general pattern in west Africa was for the colonial regimes to protect the rights of traditional groups to their land, and to prohibit "alienation of land." This is in contrast to the case in east, central and southern Africa. The only non-indigenous "plantations" in west Africa were in Cameroon, and to a lesser extent in Ivory Coast.

Yet, the impact of colonialism, and the establishment of cash crops, did have the effect of regularizing the idea of "free hold" land

in the more westernized sectors. (Free hold is distinguished from "lease hold" but all land is still considered "crown land.") Yet much of the Sahel-Sudan region did not come under the same impact of cash crop economies as along the coast, and there has been more adaptation of land tenure systems in coastal west Africa than in the interior.

A good example of this has been Senegal. The major cash crop in Senegal has been peanuts, which until the drought, accounted for about 85-90 percent of Senegal's exports. The growth of the Mouride Islamic brotherhood in the twentieth century coincided with the expansion of the cash crop economy. This pattern is described in detail by O'Brien (1971) but will be summarized below.

From about 1912 onwards, the Mouride marabouts in Senegal encouraged their followers to move to "new" lands, i.e., lands around the Ferlo desert which was suitable for peanuts. The land was being used by Fulani pastoralists, who were forced off. The Mourides believed that whoever cultivated the land acquired rights to it, and "grazing" was not the same as cultivation. It was also believed that a man could pass the land on to his eldest son, if he continued to farm. The marabout <u>organized</u> the large scale opening up of new lands, but the land rights remained with the individual peasant farmers. The marabout, however, arbitrated all disputes on the land, and farmers, in turn, contributed a portion of their crops to the marabout. The land title resided in a communal base, which was religious rather than kinship based. The marabout was in effect the repository of land. Because the Mouride brotherhood was theoretically open to anyone (even some Fulani converted), it allowed for larger scale operations than involved in the traditional family system. Because of the religious commitment involved, the marabout was also in a position to fund capital improvements and was concerned about the welfare of the whole community. Perhaps due to the efficiency of the Maraboutic "co-operatives," the European-run plantations of the sort found in Ivory

Coast never developed in Senegal.

The modifications caused by this transition from small scale family-based land tenure to large scale religious based cooperatives, opened the way to major national land reforms in Senegal in the independence period. In 1964, the Law of the National Domain (No-64-66) gave to the peasants the rights to the land they were working, and the state itself became the national proprietor. Yet the Mouride system prevailed, and the marabouts consolidated their position as great landowners. The labor for the maraboutic estates comes from disciples in the brotherhood, on an unpaid basis. Also, peasant farmers contribute certain days of the week to working on the large farms. These have come to be called "Wednesday fields," and are now common among the marabout of all religious brotherhoods. In short, land use continues to be communal (albeit religious). Land ownership, according to the 1964 law, can be acquired in a free hold manner by making certain "improvements" on the land, such as planting trees, or introducing irrigation. A number of the marabouts have made these improvements, and now are registered nationally as large scale landowners. (For example, the head of the Mourides in 1966 held 9,000 acres, and many of his deputies were in the 1,000 acre range.)

2.5.3 Land tenure changes and consequences: The example of Senegal is important in several ways. Senegal has a more advanced cash crop economy than most of the other states in the Sahel-Sudan region, and is a predominantly Muslim country. As religious organizations began to replace ethnic identity groups as the basis of social and economic life, adaptations were made in matters of land use and ownership. Significantly, on matters of inheritance, the practice of primogeniture (i.e., inheritance by first-born son) emerged, rather than the more common Muslim practice of dividing goods equally among the sons. In contrast, in a Muslim country such as Egypt (where Maliki law had been enforced and land was divided equally each

generation) land reforms were geared to prevent fragmentation-through-inheritance, and after the land-holdings were consolidated, a national law of primogeniture was established.

The Senegalese example is also significant in that large scale farming units were established, but the incentive system was communal rather than individual. It may be an important alternative to the notion that westernized forms of incentives (in particular, individualism) are necessary for the mobilization of rural agriculture. In this case, the adaptation to cash crops was done indigenously, and without the "national planning" which is sometimes deemed essential. The same patterns were also exhibited in northern Nigeria, when the peasant farmers introduced peanuts (about the time of World War I) despite the pressure of the British Cotton Growers Association to grow cotton. (For a detailed analysis of this, see Hogandorn, 1966; for further discussion of peanuts in Senegal, see Fouquet, 1964.) In northern Nigeria, however, the land repositories were the emirs (religio-political leaders) rather than the brotherhood leaders (see Paden, 1973); this changed after independence and the state became the repository.

It should be recognized that where national land reforms are enacted, as in several of the coastal west African states, the actual practice and the official prescription are often at variance. Little empirical research has been done to assess actual behavior and its determinants.

Since land tenure reform does involve questions of traditional communities and authority structures, it is usually a part of a broader policy toward traditional culture groups. In this report we suggest consideration of the use of cultural structures in the mobilization of rural peoples. Hence, cooperation may be less likely if farmers perceive governmental policy to be an attack at the bases of communal organization and culture.

It is for these reasons that we have tried to specify those aspects of land tenure which are most vital to agriculture productivity and long term land management, and to delimit "reform" to those areas which have a central relationship to development, without destroying the cultural base of rural agriculture.

We have framed our reconceptualization in Figure 3. We have set up a model in which there are two distinct dependent variables: productivity and good long term management from the unit-of-production point of view (i.e., an individual farm) and the same values from the total system point of view (i.e., the national agricultural sector). (On the assumption that what is good for the individual unit is not always good for the total system, and vice versa.) Various permutations on group and individual land ownership and use are considered as independent variables. We have introduced the notion of scale (of unit of production) (ranging from large, to medium, to small) as an intervening (or control) variable. We would hypothesize, based on our study of various land tenure situations in west Africa, that there is no clear-cut relationship between various forms of land tenure and productivity. The most common pattern at present is group ownership/ individual use, but there is considerable dispersion among all four permutation categories. The critical variable seems to be the intervening variable: scale. That is, large scale units of production can increase productivity and good land use, whatever the forms of land tenure. Tenure is essentially a cultural matter, and there will probably be variation even within the Sahel-Sudan region in terms of how large scale units can be constructed and made to function effectively. But the actual pattern of ownership and use does not seem to be the critical variable in increasing production and land management.

The question of the infusion of "technical knowledge" into the land use system, is a separate issue, and will be considered in our

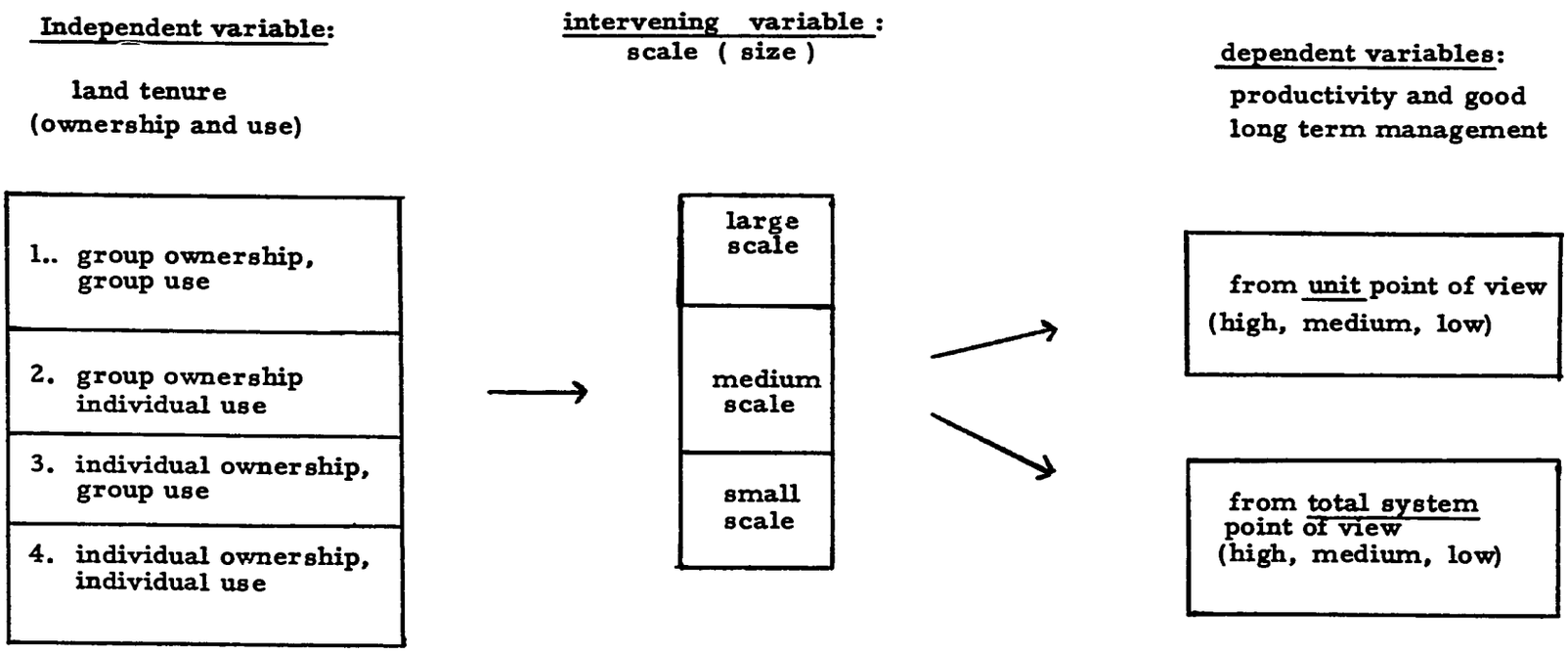


Figure 3. Relationship of land tenure to productivity and land management: a conceptual model.

Null Hypothesis : There is no apparent relationship between land tenure (ownership and use) and system production, except as influenced by variable of scale. Thus, scale is the variable to be controlled (including inheritance and transference patterns).

sections on communications and education.

The question as to whether inheritance systems are related to increase of scale is germane at this point. Inheritance may cause fractionalization or may prevent consolidation. This can be dealt with at a national or local level, however, without reference to the general question of land tenure. In many cases throughout the Sahel-Sudan region, land use is not included in the other forms of inheritance, and there is a common tendency for land to remain in the hands of the eldest son, without dividing the land at the time of the father's death. In cases where land holdings are fragmented through inheritance rules, this can be dealt with on a case by case basis.

The question of "transfer" of rights is perhaps most difficult, and this is what Mabogunje refers to as the contradiction of land tenure practices and a modern exchange economy. This is a difficult question, and its base is political. If land could be bought and sold on an unrestricted basis, it is likely that a semi-feudal stratification structure might develop which might initially aid agricultural production (i.e., via increasing economies of scale) but would drive even larger numbers of African peasants off the land and into the cities. This has already happened in certain parts of the Sahel-Sudan region, and a class of "rural dispossessed" has begun to emerge in the urban centers. Likewise, the question as to whether non-nationals should be able to own land (including non-Africans) is a political issue. It is more likely that if a West African Economic Community emerges and modifications are made in inheritance and transference rights, that nationality and trans-national regional restrictions will be placed on land ownership. Since the Islamic patterns in most of the Sahel-Sudan region have already eroded some of the ethnic patterns of community allegience and identity, a natural base for trans-ethnic land tenure policies already exists.

This has emerged naturally, and without the necessity for drastic national land reform. Where this natural process is possible, it is probably preferable, since the social and political costs of land reform which appears to allow for land alienation (as distinct from reform situations where land is taken from landlords and given to the peasants) are likely to be high.

2.5.4 Problems and prospects: In short, matters such as "incentive," are culturally specific, and should not be confused with economies of scale. The question of land tenure should be divided into the question of land use, and land ownership. Ownership may be less important than usage, and at present, both are related to the matter of family structure and control. There are various "experiments" at present in west Africa as to individual versus group ownership. But we have not found evidence that warrants destruction of certain cultural structures in order to achieve larger scale production units. The question as to whether the nuclear family or the extended family, or the lineage should be the basis of land use will be further considered in our discussion of rural animation, and experiments with agricultural cooperatives.

The problem of balkanization or fragmentation may nor occur until there is a serious land shortage, which has not been the case historically. The impact of the drought is important on this matter. As the rains return and "normal" patterns resume, the question of available land becomes a technical one of carrying capacity rather than current available arable land.

The more serious immediate question would be the matter of resettlement of refugees into areas where existing kinship structures have already co-opted the available land. We will consider this matter in more detail in a later section.

Part II

Levels of Decision-making and Implementation

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3. Local level

4. National level (Decision-making)

5. National level (Implementation)

6. Regional level

7. International level

8. Decision-making, implementation and interaction: Analysis/Summary

3. LOCAL LEVEL: DECISION-MAKING AND IMPLEMENTATION

In this chapter we will begin to examine the relationship of government structures to the demographic and cultural baselines. While it might be appropriate to start with a discussion of national level structures, we have chosen to focus first on the local government levels, in order to underscore the overall hierarchy of governments and intergovernmental organizations in the Sahel-Sudan region, and to raise questions about the interaction across levels of government. Thus, although local government structures and organization in the region are clearly an extension of national level structures, they are the organizational structures with most direct impact on the farmers and herders in the rural areas. They are the nexus, or linkage, between the national and international world, and the rural people at the grassroots level.

In this chapter we will examine the structure and scope of local government, and then look at some of the local level rural development programs.

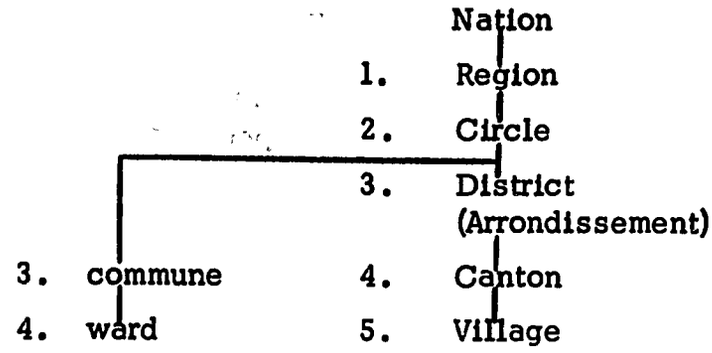
3.1 Local Government Structure and Scope

In this section we will examine the basis of local government units, the nature of local government structure, participation in local level (including the role of chiefs), and problems and prospects.

3.1.1 Local government units: There are usually five levels of sub-national structure in the Sahel-Sudan states. These level units are called different names, but the basic characteristics are similar. These units are the region, the circle, the arrondissement, the canton, and the village. In the urban areas there is also the commune and the ward (in place of the district/canton/village). These patterns are summarized in Figure 4.

Figure 4

Sub-national Administrative Divisions



Since the various states have different names for these levels, these differences in nomenclature are displayed below. It should be noted, however, that in some cases the names have changed over time.

Figure 5

Administrative Nomenclature

Country	Largest Unit	Second Largest Unit	Third Largest Unit
Chad	prefectures	sub-prefectures	
Mali	regions	circles	arrondissements
Mauritania	regions	circles	
Niger	departments	circles	arrondissements
Senegal	regions	circles (departments)	
Upper Volta	sectors (regions)	circles	

The number of regions and circles have also changed over time, but the average has been about eight regions per country, and the average number of circles per country has been about thirty-five (Mauritania is an exception). These patterns are summarized below in Figure 6.

Figure 6

Number of Regions and Circles by Country

Country	Region	Circle	Average Circles per Region
Chad	10	37	3.7
Mali	6	42	7.0
Mauritania	8	12	1.5
Niger	7	32	4.5
Senegal	7	27	4.0
Upper Volta	11	44	4.0

A detailed map of the administrative units in each country is included in Appendix 3. The importance of these units is not only in administration, but also in collection and analysis of data, since they serve as census tracts in most cases. There is usually little relationship between the circles and/or regions and any traditional form of social organization. (Again, Mauritania is a clear exception.)

3.1.2 Local government structure: The most important administrative level has been the circle. Within a circle there is a commandant, appointed by the national government, who has responsibility for all state activity within his jurisdiction. The headquarters of a circle is usually in an urban or semi-urban location. Such municipalities, or communes, may be either self-governing ("commune de plein exercice"), or partly self-governing ("commune de moyen exercice"). Where the municipality is partly self-governing, the commandant may act as the mayor.

The commandant is responsible for the various functional departments, and the territorial sub-divisions. This prototypical

structure in shown in Figure 7.

Figure 7

Civil Administration in a Typical Circle

Commandant = Mayor de Cercle

Arrondissement Heads

Village Chiefs and Councils

Department Heads

1. Customs
2. Elevage (Animal Husbandry)
3. Endemic Diseases
4. Gendarmerie
5. Health Services
6. Justice of the Peace
7. Post Office
8. Railroad
9. Schools
10. Agriculture
11. Rural Development
12. Import-Export
13. Water and Forests
14. Weather Station

Town Hall

Town Council

Police

Source: Adapted from Hopkins, 1972

The three general areas of administrative concern at the circle level have been:

(1) general administration, including post office, weather station, police, gendarmerie (in rural areas), and justice of the peace;

(2) social welfare, including hospital and schools;

(3) economic development, including import and export of products

financial institutions for rural cooperatives, agriculture and livestock service, water and forests, etc.

Increasingly in recent years, there has been an Office of Regional Development (ORD) at the regional level, which is intended to help coordinate development in the component circles. Technical services are partly decentralized from the national to the regional level.

In countries with political party structures (Senegal, Mauritania, Chad), there is often a parallel party structure to the administrative structure. Thus, there would be a "section" of the party at the circle level, a "subsection" at the arrondissement level, and a "committee" at the village level. Party participants are usually local people, while administrative personnel are often from outside the area. Since both the party and the administration are highly centralized in the national capital, there is usually cooperation and interaction on matters of policy formation and implementation. The administrative staff is divided into technical personnel and administrative functionaires. The "chefs d'arrondissement" have had general administrative responsibilities comparable to the commandants, within their territorial jurisdictions.

3.1.3 Participation in local government: Compared to other parts of west Africa, the degree of community participation in local government is somewhat limited. (Parts of Senegal are an exception to this pattern.) Unless a municipality is "self-governing" it does not even elect its own mayor. The major function of the political party is to mobilize for national elections, not for local elections. The purpose of the administrative structure is to execute orders sent down from the national level.

At the village level, (and at the "canton" or "groupement"

level above the villages) there is more reliance on "traditional" authority structures, even though the powers of administration at this level tend to be limited. Thus, the "chef de village" and the "chef de canton" tend to be "traditional" authorities from the area, just as the commandants, and heads of the districts are most often from outside the area (and during the colonial era, might be European).

In short, within any particular community, there are three categories of participants in "decision-making:" the administrative staff (national), the political party members (local, often non-traditional), and the "traditional" authority structures. Within this arrangement, the chiefs have little power, but are expected to act as intermediaries between the people and the government.

At this point, it may be useful to note the role of chiefs in French-speaking west Africa. Perhaps the most comprehensive comparison of the position of chiefs in west Africa is by Crowder and Ikime (1970), (which drew on conference participants with practical as well as academic experience in Francophone west Africa). We will excerpt some of the main points below. The question as to how the office of chief was transformed during the twentieth century is central to the question as to their future role in rural mobilization. According to Crowder and Ikime:

"In French West Africa in colonial times a whole group of people were made chiefs who in pre-Colonial times would have had no right whatsoever to such posts. This was a common administrative practice of the French, who selected chiefs as much on the basis of their administrative abilities, literacy in French and proven loyalty to their masters as on their traditional claims to office... (p. x)

"Chief, under both French and British colonial rule, was used administratively to designate African administrative

authorities recognized by the colonial governments. These authorities fell into two distinct classes: those chiefs who were primary executive authorities, who dealt with the political officer directly, and not through intermediaries; and those chiefs who were subordinate to primary executive authorities, such as distinct heads and village chiefs...(p. x)

"The French took a much more pragmatic approach towards the appointment of chiefs. Whilst they recognized that for the most part a chief with traditional right to rule would be a more effective agent of their administration, they also balanced against this the ability to administer in the modern sense, particularly the ability to speak French... The French saw the chiefs for the most part as a necessary evil. As such, they rarely hesitated to replace an inefficient, illiterate, legitimate chief by an old soldier or retired clerk, who they felt would understand what was required of him... (p. xii, xiii)

"The French put a greater premium on modern administrative capability than on traditional claims to chieftancy, and were also more concerned to rationalize the territorial organization of their vast federation...(p. xiv)

"Yet, as Skinner shows in his paper, the French were never able to introduce administrative chiefs into Mossi, and their policy of reducing the Emperor of Mossi's traditional powers, particularly with regard to his power over his former subordinates, whom they tried to make independent of him, was only partly successful because of the persisting regard of the Mossi for the Mogho Naba's person... (p. xiv)

"The case of the French chief was different (from the British) though not absolutely. Where he was an administrative chief of course the issue of the change in the nature of his authority does not come into question. Where he was a traditional chief, like the great majority of British chiefs, he had removed from the political structure the traditional checks and balances, but had to contend with the "interpreters' and 'gardes de cercles' who, as Alexandre shows, became increasingly powerful as intermediaries between short-term appointment administrators and long-term incumbent chiefs. But more drastic as far as the change in the nature of their authority was concerned was the removal from their competence of functions that in pre-colonial times were the essence of their authority over their subjects... (p. xv)

"The French...looked on the chief as an agent of the colonial government, who had to carry out the instructions of his colonial administrator... The central government at the level of the colony or the Governor-General of the Federation, laid down a policy which he had to put into effect. West Africa under the French thus inherited the tradition of French metropolitan administration, which, as Alexandre points out, since the Middle Ages, showed a strong desire for uniformity and a refusal to accept diversity and originality in local structures. The chief had a set of duties explicitly laid to ensure he carried them out... The French chief was an official or "fonctionnaire" of the French bureaucratic hierarchy and like all subordinate bureaucrats had a set of tasks, with no initiative of his own... (xvii)

"The chiefs as a class had for the most part been the champions of independence at the time of the European occupation; they had fought, lost and learnt to cooperate, if not openly collaborate with their new masters... In French West Africa, while the chief lost a great deal of his power, up until 1945 he was the only African 'political' authority to be found outside the Quatre Communes of Senegal. Thus whether he was a 'legitimate' chief of greatly reduced powers, or an administrative appointee, he had a stake in the colonial regime. By and large, therefore, in the period of decolonization, the chiefs allied themselves with French-backed conservative politicians to whom the French 'guaranteed' the support of the chiefs against the radical politicians. Because of the nature of the demands of the French administrative regime for forced labor, taxes, compulsory production and recruitment for the French army the chief in French West Africa became a more obvious target for the anti-colonial radical than the chief in British West Africa. Furthermore, divested of his judicial and police functions, the French chief had no formal power of his own and was in appearance and fact a mere administrative agent or 'lackey' of the French. Many chiefs, like the Mogho Naba, had cause to resent the French because of the breakup of their former territorial jurisdiction and the destitution of so many of their traditional powers, but when it was a matter of choice between French supported 'conservatives' and the 'radicals' they knew where their best interests lay. As it was, in most of French West Africa, radicals (or parties, which while moderate, were anti-chief) came to power at independence. And while, with the exception of Guinea, which abolished the institution altogether, they still recognized chiefs as such, they had no political place in the constitution and at best were low-level local administrators. The one great chief who did survive the French colonial regime with much of his traditional authority

intact (was) the Mogho Naba of the Mossi... Chieftancy in independent French speaking West Africa today is an institution of little political importance as a result of the use made of chiefs by the French and the reaction of the people to them, for it was the people who put the radicals in power, even if some of these radicals, like Houphouet-Boigny, have in power become conservatives." (p. xxiii, xxiv)

The rather lengthy quotations above are intended to fill a gap between our previous discussion of traditional cultural patterns of authority and our future consideration as to the possible role of chiefs in the mobilization of rural peoples. The chiefs at present are part of the local government structure. In most cases, they have made their peace with whatever regime is in power. In general the question as to which chiefs are the "real" chiefs has not come up, and will probably remain dormant unless and until traditional authorities come to play a more significant role in local and national life. In short, while cultural patterns of authority may still characterize particular groups, the question of <u>who</u> should succeed to authority (and the qualifications of many of the incumbents) is still open.

Thus, participation in local government on a mass scale is virtually non-existent in the Sahel-Sudan region. Local government involves persons from the administration, the party, and the "traditional" authorities, but in reality, all are part of a highly centralized national structure. Upper Volta (with the Mossi) is a partial exception to this rule.

3.1.4 <u>Problems and prospects</u>: At present, local government is not local, but part of national structure. While this may have advantages in terms of national unity, and development-from-above strategies, it is problematic in terms of rural mobilization and development-from-below strategies. The problem is how to get a two-way communication, or dialogue going between the administrative cadres and the rural people. Many of the states are aware of this

problem, but are locked into inherited administrative structure which offer little flexibility for reconceptualization of the task of government.

Even with the national centralized system, there is probably a need to open communications at the local level, and establish mechanisms of involving local people into problem solving efforts. The potentialities for mobilization-from-below will be considered in a later section. At this point, we are merely pointing out the problem.

There is very little representation of groups and interests at the local level. If some of the municipalities are not fully "self-governing," what are the prospects for the rural areas?

In particular, there has never been any successful way of relating the administrative structure to the nomads. As certain pastoral groups may become more settled, an opportunity arises to draw them into the administrative process. At present, the pastoralists are "dispossessed" at the local, national, and regional levels. We will be recommending administrative mechanisms (bolstered by economic incentives) of trying to deal with this problem.

The question as to the basis of local government boundaries is also a reflection of the general pattern of centralization and "rationality." Such "rationality" has not been noticeably successful in economic or political development, and again, the question arises as to the possibility of establishing administrative units which have some relationship to cultural and historical factors, and hence have some meaning to ordinary people. The example of Mauritania might be important here (see Gerteiny, 1967).

Since three of the six states currently have military regimes, the question of constitutional reform is always a possibility in the future, including reform of local government units and structures. In fact

the current trend in west Africa has been for military regimes to work more closely with the "chiefs," since the political class has retreated under the circumstances.

In particular, we will be examining the possibility of local government assuming more direct responsibility for rural education and local language policy. National standardization may be less important than local adaptation, and at present, there are no structures equipped to deal with the possibility of local adaptation.

We recognize that the question of the role of chiefs is political, and have included a brief historical note in this section to underscore that point. At the same time, in looking forward to the next twenty-five years, it is possible that some of the confrontation of the colonial era will give way to a more "normal" situation, in which local cultural communities can re-establish some of the legitimacy they lost under colonial rule. In the long run, "efficiency" may well depend on closing the current mass-elite gap, between national and local peoples.

3.2 Rural Development Programs

In this section we will examine government programs administered at the local level which try to deal with problems of production and land management, in the case of farmers, and cattle related problems, in the case of herders. We will conclude with a summary of problems and prospects. We recognize that a whole range of national programs exist (e.g., health, education, etc.) which effect rural development, but in this section we are looking for programs which foster direct linkage.

3.2.1 Farm programs: We are interested in the forms of social organization and inter-level linkage which have been utilized in an effort to improve rural production. In some cases, these

experiments have been addressed to the problem of scale (e.g., increasing the size of production units), and in other cases to the problem of infusion of knowledge. We will look at these latter programs in more detail in our section on education.

The first category of linkage programs may be labeled "community development." This term is used in some countries (e.g., Mali) while the term "rural animation" (animation rurale) is used in others (e.g., Senegal). In English-speaking west Africa, however, the term "community development" refers more clearly to locally initiated and implemented projects, while in the Francophone areas the term may refer to government initiated local projects.

Some examples may clarify the types of programs in rural development found in some of the farm communities of the Sahel-Sudan region.

A good example of rural animation was set up in the early 1960's in Senegal. It was a program in which young men from culturally similar villages were taken to a "centre d'animation" where they received training in how to ameliorate conditions in their villages largely by their own means and initiative. The training was done in an informal and traditional style. The animation program was removed as far as possible from other agencies of the government since villagers were often apprehensive about taxes and direct government relations. The young men were chosen by the people (or elders) in their representative villages. Thus, new ideas could be introduced to the villages by men from the village. The young men were not salaried and were not encouraged to continue into formal education or to look for a government job. Their purpose was to serve as an intermediary between the world of technological change and their villages. The project was run by the Ministry of Rural Development and as of 1973,

a total of 60,000 rural Senegalese had participated. A description of this program is detailed in Hapgood (1970).

Yet in the late 1960's, the director resigned and the program's budget was drastically reduced. The U.S. Peace Corps was brought in to partially fill the gap. Peace Corps volunteers were assigned to individual villages and were trained to help facilitate the introduction of new ideas regarding farming practices in the village. While the impact of the Peace Corps program may have been constructive in some ways, it did not serve the same function as training young men from the villages to go back for community development work.

The future of the Rural Animation Program in Senegal depends very much on encouragement at the leadership level and on an adequate budget. In addition to the traditional tasks of Rural Animation, it would also be possible for young men from the villages to assist international relief efforts in distributing foodstuff. The distribution of relief food is often not getting to the villages and part of this problem is the lack of local personnel who have some experience in working with the government.

Another example of a linkage enhancement project has been the "Centres de Formation Professionelle Agricole" (FPA) in Chad. There are nineteen FPA centers concentrated in the cotton-producing region. Eventually the villages will run the centers. During the first year, the trainees spend five days at the center and weekends in the village. During the second year, the majority of time is spent in the village practicing what has been taught. Topics include agriculture, fertilizers, mixed cropping, rotation of cropping, and rural economy. Each center admits a group of 30 trainees per year, so the program is not yet on a mass basis.

This program is similar to the Rural Formation Centers (RFC) in Senegal. There are six such centers, which run a three year agricultural course. Approximately 40 youths attend each center where they are taught modern farming techniques. The first group completed the course in 1971, and the majority returned to their villages. The promise of 10 acres of land to each graduate, however, has been difficult to meet.

The rural animation program in Mali is linked to large scale projects such as "operation rice"--a joint private-government venture in farming. The operation has been in existence since about 1967, and in 1973-1974 handled 24,060 hectares of land, which supported 10,269 families (averaging 10 people each). The government prepares the land, and the people farm it. The operation is divided into four zones, each with its administrative center. The organizational structure provides for maintenance and repair of all machinery and vehicles (garage), preparation of the land for rice farming (genie rurale), farming techniques (vulgarisation), literacy (alphabétization), community development (developpement communitaire), administration (formation).

The community development aspect of "operation rice" began in 1972, and five CD centers were established, each employing 4-5 people. In addition, every village has its animator (animateur, or animatrice), an individual chosen by the village to be their CD official, and to provide a link between the villagers and the 5 CD centers. The animator receives instruction in nutrition and sanitation from the center and then teaches the others in his/her village. Every two weeks, there is a general meeting to discuss projects and information. This allows the CD office to deal with the individual problems of each village. The emphasis is on better

mid-wife techniques, weekly distribution of anti-malarial pills, and detection and treatment of measles, smallpox, and malnutrition. They also teach weaving, sewing, nutrition, household care, and vegetable gardening. They have introduced potatoes, carrots, tomatoes, cabbage, eggplant, onions, and turnips into the normal diet. They are also finding methods to improve sanitary water in each village.

The idea of rural animation is closely tied in with governmental policy on "mobilizing" the rural farmers for self-help. Clearly, some governments of the Sahel-Sudan states have been more interested in promoting rural animation than others. Historically, there has been less "community development" effort and organization in Francophone west Africa than in Anglophone west Africa. There is a good deal of experience in west Africa on community development and rural animation. It remains a policy and a budget decision as to whether these programs are established and/or strengthened. Given the impact of the drought, and quite apart from immediate relief efforts, it is clear that some form of rural animation will be necessary to the long-term viability of these areas. If the governments of the region decide that Rural Animation is a desirable goal, a more concerted effort by the international aid community might strengthen these programs in a way which will meet the needs of the area while at the same time not intruding too deeply into what is clearly an internal political matter. The exchange of ideas and information between Francophone and Anglophone countries regarding community development and rural animation would probably yield considerable benefits for all concerned. The production of literature and technological materials in vernacular languages and the use of modern communications media to back up rural animation will be discussed and suggested in a later section.

In addition to rural animation, or linkage of villages to modern techniques by local based animators, several of the governments of the Sahel-Sudan region have also encouraged farming cooperatives, with the apparent intention of producing economies of scale. It is not clear yet whether these experiments have succeeded in increasing production capabilities or not, but the advantages of shared equipment has made sense on a prima facie basis. In Niger, the government supported local agricultural cooperatives throughout the 1960's. Much of this took the form of credit unions to allow farmers to buy simple equipment on a joint basis, but to continue their family farming units. The spontaneous program of religiously based cooperatives in Senegal has been mentioned earlier. In January, 1974, the Mauritanian government announced that 58 hectares (145 acres) of former desert had been made arable, and handed over to eight farming cooperatives near the town of Rosso on the Senegal River. (A further 150 hectares will be handed over to farming cooperatives over the next two years.)

The nature and types of cooperatives emerging in various areas of the Sahel-Sudan differ, but, they all are organizations which are at least partly managed by the members. Cooperation may take place at many levels: cooperation in production, farm operation, marketing and processing farm products, effecting improvements in crop and animal husbandry, administrating credit, etc. The cooperative grouping of farmers for these purposes need not always become legal in form unless some contractual obligation, such as a loan for the acquisition of equipment, takes place. Moreover, they can often be disbanded after they have demonstrated methods and practices which individual farmers can and even eventually prefer to carry out on their own.

In Mali, the government has encouraged local cooperative groups to till some fields in common (champs collectifs) not only for the purpose of earning money to finance community improvements but also in the hope that cooperative farming may find increasing favor (see deWilde, 1967). However, the results have not been encouraging and the standard of cultivation is below that of the individual farms. In the Bokoro area of Chad, the BDPA has gotten a favorable reception among farmers by establishing cooperatives, which under its management, produced some immediate and substantial benefits through the cooperative sale of peanuts and millet and the purchase of a few prime consumer necessities (deWilde, 1967). There was some success in cooperative groups formed in Upper Volta although there is no framework to study their impact.

Weaknesses inherent in small scale holdings could be overcome by group action in agriculture. Group action would enable the members to use machinery economically, strengthen their bargaining position in buying and selling, raise their technological level, and secure long-term credit.

However, cooperative farming may not be a panacea for the Sahel-Sudan agricultural problem. It is subject to serious weaknesses that are often conducive to failure. First, if cooperatives are undertaken on any significant scale, they often encounter shortages of managerial and technical skills. Second, the zeal for modernization in cooperatives is often undiscriminating. Excessive resort to mechanization has sometimes proven too costly, and machines may not be repaired. Third, while cooperative plantations may have certain theoretical advantages in growing certain crops, owing to the scale of operations and the possibility of ensuring better crop

husbandry, such benefits in practice may be outweighed by the high cost of establishing crops and the high proportion of fixed total costs. On the small individual holding where food subsistence requirements are met and most of the labor is furnished by the farm family, tree crops can often be established at lower costs and with very little support from the government. Fourth, under cooperative farming the responsibility for operations is often so diffused as to be virtually non-existent. Only comparatively few learn to assume responsibility and make decisions, while other people may find it a convenient way of avoiding responsibility. Thus in the Bokoro area of Chad, the BDPA gained substantial benefits through the cooperative sale of peanuts and millet. However, the rural population is illiterate and it is not certain that the BDPA could continue if external management or close supervision is withdrawn. According to deWilde:

"In Mali, too, we found that the government was really managing the village cooperatives to which every family was required to belong and which were trading in consumer goods as well as farmers' production requisites. There was justification for using cooperatives for distribution of production supplies since private trade was not equipped to handle this. However, the same justification can hardly be applied for staple consumer goods which are bought in sufficient volume and can often be handled more efficiently and at lower cost by private trade." (1967)

Yet one success element in cooperatives has been their similarity with customary lineage systems. The lineage system provides a communal outlook based on kinship and therefore a cooperative venture is not alien to the system. It is expected that in the beginning, membership in the cooperatives would continue to be based on kinship groups. It is expected that if the kinship groups are strong and there is an absence of internal strife, they may form the most appropriate basis for cooperative action in the beginning. Indeed, the success of cooperatives in Chad and Upper Volta has been due

primarily to this (deWilde, 1967). However, it may be that cooperatives will not be as efficient if they are run by "village elders" (of the customary system) and hence the question of appropriate management (authority) is central.

Robert Charlick (1972) has reported extensively on the rural development strategy advocated by the Nigerien government, initiated in the test area of Matameye county circa 1958, called "participation populaire au dévelopment," which was proposed by the Nigerien government in response to felt needs for: 1) raising the standard of living, while simultaneously 2) building the power capacity of the national government. The conflicts arising initially from the government's dual needs led to the failure of the rural development strategy in both areas--that is, it failed to modify the economic condition of the villagers, while at the same time it failed in the area of political mobilization. A revised program initiated in 1972, "Popular Participation through "Induced" Participation," sought to establish a new style of communication between the bureaucracy and the farmers. Institutions such as 1) rural animation networks, and 2) cooperative organizations were established to facilitate this objective. Charlick further reports that "Both the animation network and the cooperative organization would be "ascending structures" which would open channels of communication from the village toward Niamey. A third linkage mechanism was established in the organization of the Popular Advisory Council. Each of these linkage mechanisms would serve to foster a sense of popular involvement in modernization decisions beyond the village." In addition, "descending linkage structures" were instituted for directing and mobilizing village-level society in such a manner as to discourage the development of autonomous power above the local level. The Diori scheme was designed to undermine local elite control which was detrimental to economic and

political aims of the Nigerien government. If successful, which it was not, the program would have induced radical change in the structure of political and economic power at all levels of Nigerien society.

Charlick's comments on "Post-Participatory" modernization in Matameye are also of interest. "...recently the government has experimented with even more directive schemes to get modernization going in the wake of the failure of "participatory" mass organization. One such experiment has been the "Equipe Charette" program developed in 1969 and administered in several pilot areas of the Zinder Department by the agriculture service. Initially, this scheme was designed to promote the sale and efficient use of ox-drawn agricultural equipment through intensive demonstrations in farm communities. The program was to rely upon the ability of the mobile demonstration team to convince villagers that the techniques proposed were economically superior to existing methods of production (Niger n.d.). In conceptualizing the problem of under-utilization of modern techniques in this way, the bureaucracy returned to a notion that there were no major attitudinal or structural obstacles to village economic modernization, only technical ones. But the experience of the "Equipe Charette" program did not bear out this assumption. To begin with, villagers were suspicious of the bureaucrats and resisted attending equipment demonstrations. The solution adopted was to threaten village chiefs to turn their people out for these sessions. Then villagers were asked to select individual farmers to try the techniques with the notion that they would be viewed as representatives. Villagers reacted in the same way they had for the first animation training program recruitments, and finally the agricultural service aided by animation service agents had to select the

"progressive farmers." Usually the most affluent farmers were selected. Finally, after the demonstrations were completed and the farmers expressed little interest in purchasing the equipment, the bureaucrats ordered them to use the revenues obtained from the demonstration fields to make down-payments on the ox-drawn equipment (Gautier 1969, Saley 1969). In this manner, equipment sales soared in the pilot regions of Matameye. Even the guise of mass participation in these investment decisions has been abandoned." (p. 25)

In short, the governments of the Sahel-Sudan region have experimented with various programs affecting the modes of production of farmers. They have tried to link the villages into rural animation schemes, and in several instances have encouraged cooperatives, and even land settlement schemes.

Yet the overall magnitude of these efforts is not great, and in a number of instances, programs have "broken down," for one reason or another. A more careful comparative assessment of these efforts might be useful. At this point, we are still less concerned with the type of technology or economics involved in rural development, than with the forms of social organization which might be useful in implementation.

3.2.2 Livestock programs: Most governments in the Sahel-Sudan region have livestock health programs, including veterinary medicine and watering holes. There are also slaughter houses, and some trail clearance programs (e.g., tsetse fly eradication). Yet there have been almost no programs geared to altering forms of social organization for improving the situation of the herder or preserving ecological balance. As mentioned in other parts of this report, farmers have been more accessible to governments than herders. The amount of governmental contact with herders has been minimal. The governments have interacted with herdsmen on matters of taxes, animal

health, abattoirs, and in a few cases, transhumance passageways. The actual modes of livestock rearing have not been altered, and very few herders have any contact with educational facilities. Administratively, herders are a "problem" because they may move from district to district, and may try to "avoid" the "law."

In a few instances there have been experiments in changing the scale (and location) of production, notably through "ranch" schemes. There have been ranch projects in Upper Volta (as well as in Bornu province of northern Nigeria). (Their projects are known in detail to USAID, since they helped fund them.) The project in Upper Volta involved fencing, but it was found that herders could cut the fences, and paid little attention to the intentions of the planners. The cattle ranch in Bornu was an attempt to limit cattle to the carrying capacity of the land area, but there was little way of enforcing this policy.

In short, livestock programs have been concerned with health and marketing facilities, with little attention to the actual pattern of grazing and rearing. Yet, a "ranch" scheme is likely to affect only one part of the cycle involving herders. Since the agricultural portion of this report suggests three distinct strata of livestock production, each associated with a distinct ecological zone (i.e., breeding and calving in the Sahel zone, grazing in the Sudan zone, and fattening/slaughter nearer to the southern markets)--any planning effort should take all three of these strata into account. Since this may mean transcending national boundaries (e.g., into the coastal states for fattening/slaughter) it is clear that a <u>regional</u> rather than a national approach is required. The examples of misfocused planning have been costly. Thus, the abattoir in Upper Volta became redundant when Ghana passed tax laws affecting the entry of Upper Volta meat.

3.2.3 <u>Problems and prospects</u>: With regard to farmers,

there has been insufficient systematic study of why rural animation schemes have not worked, and there have been few serious evaluations of experimental forms of agricultural reorganization. In a situation where experiments are being tried (and should be encouraged), the "demonstration" effect can be felt only if there is evaluation and communication. The "failure" of the Office du Niger (in Mali), as analyzed by Skinner (1974), is illuminating in this regard. One lesson seems to be that resettlement schemes which do not take into account local social and cultural patterns are not likely to succeed. The governments of the Sahel-Sudan region are clearly aware of this situation, but until an overall policy evolves of recognizing "local differences" it is not likely that cultural parameters will be built very effectively into any central plans. With this in mind, it may be that locally devised community development schemes (with national advice and consent) might be most useful. This approach has clearly proven itself in some of the English-speaking west African states.

Yet with regard to livestock, the problems are often regional, rather than local or even national. This suggests that planning should therefore involve some regional component. This will involve closer cooperation between inland and coastal states. We will discuss this in more detail later.

The policy of "rural mobilization" is essentially a political one. In times of ecological equilibrium, it is a matter of choice as to how much rural peoples should be "disrupted" from traditional agricultural and animal husbandry practices. In times of ecological disaster, there may be little alternative but to increase on a massive scale, the efforts to mobilize herders and farmers into new modes of relationship with the land. This may well impinge on entrenched

patterns of economic and political power. In the next section we will be discussing the possibilities of national governments achieving such rural mobilization. In this section, we have tried to suggest that the present effort is inadequate, although there have been useful experiments in some categories of programs. The whole question of herding in west Africa (including rinderpest control, tsetse fly eradication, livestock breeding and development, abattoirs, and marketing) should be considered on a regional basis.

4. NATIONAL LEVEL: DECISION-MAKING STRUCTURES

In this chapter we will examine decision-making structures at the national level, and then look at patterns of participation and representation in decision-making. With regard to decision-making structures, we will look at regime types (i.e., military regime vs. single party regime) and decision-making procedures. With regard to participation, we will look at the electoral base of party representation, differential participation in political parties, and regional/ethnic conflict.

4.1 National Decision-Making Structures

As of July, 1974 three of the Sahel-Sudan states had single party civilian regimes (Chad, Mauritania, Senegal), and three had military regimes (Mali, Niger, Upper Volta). In each case, there is a pattern of centralized authority and decision-making, even though in some cases there have been discontinuities in structure. In the following analysis, we will give a brief summary of regime development patterns, look at decision-making procedures, and assess problems and prospects.

4.1.1 Regime types: There are currently three civilian regimes in the region (Chad, Mauritania, and Senegal). In Chad, the Parti Progressiste Tchadien (PPT) was formed in 1946 as a section of the Rassemblement Démocratique Africain (RDA), and has been the dominant party in Chad since that time. In 1960, an opposition party was formed, the Parti National Africain (PNA), which formed a coalition government with the PPT. Thus, in the early independent period a coalition government ruled and there was a single opposition party, the Action Sociale Tchadienne (AST). General elections were held in March 1962 and the PNA and AST were banned. In the general

elections of 1963, the PPT then declared Chad to be a one party state. General elections were held again in December 1969 and the PPT has continued to rule through the present time. The Chad government is led by President Ngarta (formerly François) Tombalbaye. All budget decisions are approved by the Chad National Assembly in N'Djamena (formerly Fort Lamy).

In Mauritania, prior to independence in 1960, the dominant party was the Parti de Regroupement Mauritanien (PRM), and the two opposition parties were the Parti de la Renaissance Nationale Mauritanienne (LeNaddah) and the Union Nationale Mauritanienne (UNM). In 1960, LeNaddah and UNM were banned by the PRM but in 1961, the three parties merged to form the Parti du Peuple Mauritianien (PPM). Mauritania was declared a one party state, under the PPM, even though there have been general elections in May 1965 and subsequently. The government is led by Moktar Ould Daddah. The national assembly (consisting entirely of PPM members) approves the national budget.

In Senegal, the Union Progressiste Senegalaise (UPS) has dominated political decision-making since its inception in 1948. From independence in 1960, through 1967, there were minor opposition parties. There were general elections in December 1963 and February 1966. In 1967, Senegal became officially a one party state and absorbed the opposition parties, with the exception of the Parti Africain de l'Independence (PAI) which was banned in 1960. Leopold Senghor has served as president of Senegal and secretary general of the UPS. There was a referendum on a revised constitution in 1970 and general elections in 1972. Under the revised constitution there is a five year term for both the president and the legislators. Thus, the next general elections are scheduled for 1977. There was an "attempted coup" in December 1962, involving prime minister

Mamadou Dia, but Dia was released from confinement in the spring of 1974 and there have been no further notices of attempted coups.

The remaining three states have military regimes (Mali, Niger, Upper Volta). In Mali, the Union Soudanaise (U.S.) was founded in 1946 as a branch of the Rassemblement Democratique African (RDA), and dominated the government until the military coup in December 1968. Before independence there were two small opposition parties, but from 1959 until 1968, Mali was officially a one party state. The U.S. broke with the RDA in 1958 and in 1959 joined with Senegal in a new party, Parti de la Federation Africaine (PFA) which dissolved when the Federation broke up in summer 1960. During the early independence period, the U.S. regime was led by Modibo Keita, and the U.S. was confirmed in the general election in April 1964.

On November 19, 1968, there was a coup d'etat led by army officers at the lieutenant and captain level. Since 1968, the government of Mali has been led by Col. Moussa Traore. In April 1974, the head of state and leader of the military government (Col. Traore) proposed a new constitution and a return to civilian rule by 1976. The constitution was approved in June 1974 by a 99 percent vote. According to the new constitution, there would be a president and a head of government, each elected every five years and limited to two terms of office. There would also be a national legislative assembly (elected every four years), a single party, and a supreme court. Anyone who held political power before the overthrow of the Keita regime in 1968 is expressly prohibited from holding any office in the new institutions. The role of the military is not well defined but it would seem that the military intends to remain involved in government decision-making, even after 1976.

In Niger, the Parti Progressiste Nigerien (PPN) served as the single party from independence until the military coup d'etat on

April 15, 1974. Prior to independence, there were two opposition parties, which merged to form the Bloc Nigerien d'Action (BNA), better known by its Hausa name, Sawaba. After independence Sawaba (led by Bakary Djibo) was declared illegal and much of the leadership went into exile. The PPN, under the leadership of Hamani Diori, served as a single party state. In September and October 1964, there were Sawaba raids into Niger. There was a general election in October 1965 and October 1970 in which the PPN was confirmed.

On April 15, 1974, the 2,500 man army, led by Lt. Col. Seyni Kountche (chief of general staff), took over the Niger government. Kountche became chief of state, suspended the constitution, dissolved the national assembly and banned political and semi-political groups. A supreme military council was established with eleven members, all drawn from the army. The SMC announced that it would set up a governing body, and has reorganized the ministerial structure in an apparent attempt to gear the government to ards some of the problems of the drought. A ministry of rural economy, climate and aid was established, and the SMC took direct control over all relief efforts in the country. The Sawaba leader (Djibo Bakary) has asked that the members in exile return to Niger and participate in reconstruction, but the military leaders of the SMC have stated that they will not allow the re-introduction of politics.

In Upper Volta, at the time of independence in 1960 the dominant political party was the Union Démocratique Voltaique (UDV) a branch of the Rassemblement Démocratique Africain. There were several smaller opposition parties at the time of independence. In the 1959 election, the UDV won 71 out of 75 seats and subsequently gained control of the remaining four seats. Many of these smaller parties were banned or merged with the UDV, and at the general election of

November 1965, Upper Volta appeared to be a one party state with the UDV (under the leadership of Maurice Yameogo) in control.

On January 3, 1966, the military, led by Lt. Col. Sangoulé Lamizana took control of the Upper Volta government and suspended all parties. In June 1970, there was a constitutional referendum and a general election was held in December 1970. The UDV won 37 of 57 seats and three small parties controlled the remainder. Gerard Ouedraogo, became prime minister and Joseph Ouedraogo became national assembly president. Thus, from 1970 until the military coup on February 8, 1974, Upper Volta was one of the few multi-party systems in Africa.

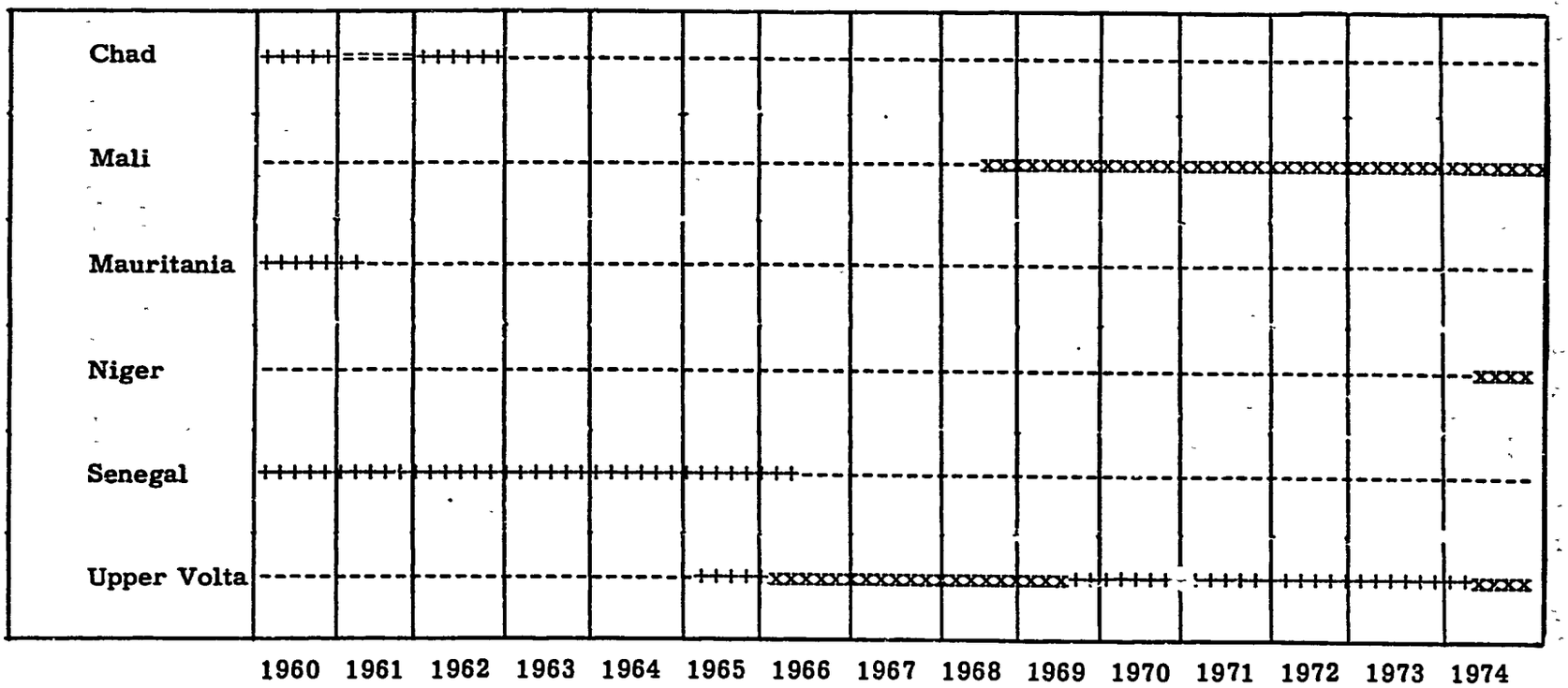
Elections were scheduled for 1974, but because of a deadlock between the three leading politicians, the military, under General Lamizana, suspended the constitution and formed a "government of national renewal." This government consisted of ten soldiers and four civilians and Lamizana became president of the council of ministers and head of government.

A summary of all regime types is contained in Table 23. A detailed diagram of regime development for each country is contained in Appendix 4. A summary of the heads of state, from independence (1960) through August 1974, is contained in Table 24.

4.1.2 Decision-making procedures: Within a single party system, decision-making tends to be concentrated in a central committee of the party, which controls the cabinet and the legislature. The chief executive of the country tends to be the chairman of the party. Yet there are often elaborate procedures for confirmation of decisions by the legislature. The legacy in all six states in the Sahel-Sudan region has been the single party system, and if there is a return from military rule to civilian rule, it is likely that some variation on a single party system will result. Thus, it may be useful to review an example of how

Table 23

Regime Type: 1960 -- 1974



Key: Multi-party system: ++++++++++
Party coalition: ==========
Single party: ----------
Military: xxxxxxxxxx

Table 24

Heads of State: Independence (1960)--1974 (August)

Country	Name	Dates in Office	Age (1974)	Ethnicity	Education	Former Occupation
1. Chad	1. Ngarta (Francois) Tombalbaye (President	1960-Present	56	Sudanic (Sara)	Primary	Assistant Teacher, Trade-Unionist
2. Mali	1. Mobido Keita (President)	1960-1968	59	Mande (Malinke)	University (Dakar)	Teacher, Civil Servent (School Inspector)
	2. Lt. Moussa Traore (President of the Military Committee of National Liberation and Head of State)	1968-Present	38	Mande	Frejus Training College in France	Soldier
3.Mauritania	1. Moktar Ould Daddah (President)	1960-Present	50	Moor	Post-Grad. professional (France)	Lawyer, Interpreter
4. Niger	1. Hamani Diori (President)	1960-1974	59	Djerma-Songhai	Secondary (Dahomey)	Civil Servent, Teacher
	2. Lt.Col. Seyni Kountche (Chief of State, Head Sup. Military Council)	1974-Present	43	Djerma-Songhai	Officer's Training School (France)	Soldier (Chief of General Staff)
5. Senegal	1. Leopold Sedar Senghor (President)	1960-Present	68	Serer	University of Paris (France)	Teacher, Professor
6. Upper Volta	1. Maurice Yameogo (President)	1960-1966	53	Mossi	Secondary	Civil Servent
	2. Gen. Sangoule Lamizana (President)	1966-1970	58	W. Mande	Secondary	Soldier
	3. Gerard Ouedraogo (Prime minister)	1970-1974	?	Mossi	?	Royal Family
	4. Gen. Lamizana (Head, Government of National Renewal)	1974-Present	58	W. Mande	Secondary	Soldier

decisions are made within a single party system. Since Senegal has the most elaborated system, it may serve as a model.

The First Republic of Senegal lasted from independence (1960) until December 1962, when the Second Republic was inaugurated. In early 1970 there was a constitutional reform which attempted to decentralize the central structure. During the first republic, power was divided between the president and the prime minister. Thus, the prime minister was responsible for foreign policy, and the president was an arbitrator of political decisions in general. The prime minister was responsible for national policy, general administration, and the armed forces. The president was to participate in decisions on general policy, and military and administrative appointments.

The president of the first republic (Senghor) argued that there should be a single chief executive, and during the second republic transformed the system into a presidential regime. The president became head of the administration with power to appoint all civil servants. The Ecole Nationale d'Administration, which trained most of the higher level civil servants, was attached directly to the president's office. The 1963 Senegalese constitution also gave the president virtually unlimited "emergency powers," reproducing almost exactly Article 16 of the Fifth French Republic constitution, but with no limits or need for outside approval. The president also appointed and dismissed all members of the cabinet. The cabinet itself served to advise the president, and could not affect presidential acts. The secretary-general of the Presidency acted as a chief of cabinet and coordinator of ministers.

With the constitutional amendment of 1970 (which resulted from urban pressure, i.e., students and labor), the post of prime minister was recreated and the cabinet enlarged. (A young administrator, Abdou Diouf became premier.) Yet the president retained the power

to define national policy, and he has exclusive rights to control foreign affairs and national defense.

The national legislature does have to pass the national budget. If there is a conflict with the executive, the legislature may delay action, but cannot stop it. The legislature does have working committees, comparable to cabinet posts, on defense, finance, economic affairs, development and planning, work, social security, health and civil service, education, culture, information, arts, youth, sports, public works, transportation, communications, mines and tourism.

In short, decision-making is largely in the hands of the president, even though some effort has been made to expand the base of consultation and participation (to be discussed later).

In the case of military regimes, the actual decision-making procedure is more difficult to outline, since the military tends to be autonomous (at least initially) and to act in a "unanimous" way. As there are no "constitutional" guidelines, the procedures for decision-making may be less obvious. Although military regimes are usually regarded as "centralized," a council of armed forces (conseil des forces armee) is not the same as a cabinet. And in many ways the individual ministers may have more decision-making powers than in the single party system. Delegation-of-power from the military council is common.

A military regime might also reorganize the ministerial "portfolios" in a way which is more geared to functional needs, rather than bureaucratic convenience or tradition. All members of a military government would have some specific responsibilities. The recent example of Niger may illustrate this point. In this case, the members are also of a "younger generation," compared to the civilian regime they replaced. (See Table 24.)

Table 25

Members of the military government: Niger (Spring, 1974)

1. President of the Supreme Military Council (also Head of State and Minister of Development)
2. Education, Youth and Sports
3. Interior, Mines and Geology
4. Public Service and Labor
5. Justice, Keeper of the Seals
6. Finance
7. Foreign Affairs and Cooperation
8. Rural Economy, Environment, Climate and Aid to the Population
9. Health and Social Affairs
10. Public Works and Town Planning
11. Economic Affairs
12. Posts and Telecommunications, Information and Tourism

In Niger, the Supreme Military Council itself announced that it would take over the organization and administration of all aid projects, and a new ministry was set up to coordinate this function. In Mali, the military regime has also taken direct responsibility for distribution of all aid.

Yet, the importance of "ultimate responsibility" within the single party systems and the military regimes would suggest the key role of certain select individuals, i.e., heads of state. We are not in a position to evaluate the impact of key individuals within the six Sahel-Sudan states. We have previously presented some of their background characteristics in Table 24 but it is the functional office that concerns us, and only indirectly, the individuals.

In the case of both military and civilian regimes, the importance of the senior civil service in decision-making and implementation

cannot be overestimated. All political decision-making is done in conjunction with senior civil servants. In general, the higher levels of the civil services in the six states are well trained. We will consider the scope of civil service in our discussion of budget characteristics.

4.1.3 Problems and prospects: All of the governments of the Sahel-Sudan states are centralized, either through a single party or through a military regime. In the case of the three civilian regimes (Senegal, Mauritania and Chad) there has been continuity of the regime since before independence. Senegal and Mauritania have included, more or less, opposition parties within the dominant party, while Chad has experienced some of the civil disorder resultant from banning and not including the northern-based party within the government. In the three states where military forces took over, there were significant portions of the country that were excluded from political life. In the case of Upper Voita, the military has acted as an arbitrator between political factions, whereas in Niger and Mali, the young officers have taken over with the purpose of running the government more efficiently. It is likely that in Mali, and possibly other states as well, there will be a return to civilian rule at some point in the future, but the form of civilian rule (or "single party" system) re remains to be seen. The actual decision-making structures and pro procedures are likely to remain centralized.

In all six states, the decision-making elites are from the modern sector, and hence may have a strained relationship with the rural areas.

In an emergency situation such as an ecological disaster (e.g., the drought), a military regime can probably make decisions more quickly than a civilian regime and implement those decisions without

delay. On the other hand, there are major problems of military rule in Africa, including problems of institutionalizing decision-making, succession to leadership, and the lack of representation of important interest groups. A mass-elite gap, which was noticeable in several of the early civilian regimes, may even be accentuated with a military regime.

Perhaps joint military-civilian regimes will emerge in many west African states. Thus, in Senegal, the military is represented at the cabinet level and in some of the military regimes (e.g., Upper Volta) civilians are represented (this was modified in June 1974). A model for this combined civilian/military decision-making structure may be found in Nigeria and Ghana at present.

Since two of the military coups have occurred within the past six months, it is too early to assess whether decisions and implementation regarding the drought will be affected. In the case of Niger and Mali, the military regimes, consisting of younger officers who perhaps have closer ties to the common people, seem to be concerned with the drought as a matter of utmost priority. In the case of Niger, there have been innumerable statements by the new military regime about the need for "social justice."

In single party systems, decision-making powers rest more with the party central committee and/or national cabinet than with the national assembly. The question as to how far government structure or party structure extends down to the local level will be assessed in a later section.

In short, there has been a history of regime turnover (or in the case of Chad, attempted turnover), while governmental decision-making <u>structures</u> and <u>procedures</u> have remained essentially intact. In only one state (Niger) does the current government have a relative

lack of experience in national decison-making. Rather than being a handicap, this may facilitate new approaches to the structure of decision-making and implementation.

Perhaps the most serious crisis in national decision-making has occurred and will occur at those points in time where there is a transition from military to civilian rule or vice versa.

4.2 Participation and Representation in Decision-Making

In the previous section we have examined the decision-making structures in each of the six countries, but not the breadth of participation or representation reflected in such structures. The question of participation is included because we are trying to assess the degree to which central structures are linked to the various regions and rural areas of a state. In the case of military regimes, there is very little way of assessing regional participation since military regimes are not designed to encourage participation and representation. In the case of civilian regimes, it is clear that political parties often attempt to increase the extent to which the central decision-making structures are linked to various sections of the country. Single party systems are in a special position to aid in mobilization of the rural areas. It is the linkage or representational function of parties that concerns us here, rather than the actual extent to which various local level peoples participate in national decisions. We are also concerned with the implications of exclusion from linkage. We would hypothesize that the task of rural mobilization is more difficult in areas where there is no political party linkage, than in areas where there is such linkage. In some instances, groups or regions may feel so excluded as to engage in political violence, which inevitably complicates the task of rural development.

In this section we will examine political party electoral support,

as an indication of linkage. We will also look at the methodology of assessing differential bases of support, which might affect a policy of "equal development," or "development from below." We will identify special problems such as lack of linkage (including communal political conflict where it has occurred), and finally assess problems and prospects.

4.2.1 The electoral base of party representation: The idea of political linkage between government and the "common man" developed in French West Africa after World War II, as political parties were formed to press for reform, and eventually independence. For a description of this era, see Schachter-Morgenthau (1964) and Hodgkins (1961). In retrospect, it is generally agreed that two of the states had "mobilization" parties with a mass base (Senegal and Mali), and the remaining four states had "elite" or "patron" parties. This coding is not intended to be definitive (and may be based on a confusion of intentions with actual behavior) but to illustrate the range of functions which political parties have played in this region.

A more standard measure of electoral base representation is the ratio of voters to eligible voters. Looking at this variable over time may suggest some sense of the "growth" of linkage with government, or conversely, the extent to which sections of the population are not linked up even to the electoral process.

Thus, in the election immediately prior to independence, data are available as to number of voters who voted, as a percentage of the total population. The average for all six countries was 22.8 percent, which means that less than one in four citizens went to the polls. Of the votes cast, it is possible to examine the percentage cast for the majority party (which in all cases, became the basis of the independence government). The pre-independence average was 77 percent,

indicating that the tendency toward a single party system was already established. See Table 26 for details.

Within four or five years after independence, most of the states had established a single party system, and the percentage of voters who went to the polls increased dramatically, although three states still had less than 50 percent of the voters participating. The percentage of vote cast for the dominant party averaged 98 percent. (See Table 27.)

In short, the average number of voters participating increased from 22.8 percent in about 1959-60, to 48.6 percent in about 1963-64. While this is a significant increase, it still indicates that major portions of the states were yet to be drawn into the orb of government. We will explore below the possible differential involvement of various sectors in the country.

4.2.2 Differential participation in political parties: Three criteria of national sub-sets of interest to our analysis in this report might be: urban/rural, literate/illiterate, and regional-ethnic. In general terms, most of the single party systems in the Sahel-Sudan region emerged in the 1950s and 1960s in the urban areas. Party organization was centered in the towns and cities. The voting statistics which do exist clearly confirm this observation. By extension, the professional/commercial/governmental/labor groups were most heavily involved. Farmers were least involved. (Herders were virtually non-involved.) Likewise, those who were literate were most involved, and those who were illiterate were least involved.

Because political parties were primarily an urban phenomenon, it followed that major ethnic or regional groups with an urban base were most involved. Conversely, those groups with a rural base were least involved. In some cases (e.g., Upper Volta), the dominant

Table 26

Percent of Vote Cast for New Ruling Party in Election Prior to Independence

Range = 40.00 Mean = 77.33 Standard Deviation = 12.49

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
5.1	5.1	1.0	Mauritani	100	1
21.9	16.8	2.0	Senegal	83	5
39.2	17.4	3.0	Niger	77	6
60.9	21.7	4.0	Mali	76	7
76.5	15.6	5.0	Chad	68	8
100.0	23.5	6.0	Upper Volta	60	10

Number of Voters in Election Prior to Independence as Percentage of Population

Range = 26.00 Mean = 22.83 Standard Deviation = 8.29

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
5.1	5.1	1.0	Mauritania	38	1
21.9	16.8	2.0	Senegal	28	4
45.3	23.5	3.0	Upper Volta	22	7
60.9	15.6	4.0	Chad	19	8
82.6	21.7	5.0	Mali	18	
100.0	17.4	6.0	Niger	12	10

Table 27

Number of Votes for New Ruling Party, First Election as Percent Total Vote

Range = 5.00 Mean = 98.67 Standard Deviation = 1.70

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
21.7	21.7	1.5	Mali	100	1
26.8	5.1	1.5	Mauritania	100	
42.4	15.6	4.0	Chad	99	2
59.7	17.4	4.0	Niger	99	3
83.2	23.5	4.0	Upper Volta	99	
100.0	16.8	6.0	Senegal	95	10

Number of Voters Voting in First Election After Independence as Percent of Population

Range = 25.00 Mean = 48.67 Standard Deviation = 8.26

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
17.4	17.4	1.0	Niger	62	1
39.1	21.7	2.0	Mali	54	4
62.5	23.5	3.0	Upper Volta	51	5
67.6	5.1	4.0	Mauritania	47	6
83.2	15.6	5.0	Chad	41	9
100.0	16.8	6.0	Senegal	37	10

party became identified with the dominant ethnic group (i.e., Mossi). It has been possible to examine voting statistics in select countries, and to assess these patterns in more detail. We have included in Apprendix 4, some distribution statistics for one country (Chad) to illustrate this pattern. We selected two pre-independence elections because the voting statistics were available, and because we feel it provides a baseline to assess subsequent changes.

The example of Chad was selected also because of the two-party system which existed until 1962-63 when the northern party was banned. Since there has been communal conflict in Chad, the party representation data are useful indicators of the inclusionary/exclusionary basis of early party support. Thus, the dominant party drew approximately 87 percent of its support from the urban centers, and the opposition party drew 75 percent of its support from the rural areas. In addition, about 58 percent of the urban people were involved in one party or the other, while only 2 percent of the rural populations were involved in party politics. The ethnic and regional association patterns are equally striking. The dominant party drew 57 percent of its support from the Sara ethnic group, while the opposition party drew 60 percent of its support from the Arab group. There was a recorded zero percent of support for the dominant party by the Arab groups at that time. In short, there was a strong regional/ethnic basis to the party system.

While electoral analysis is one way of measuring participation and representation, there are other ways as well. Cabinet composition has become a common indicator of "national balance." There is often an attempt to "balance" regionalism and even ethnicity. This pattern has been more common in English-speaking parts of west Africa, but also seems to have been the case in the six Sahel-Sudan states. The question as to whether "minimal" representation is sufficient, or

whether "equal" representation is more conducive to national linkage is an empirical question. In the case of the Sahel-Sudan states, there has been a remarkable balance of ethnic factors at the cabinet level. This is shown in Table 28.

4.2.3 Regional/ethnic conflict: There has been only one state (Chad) where communal conflict reached a level where it might have consequences for rural development, and that affair seems to be less apparent at present than in the late 1960s. There have been minor incidents in Mali and Mauritania, which might affect particular types of development policies.

In 1962, all political parties in Chad were banned except the dominant party. Since this was interpreted by the northern region politicians as a way of disenfranchising them--(as noted in the previous sections, parties in Chad had a regional base)--they apparently opted for extra-constitutional means of showing their dissatisfaction. In about 1965, a "rebellion" began, which by 1968 had probably assumed the proportions of a civil war. "Rebels" in Khartoum established the so-called "Gouvernment de la Republique de Tchad." By August 1966, 231 persons had been reported killed, most near the Chad-Sudan border in Wadai (Ouaddai) province. In February 1967, there was a serious battle at Am Timon (50 reported dead), and the Prefet of Salamot and his deputy were killed. All foreign news was censored. In 1968, the Chad National Liberation Front (FROLINAT) declared that they had about 2,000 troups. In the fall of 1969, approximately 2,500 French Foreign Legion troups were sent to assist the government. By the fall of 1969, the "rebellion" was not confined to the Chad-Sudan border, but spread throughout the north and south-east. Cotton crops were burned and government vehicles destroyed. At the present time, Chad seems to have worked out an agreement with Libya and other neighboring countries to discourage the Liberation

Table 28

Cabinet Membership: Distribution by Ethnic Unit*

Independence (1960) and 1967

country	Ethnicity*		Independence Cabinet	1967 Cabinet
1. Chad	1. Arab (46%)		38%	43%
	2a. Sudanic (Sara) (28)		38	50
	2b. Sudanic (Kirdi) (5)		0	0
	3. Nilotes (9.5)		0	0
	4. Saharan Cluster (7)		0	0
	5. Others (4)		25	7.2
	N =		10	16
2. Mali	1. Mande (43)		43%	33%
	2. Fulani (20)		43	40
	3. Senufo (15)		7	0
	4. Sarakole (8)		0	0
	5. Tuareg (6)		0	0
	6. Songhai (6)		7	0
	7. Others (2)		7	20
	N =		15	15
3. Mauritania	1. Moor (82%)		100%	83%
	2. Tukulor-Fulani (13)		0	17
	3. Others (5)		0	0
	N=		10	12
4. Niger	1. Hausa (46%)		9%	40.0
	2. Djerma-Songhai (19)		55.	33.0
	3. Fulani (13)		18.	6.7
	4. Tuareg (10)		0.	6.7
	5. Kanuri (5)		9	6.7
	6. Others (7)		9	6.7
	N =		11	15
5. Senegal	1. Wolof (37%)		42%	44%
	2. Fulani-Tukulor (24)		17	28
	3. Serer (16)		17	5.6
	4. Diola (9)		8.3	5.6
	5. Mande (7)		9	5.6
	6. Others (7)		17	11
	N =		12	18
				Immediate Pre-Coup Cabinet (1966)
6. Upper Volta	1. Mossi (50%)	57%	54%	54%
	2. Western Mande (16)	21	31	15
	3. Senufo (7)	0	0	7.7
	4. Grunshi (6)	7	7.7	7.7
	5. Fulani (6)	0	0	0
	6. Lobi (5)	0	0	7.7
	7. Gurma (5)	0	0	7.7
	8. Busansi (5)	0	7.7	0
	9. Others (.1)	14	0	0
	N =	14	13	13

*Ethnic units arranged in rank order of size within country with the unit's percent of national population in parenthesis.

Source: Morrison et al. (1972)

Front, and there have been only sporadic incidents of reported violence.

In the case of Mali, the conflict occurred between the government and the nomadic Tuareg groups. In August 1964, the government announced that for a year, a "foreign power" had been encouraging rebellion among the northern nomadic groups. In July 1964, the government had undertaken a major offensive and had "established order." The causes seem to have been Tuareg opposition to taxes and administrative control. At that time the civilian government of Mali was trying to enforce tight control over all aspects of the economy. There had been virtually no Tuareg involvement in government at any level.

In the case of Mauritania, the conflict in spring 1966 was "urban" based, and grew out of the introduction of a new language policy, which was to utilize Arabic in all aspects of the civil service and schools. The non-Arabic speaking groups protested and a few deaths occurred. Although the incidents at that time were not major, they are indicative of the problems of changing language policy, if it is seen to favor one ethnic group over another. The Arabic-speaking Moors were seen to dominate the government, and the settled Tukulor-Fulani/Wolof groups (who were not represented in the cabinet at that time) in Nouakchott (especially at the government secondary school) engaged in "riots."

In Senegal and Upper Volta there have not been any reported instances of communal conflict. In Niger, there was a partial communal basis to the outlawed political party (SAWABA) which was strongest in the Hausa-speaking areas, but there was no direct conflict (apart from the attempt on the president's life in 1964).

In short, the major problem area has been Chad, where northern elements have not been included in the government. In the case of Mali, tensions with the nomads did result in conflict, but, despite

some allegations, the current military regime in Mali does not seem to have initiated any new confrontations. Using a weighted scale for communal instability, taking into account duration and intensity, the six countries may be ranked as shown in Table 29.

Table 29

Weighted Communal Instability

Range = 17.00 Mean = 4.17 Standard Deviation = 6.12

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
15.6	15.6	1.0	Chad	17	1
37.3	21.7	2.0	Mali	6	7
42.4	5.1	3.0	Mauritania	2	9
59.7	17.4	4.0	Niger	0	10
76.5	16.8	5.0	Senegal	0	
100.0	23.5	6.0	Upper Volta	0	

4.2.4 Problems and prospects: In all six countries, the political party system was intended to serve as a linkage between the decision-making levels of government and a popular base. These party structures have often been too fragile for this task, or even for the task of administration. In 50 percent of the states, the military has taken over the decision-making structure. The fact that there has been a 40 percent turnover in regimes in the first few months of 1974 may be evident that in times of crisis, the party system cannot continue its "business as usual" approach to rural and regional linkage. While the military is not noted historically for optimal contact with the "masses," there is no real evidence that the party systems that were replaced were serving any real linkage role in the rural areas.

At the same time, the time span since independence has been relatively short, and in the future it may well be that some revised form of party structure and electoral process might be a useful link between the central decision-making bodies and the countryside. In Chapter five, we will look in more detail at the strength of other structures of the state, in relation to their potential for implementing national policy at the local level. We will also assess the role of the military in more detail at that point.

It is recognized that under most circumstances, political participation and representation is an "internal" matter which would not concern economic planners. In the case of the Sahel-Sudan region, there does not seem to be any serious problem, except in one country (Chad). It should be noted, however, that the nomadic pastoralists in the Sahel-Sudan region are probably less represented in central decision-making structures than any other single group in the area, including the farmers who are also usually underrepresented. The two cases of "rebellion" in the past fifteen years in the Sahel-Sudan region (i.e., Chad and Mali) have both involved nomadic groups. Even in Mauritania the conflict was between "nomads" and "farmers." With this pattern in mind, the question arises as to how central government can more effectively relate to nomadic groups and vice versa.

5. NATIONAL LEVEL: IMPLEMENTATION STRUCTURE AND PROCESS

In this chapter we will examine three aspects of implementation: a) the budgetary resource base within each country, b) the educational and military structures which might be utilized in rural mobilization, and c) the processes of communication and connectivity which are available for central-rural contact.

5.1 National Budget Characteristics

We are less concerned with the actual national budget figures than with the way a national budget may serve as a reflection of general levels of resources and implementation potential. Economic power constitutes both a resource desirable in itself and a producer of other resources. Economic wealth is a generalized resource which can bring social position, or political strength as well as direct satisfaction from consumption. We are also interested in national budgets in relationship to other facets of the economy, as an indicator of the scope of government in the national life of a country. Thus, in some countries, the national budget is only a small fraction of the total resources available for development. In other countries, it is the dominant factor. Both magnitudes of budgets and scopes of budgets are good indicators of implementation potential. We are less interested in data for the most recent year, and more interested in establishing trends and patterns over time. Full data displays are presented in Appendix 5.

5.1.1 The scope of national government: Government expenditures in 1968 ranged from $200 million in Senegal to $26 million in Mauritania (see Table 30). Government spending in 1968 as a percent of GNP averaged 16%, but ranged from 25% in Senegal to 12% in Niger. The Senegal situation is most dramatic (i.e., one-fourth of the entire economy is accounted for by government spending).

(See Table 31). Government spending per capita in 1968 also shows considerable variation, with Senegal spending more than twice the next highest country (see Table 32).

In short, using budget criteria, Senegal is in a class by itself in terms of governmental scope and magnitude. Mauritania has a low absolute level, but has greater scope in relation to its population and economic base than Upper Volta, Mali, or Niger.

In terms of rates of growth (of budget levels, and in relation to GNP and per capita spending) it is clear that Senegal is not moving at the same pace as some of the lesser developed governments, and in fact has a relatively stable scope of government. By contrast, Chad is expanding the scope of government expenditures at an increasing rate, and even during the early 1960's, increased government spending by 27% in a two year period (see Table 33).

The impact of the drought on these patterns is difficult to assess. Senegal seems to be increasing government expenditures. Thus, the 1974/75 budget for Senegal is 52,500 m. CFA francs ($210 million), compared with the 1973/74 budget of 47,000 m. CFA (i.e., an 11% increase). By contrast, the 1974 budget in Chad was 20,000 m. CFA, about 18% higher than 1973. (The Chadian recurrent budget for 1974 is 15,400 m. C.F.A.).

The overall average level of government budgets in the six states is low (i.e., $65.5 m., as opposed to an average of $125 m. for all west Africa). This might affect the ability of governments to implement broader mobilization or linkage strategies, even if policy had been established in that direction. At the same time, there is a considerable difference between Senegal with its stable, high level budget, and Niger/Mali/Upper Volta, where it is clear that governments have not yet firmly established themselves as a predominantly

Table 30

Government Expenditures in 1968 in Millions U.S. Dollars

Range = 174.00 Mean = 65.50 Standard Deviation = 60.65

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	200	1
32.4	15.6	2.0	Chad	51	9
49.8	17.4	3.0	Niger	43	10
71.5	21.7	4.0	Mali	40	
94.9	23.5	5.0	Upper Volta	33	
100.0	5.1	6.0	Mauritania	26	

Table 31

Government Spending in 1968 as a Percent of Gross National Product

Range = 13.00 Mean = 16.17 Standard Deviation = 4.67

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	25	1
32.4	15.6	2.0	Chad	19	5
37.5	5.1	3.0	Mauritania	16	7
60.9	23.5	4.0	Upper Volta	13	10
82.6	21.7	5.0	Mali	12	
100.0	17.4	6.0	Niger	12	

Table 32

Government Spending Per Capita in 1968 U.S. Dollars

Range = 45.00 Mean = 19.00 Standard Deviation = 15.33

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	51	1
21.9	5.1	2.0	Mauritania	23	7
37.5	15.6	3.0	Chad	15	8
54.8	17.4	4.0	Niger	11	9
76.5	21.7	5.0	Mali	8	10
100.0	23.5	6.0	Upper Volta	6	

Table 33

Ratio of Government Spending to Gross National Product, Rate of Growth 1963-1968

Range = 108.00 Mean = -1.00 Standard Deviation = 35.69

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
15.6	15.6	1.0	Chad	73	1
33.0	17.4	2.5	Niger	0	7
49.8	16.8	2.5	Senegal	0	
71.5	21.7	4.0	Mali	-14	9
76.5	5.1	5.0	Mauritania	-30	10
100.0	23.5	6.0	Upper Volta	-35	

Government Revenue--Rate of Growth 1963-1965

Range = 43.00 Mean = 6.00 Standard Deviation = 15.78

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
15.6	15.6	1.0	Chad	33	1
37.3	21.7	2.0	Mali	20	4
42.4	5.1	3.0	Mauritania	6	7
59.7	17.4	4.0	Niger	-6	10
83.2	23.5	5.0	Upper Volta	-7	
100.0	16.8	6.0	Senegal	-10	

Government Spending--Rate of Growth 1963-1965

Range = 66.00 Mean = -2.33 Standard Deviation = 22.43

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
15.6	15.6	1.0	Chad	27	1
33.0	17.4	2.5	Niger	8	3
49.8	16.8	2.5	Senegal	8	
71.5	21.7	4.0	Mali	7	4
94.9	23.5	5.0	Upper Volta	-25	8
100.0	5.1	6.0	Mauritania	-39	

significant factor in relation to the economy, and in relation to the masses of the people (i.e., per capita).

In relationship to the wage-earning sector, all six governments are in the same approximate range: from 29% - 36% of the wage earning section is employed in the public sector (i.e., by the government) (see Table 34). This is a very high percentage, and may reflect a greater capability to mobilize--through the public sector--than is generally recognized (although it must also be kept in mind that the wage-earning sector itself is generally quite small as regards absolute numbers). It may also reflect an inflated governmental infrastructure in relation to the economy as a whole. Here an assessment would have to be made of the content of the activities.

5.1.2 Development and sectoral priorities: From the point of view of behavioral science, budget allocations are regarded as indicators of value priorities. The amounts (or sources and disbursements) are of less importance than the ratios between sectors. We may get some indication of implementation potential by assessing budget priorities in the six countries. We are not in a position to do this comprehensively (at this time), but will do so illustratively. In some cases, we will also look at investment ratios between sectors, as an indicator of priorities. For a detailed examination of national budget allocations by sector in Africa as a reflection of values and priorities, see Dolian (1972).

In each national context, the budget categories differ, and without considerable examination of raw data, the form of the comparative patterns is often elusive. We have included such data in Appendix 5. The general pattern is perhaps illustrated by Mauritania, and is shown in Table 35. General administrative services account for about 20% of the budget, and defense/police about 20%. Education

Table 34

Percent of Wage and Salary Earnings - Population Employed in Public Sector, 1966

Range = 7.00 Mean = 32.17 Standard Deviation = 2.67

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
5.1	5.1	1.0	Mauritania	36	1
21.9	16.8	2.0	Senegal	35	2
45.3	23.5	3.0	Upper Volta	33	5
60.9	15.6	4.5	Chad	30	9
82.6	21.7	4.5	Mali	30	
100.0	17.4	6.0	Niger	29	10

Table 35

Mauritania: Current Budget Expenditures by Functional Classification, 1968-73 (in percent of total)

	Actuals				Preliminary	Budget	
	1968	1969	1970	1971	1972	1972	1973
General services	42.9	42.8	42.8	40.1	33.7	35.1	38.9
General administration	19.1	21.2	20.8	19.1	17.6	17.4	19.2
Defense	10.9	9.8	10.0	9.1	5.3	7.2	8.2
Justice	1.8	1.8	2.1	2.0	1.9	1.9	1.9
Police	11.1	9.9	10.0	9.8	8.9	8.6	9.3
Community services	3.6	1.6	1.6	1.3	1.6	1.4	3.5
Airport and waterways	2.6	0.7	0.7	0.4	0.4	0.4	0.3
Water supply	0.2	0.1	--	0.1	0.4	0.3	0.1
Maintenance of buildings	0.8	0.9	1.0	0.8	0.8	0.7	3.0
Social services	24.0	24.9	29.8	26.3	25.9	25.3	24.9
Education	16.6	17.3	21.9	19.2	16.8	16.5	16.6
Health	6.2	6.4	6.8	6.2	5.6	5.6	5.8
Special welfare services	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other	1.1	1.1	1.0	0.8	3.4	3.2	2.5
Economic services	8.3	6.6	7.1	7.1	7.1	8.1	6.9
Agriculture	4.3	3.1	3.6	3.8	3.9	4.0	3.4
Public works	1.8	1.5	1.3	1.2	1.3	1.4	1.1
Manufacture and construction	0.4	0.3	0.3	0.3	0.3	0.3	0.3
Trade, commerce, and transportation	1.8	1.7	1.9	1.8	1.9	2.4	2.2
Public debt	6.3	7.3	2.6	3.1	2.3	2.2	1.8
Transfers to capital budget and special funds	8.3	7.6	6.5	10.6	17.7	16.6	15.6
Unallocable	6.7	9.4	9.6	11.6	11.8	11.4	8.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Data provided by the Mauritanian authorities.

accounts for about 16%, health, 6% agriculture, 4%. In short, almost half of the national budgets go for administration and security.

The case of Chad illustrates sectoral distribution of investment under a development plan (see Table 36). In this case, nearly 30% goes for agriculture and about 15% on energy, mines and industry. Infrastructural costs account for 33%, and social costs 23%. These ratio figures are relatively stable over time. A more complete analysis of sectoral and development priorities is given in the economic volume of this FINAL REPORT. The question of infrastructural allocations is of particular concern in this volume. Thus, in Chad, if linkage to the rural areas is to be achieved, a figure of 25% roads allocation from a development budget is highly significant. At the same time, a figure of 1.2% investment in radio facilities, may indicate that "communication potential" may suffer at the expense of "connectivity potential."

5.1.3 Problems and prospects: To say that the budgetary magnitude and scope of governments in the six Sahel states is low is to repeat the obvious. To note that four of the countries, Chad, Niger, Mali, and Upper Volta, are in the lowest ten percent of all African states (in per capita government spending), is to put in focus what has been a continuing theme of this report: that among the "poorest of the poor," governments are often too fragile and infrastructures too little developed to handle even routine processes, much less the ecological reconstruction which may be necessary for the region to survive. Senegal (and perhaps Mauritania) is in a different category in terms of strength of national government. One implication of this observation is that the coastal states of west Africa (including Senegal) may want to consider some transfer or loan of manpower or resources to the inland states to aid in the ecological reconstruction process. The civil service facilities and infrastructures which might be used in implementing policy, are in general more highly developed

Table 36

Chad: Sectoral Distribution of Investment under the First Development Plan, 1966-70

Sector	Original estimates		Revised estimates (1968)		Actual investment	
	Millions of CFAF	Per cent	Millions of CFAF	Per cent	Millions of CFAF	Per cent
Production	19,969	42.5	12,678	48.4	12,529	47.9
Agriculture, livestock, fishing, forestry	13,329	28.4	8,328	31.8	7,599	29.0
Energy, mines, industry	6,640	14.1	4,350	16.6	4,930	18.9
Infrastructure	15,760	33.5	7,432	28.4	6,900	26.4
Railways	485	1.0	7	--	14	0.1
Roads	12,552	26.7	5,962	22.8	5,529	21.1
Waterways	538	1.1	6	--	5	--
Aeronautical	879	1.9	313	1.2	534	2.0
Ports and telecommunications	775	1.6	341	1.3	217	0.9
Tourism	531	1.1	803	3.1	601	2.3
Social	11,064	23.5	5,791	22.1	6,322	24.1
Education and training	5,902	10.8	2,247	8.6	2,031	7.8
Public health, social, commerce	1,663	3.5	1,736	6.6	1,892	7.2
Radio	589	1.2	173	0.7	26	0.1
Urbanization, housing, utilities	3,720	7.9	1,635	6.2	2,373	9.0
Studies, research and scientific equipment	220	0.5	287	1.1	410	1.6
Total	47,013	100.0	26,188	100.0	26,161	100.0

Source: Data provided by the Chadian authorities.

(Document of IMF; Recent Economic Development, May 10, 1973

along the coast. The politics of regional cooperation become important at this point. For example, "In 1963, over a dispute with Dahomey, Niger suddenly ordered all Dahomeans living in its territory, estimated at about sixteen thousand, to leave the country before the end of the year. Later, in 1964, it agreed to expel only Dahomean civil servants and not all Dahomeans, as had been threatened." (Mabogunje, 1972, p. 125.) The point is that Dahomey, under the French West African Federation, produced many of the civil servants for the whole area. Niger produced very few, and was dependent on Dahomeans until 1963. Dakar (Senegal) as the administrative headquarters of the federation, developed an administrative and governmental infrastructure perhaps out of proportion to its needs at that time. Ivory Coast, as the economic center of the federation, developed its own infrastructure. The whole structure of the governments in the inland states has in large part developed after independence in 1960. Of the inland states, only Chad seems to have been increasing at a rate consistent with the needs for a strong, functioning national government, capable of implementing development policies. (The question of distribution of such implementation capabilities within a country is not answered by looking at growth rates, and is particularly important in the case of Chad, for reasons discussed in a previous section.)

The distribution of scarce budget resources usually seems to favor general administrative structures (including police and civil service) over developmental structures (including infrastructure and agriculture). Communications facilities and rural development have <u>not</u> been budget priorities. A closer examination of budget expenditures would probably indicate that the urban areas are receiving more of even development budget allocations (quite apart from recurrent budgets, with their heavy emphasis on urban-based administrative structure), than are the rural areas.

In short, ecological reconstruction in the rural areas would probably require considerable budget support, of a sort which has not

been available (except in Senegal) up to this point.

In the next several sections we will examine in more detail the nature of budgetary and manpower resources in the areas of education, military, communications, and connectivity.

5.2 National Implementation Structures

In the previous section we examined national budget characteristics as they seemed related to implementation potential. In this section we will examine the existing capabilities in the six Sahel states in terms of their structural capabilities for mobilization and linkage. We will examine two major institutions, the military and educational systems, in terms of their potential for implementing national policy at the local level or for mobilizing local people to deal with their problems. In the subsequent section we will then look at the two major processes of linkage necessary to implementation: communications and connectivity.

5.2.1 Military structures: The military in each of the Sahel-Sudan states is relatively small. Essentially they are post-independence phenomena. Prior to independence, soldiers from the two African Federations were part of the French army.

In this section we are not concerned with military regimes, per se, but rather with the potential use of military personnel in such drought-related matters as: distribution of aid, mobilization of refugee camps, rural animation, civil engineering projects, communication of technological knowledge in various situations. We recognize that the average cost per soldier in each of these states is relatively high (about $4,000 per year, including overhead costs). If their sole purpose was developmental improvement and local mobilization, it would probably be too costly to consider.

However, if the military structure is assumed to be a given, then the question arises as to whether it should be totally specialized in the professional use of violence and defense, or whether it should be diversified in its skills and become more involved in ecological reconstruction and infrastructure development. There is little

indication at present that the military groups in west Africa are being used for these broader purposes. In light of the current crisis, it would seem appropriate to consider their use in this capacity.

Thus, it is important to know the contours of the present military establishment, in terms of numbers, types, and resources. The following comparative analysis will attempt to identify the basic magnitude of the structures.

In terms of total defense budget allocations, Senegal has more than twice the next largest budget for defense. Yet in terms of defense budget as a percentage of GNP, all six states are very close (averaging 2.7%). A most striking pattern is exhibited when considering defense budget as a percentage of governmental expenditures. While the average is 14.8%, Mali, with 21.2% has the highest percentage of allocation of any African state, throughout the continent. These patterns are shown in Table 37.

In terms of total manpower in the armed forces, looking at data from the 1960's, there is considerable range between Senegal and the others. Actually, Mali had a surprisingly large army, and at the time of independence, Chad had almost nothing. The average size per state of an army in 1967 was 2,283 men, or 68 men per 100,000 population. In examining the percentage of change in size of armed forces manpower, Chad rises dramatically (by 117%) from 1963-67. The average increase in armed forces from 1963-67 was 60%. These patterns are shown in Table 38. In short, the variation both in absolute magnitude and per capita magnitude tends to be similar to the general scope of budget allocations, with Senegal (and Mauritania) at the high end, and Niger and Upper Volta at the low end. Chad was initially lowest of all in terms of manpower, but increased most dramatically.

Another category of total defense manpower and structure, in addition to the military, is the police and internal security force (gendarmerie). Since police structure is likely to be involved in any implementation of local level policy, we include it in our analysis.

Table 37

Defense Budget

Total Defense Budget 1967 in Hundreds of U.S. Dollars

Range = 18,181.00 Mean = 8,382.33 Standard Deviation = 6,099.92

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	21000	1
38.5	21.7	2.0	Mali	10400	6
55.9	17.4	3.0	Niger	6000	9
71.5	15.6	4.0	Chad	5736	
76.5	5.1	5.0	Mauritania	4339	10
100.0	23.5	6.0	Upper Volta	2819	

Defense Budget as Percent of Gross National Product 1967

Range = 1.60 Mean = 2.78 Standard Deviation = .59

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
21.7	21.7	1.0	Mali	3.5	1
26.8	5.1	2.0	Mauritania	3.4	
43.6	16.8	3.0	Senegal	3.1	3
59.2	15.6	4.5	Chad	2.4	7
76.5	17.4	4.5	Niger	2.4	
100.0	23.5	6.0	Upper Volta	1.9	10

Defense Budget as a Percent of Government Expenditure, 1967

Range = 10.40 Mean = 14.85 Standard Deviation = 3.63

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
21.7	21.7	1.0	Mali	21.2	1
26.8	5.1	2.0	Mauritania	17.9	4
50.2	23.5	3.0	Upper Volta	14.1	7
65.8	15.6	4.0	Chad	13.5	8
82.6	16.8	5.0	Senegal	11.6	10
100.0	17.4	6.0	Niger	10.8	

Table 38

Manpower in Armed Forces

Total Manpower in Armed Forces in Hundreds, 1967

Range = 46.00 Mean = 22.83 Standard Deviation = 16.82

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	55	1
38.5	21.7	2.0	Mali	35	5
62.0	23.5	3.0	Upper Volta	15	9
79.3	17.4	4.0	Niger	13	10
84.4	5.1	5.0	Mauritania	10	
100.0	15.6	6.0	Chad	9	

Percent Change in Total Armed Forces Manpower 1963-1967

Range = 117.00 Mean = 59.83 Standard Deviation = 46.19

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
15.6	15.6	1.0	Chad	117	1
32.4	16.8	2.0	Senegal	103	2
37.5	5.1	3.0	Mauritania	90	3
60.9	23.5	4.0	Upper Volta	43	7
82.6	21.7	5.0	Mali	6	10
100.0	17.4	6.0	Niger	0	

Armed Forces Per 100,000 Population 1967

Range = 124.00 Mean = 68.00 Standard Deviation = 43.70

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	150	1
21.9	5.1	2.0	Mauritania	91	5
43.6	21.7	3.0	Mali	74	7
60.9	17.4	4.0	Niger	37	10
84.4	23.5	5.0	Upper Volta	30	
100.0	15.6	6.0	Chad	26	

The total number of police in 1967 ranged from 3,000 in Senegal, to 400 in Mauritania. (Although in per capita terms, Mauritania comes second to Senegal.) In terms of changes over time (from 1964-67) Senegal and Niger had a decrease in police relative to population, while Mauritania had an 87% increase. In short, the average number of police per country was 1,550, and the average per 100,000 population was 54. This is only slightly less than the number of military (see Table 39).

The role of the military is probably less well defined than that of the police. Since three of the states (Mali, Niger, Upper Volta) now have military governments, it may be that the idea of military men becoming involved with national development decision making and implementation could come to be more accepted.

In the same way, the position of the airforce in each country may come to be more closely related to the idea of developing civilian aviation. It is significant that a country such as Mali has about 400 men in the air force. The average per country is about 200 men. These figures are shown in Table 40.

5.2.2 Educational structure: Education in contemporary Africa has a special place in the linkage and mobilization literature. Modern education is often used as a major criteria in distinguishing "the new elites" (see Lloyd, 1966). In the nationalist and early independence eras, education was frequently geared to modern sector needs, and did not take account of local culture, or indigenous mass development strategies. Specialization at the higher levels often preempted an "ecological" or interdisciplinary approach to development issues. Because educational institutions served as the gateways to the modern sector, they may be regarded as a primary mechanism creating a mass-elite gap. It is not our purpose to examine educational patterns or policies in general, or to suggest restructuring of the current

Table 39

Police and Internal Security Forces

Police and Internal Security Forces in Hundreds, 1967

Range = 26.00 Mean = 15.50 Standard Deviation = 8.75

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	30	1
32.4	15.6	2.0	Chad	20	4
55.9	23.5	3.0	Upper Volta	18	5
73.2	17.4	4.0	Niger	15	6
94.9	21.7	5.0	Mali	6	10
100.0	5.1	6.0	Mauritania	4	

Size of Police and Internal Security Forces Per 100,000 Population 1967

Range = 48.00 Mean = 54.33 Standard Deviation = 18.43

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	82	1
21.9	5.1	2.0	Mauritania	73	2
37.5	15.6	3.0	Chad	59	5
54.8	17.4	4.0	Niger	42	9
78.3	23.5	5.0	Upper Volta	36	10
100.0	21.7	6.0	Mali	34	

Percent Change Internal Security Forces Per 100,000 Population 1964-1967

Range = 118.00 Mean = 16.67 Standard Deviation = 37.64

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
5.1	5.1	1.0	Mauritania	87	1
28.5	23.5	2.0	Upper Volta	29	5
50.2	21.7	3.0	Mali	26	6
65.8	15.6	4.0	Chad	0	8
83.2	17.4	5.0	Niger	-11	9
100.0	16.8	6.0	Senegal	-31	10

Table 40

Size of Air Force 1967

Range = 350.00 Mean = 191.67 Standard Deviation = 123.88

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
21.7	21.7	1.0	Mali	400	1
38.5	16.8	2.0	Senegal	300	3
54.1	15.6	3.0	Chad	200	6
59.2	5.1	4.5	Mauritania	100	9
76.5	17.4	4.5	Niger	100	
100.0	23.5	6.0	Upper Volta	50	10

elite producing mechanisms.

However, we are concerned with the extent to which the existing educational structures are supported in terms of national budget allocations. And we are concerned with the extent to which a cadre of teachers is available which might be co-opted into service related to drought needs and to ecological reconstruction of the rural areas. We are further concerned with the extent to which a cadre of students exists which might serve as a link between the modern and traditional sectors. In addition, we will examine possibilities for "non-formal" education in the rural areas.

The average national educational expenditure in the mid-1960's was 14% of total allocations. Chad, Upper Volta and Mauritania were spending the most, both in proportionate and per capita terms. Senegal, with an educational infrastructure already in existence, spent less. In all cases, educational expenditures as a percent of total GDP was low, averaging 2 percent (see Table 41).

In terms of the within-education allocations, there is considerable variation between countries in terms of an emphasis on primary, secondary, or higher education. On an average, countries spent 6% on higher education, 28% on secondary education and 54% on primary education. (The remainder of the budgets went for administrative or unspecified costs.) This ratio of spending is roughly proportionate to the number of "graduates" produced at each level. Yet in two countries, there was zero expenditure on higher education (Mauritania, and Upper Volta). Senegal was particularly strong in secondary education (35% of budget). Mauritania spent 67% of its budget on primary education, reflective of the fact that even primary education was virtually non-existent in that country prior to independence. These patterns are shown in Table 42.

Table 41

Education Expenditures

Education Expenditures as Percent of Total Government Expenditure 1965

Range = 9.80 Mean = 13.78 Standard Deviation = 3.08

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
15.6	15.6	1.0	Chad	18.5	1
39.1	23.5	2.0	Upper Volta	16.1	3
44.1	5.1	3.0	Mauritania	14.3	5
65.8	21.7	4.0	Mali	12.9	6
83.2	17.4	5.0	Niger	12.2	7
100.0	16.8	6.0	Senegal	8.7	10

Education Expenditures as Percent of Gross Domestic Product 1965

Range = 1.30 Mean = 2.17 Standard Deviation = .46

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
15.6	15.6	1.0	Chad	2.9	1
39.1	23.5	2.0	Upper Volta	2.6	3
44.1	5.1	3.5	Mauritania	2.1	7
60.9	16.8	3.5	Senegal	2.1	
82.6	21.7	5.0	Mali	1.7	10
100.0	17.4	6.0	Niger	1.6	

Table 42

Relative Budget Allocations for Higher, Secondary and Primary Education

Percent of Total Budget that was Education Expenditures, Higher Education 1965

Range = 16.90 Mean = 6.13 Standard Deviation = 6.20

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
15.6	15.6	1.0	Chad	16.9	1
37.3	21.7	2.0	Mali	11.7	4
54.1	16.8	3.0	Senegal	4.3	8
71.5	17.4	4.0	Niger	3.9	
76.5	5.1	5.0	Mauritania	0.0	10
100.0	23.5	6.0	Upper Volta	0.0	

Percent of Total Budget that was Education Expenditures, Secondary Education 1965

Range = 14.20 Mean = 28.27 Standard Deviation = 5.00

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	35.8	1
34.2	17.4	2.0	Niger	30.9	4
57.6	23.5	3.0	Upper Volta	29.8	5
79.3	21.7	4.0	Mali	29.4	
94.9	15.6	5.0	Chad	22.1	10
100.0	5.1	6.0	Mauritania	21.6	

Percent of Total Budget that was Education Expenditures, Primary Education 1965

Range = 29.20 Mean = 53.87 Standard Deviation = 9.74

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
5.1	5.1	1.0	Mauritania	66.8	1
26.8	21.7	2.0	Mali	58.9	3
44.1	17.4	3.0	Niger	57.8	4
60.9	16.8	4.0	Senegal	57.4	
84.4	23.5	5.0	Upper Volta	44.7	8
100.0	15.6	6.0	Chad	37.6	10

With regard to a teaching cadre, it was clearly a matter of national priority to encourage the emergence of primary school teachers in the early independence period. The average number of primary teachers per country in 1955 was 541, in 1962, 1,727, and in 1966, 2,711. The range remains consistent between countries over time, with Senegal and Mali at the upper end, and Mauritania and Niger at the lower end. (See Table 43).

The average number of secondary teachers at the time of independence was 265 per country, but with Senegal as really the only country with a secondary school system. (See Table 44). More recent data shows considerable expansion at the secondary level. (See Appendix 5).

Table 43

Primary School Teachers

Total Number of Primary School Teachers 1966

Range = 4,108.00 Mean = 2,711.00 Standard Deviation = 1,583.89

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	5133	1
38.5	21.7	2.0	Mali	4657	2
54.1	15.6	3.0	Chad	2136	8
77.6	23.5	4.0	Upper Volta	1714	9
94.9	17.4	5.0	Niger	1601	
100.0	5.1	6.0	Mauritania	1025	10

Total Primary Teachers 1955

Range = 1,045.00 Mean = 541.17 Standard Deviation = 379.54

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	1239	1
38.5	21.7	2.0	Mali	856	4
62.0	23.5	3.0	Upper Volta	394	9
77.6	15.6	4.0	Chad	311	
94.9	17.4	5.0	Niger	253	10
100.0	5.1	6.0	Mauritania	194	

Total Primary Teachers 1962

Range = 3,060.00 Mean = 1,727.33 Standard Deviation = 1,035.98

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	3997	1
38.5	21.7	2.0	Mali	1530	9
62.0	23.5	3.0	Upper Volta	1488	
77.6	15.6	4.0	Chad	1315	
94.9	17.4	5.0	Niger	1097	10
100.0	5.1	6.0	Mauritania	937	

Table 44

Secondary Teachers

Total Secondary Teachers 1961

Range = 719.00 Mean = 265.80 Standard Deviation = 270.29

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	804	1
40.3	23.5	2.0	Upper Volta	162	9
62.0	21.7	3.0	Mali	140	10
79.3	17.4	4.0	Niger	138	
94.9	15.6	5.0	Chad	85	

Data not available for the following country: Mauritania

Percent Change in Secondary Teachers 1955-61

Range = 6,726.00 Mean = 2,569.40 Standard Deviation = 2,244.22

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
17.4	17.4	1.0	Niger	6666	1
34.2	16.8	2.0	Senegal	2792	6
57.6	23.5	3.0	Upper Volta	1793	8
73.2	15.6	4.0	Chad	1656	
94.9	21.7	5.0	Mali	-60	10

Data not available for the following country: Mauritania

It should not be presumed that a teaching cadre in 1974 or 1984 will have the same characteristics or impact as a teaching cadre in 1964 or 1954. While there may be certain similarities of mobilization and impact, the question of who the teachers are is quite important. With few exceptions (see Clignet, 1975), very little work or analysis has been done on this question. On the basis of tentative evidence it appears that teachers at present are "less modern" than they were ten or twenty years ago, that the best students no longer go into teaching but into more lucrative professions, and that teachers are more rooted in the values and contexts of their own communities. While this pattern may not promote "modernization" at the same rate as before, it may well increase the potential of teachers to act as intermediaries between national planners and local communities. In short, teachers may increasingly be expected to work in their own cultural and linguistic areas and to take some concern for their local communities because of their own ties and roots. As education at the primary level and even secondary level becomes more decentralized, teachers may play a mobilization role which has not been possible in the past. At the same time, if the best students are no longer going into teaching, planners should be sensitive to this fact as it relates to the capabilities and roles of future teachers in a fundamental transformation process.

With regard to students, the average primary enrollment per 1,000 population in 1966 was 35, up from about 25 at the time of independence. Yet the disparities remained with Senegal, Chad, and Mali at the upper end, and Upper Volta, Niger, and Mauritania at the lower end. With regard to secondary enrollments throughout the 1960's, Senegal had more than twice as many secondary students as the rest of the five states combined. The same is true for higher education. (See Tables 45, 46 and 47.)

Table 45

Primary Enrollment

Primary Enrollment Per 1000 Population 1966

Range = 42.00 Mean = 34.83 Standard Deviation = 16.09

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	61	1
32.4	15.6	2.0	Chad	51	3
54.1	21.7	3.0	Mali	35	7
77.6	23.5	4.0	Upper Volta	22	10
94.9	17.4	5.0	Niger	21	
100.0	5.1	6.0	Mauritania	19	

Primary Enrollment Per 1000 Population, 1962

Range = 39.00 Mean = 26.17 Standard Deviation = 13.87

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	53	1
32.4	15.6	2.0	Chad	35	5
54.1	21.7	3.0	Mali	22	8
59.2	5.1	4.0	Mauritania	18	9
82.6	23.5	5.0	Upper Volta	15	10
100.0	17.4	6.0	Niger	14	

Total Primary Enrollment, 1962

Range = 154,111.00 Mean = 85,756.17 Standard Deviation = 49,850.51

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	172751	1
32.4	15.6	2.0	Chad	112863	4
54.1	21.7	3.0	Mali	95827	5
77.6	23.5	4.0	Upper Volta	70900	7
94.9	17.4	5.0	Niger	43556	9
100.0	5.1	6.0	Mauritania	18640	10

Table 46

Secondary Enrollment

Total Secondary Enrollment 1966

Range = 24,563.00 Mean = 7,435.67 Standard Deviation = 8,453.47

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	25574	1
32.4	15.6	2.0	Chad	7993	8
55.9	23.5	3.0	Upper Volta	5468	9
73.2	17.4	4.0	Niger	3068	10
78.3	5.1	5.0	Mauritania	15 00	
100.0	21.7	6.0	Mali	1011	

Total Secondary Enrollment 1962

Range = 19,504.00 Mean = 5,562.67 Standard Deviation = 6,407.83

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	19504	1
38.5	21.7	2.0	Mali	4951	8
62.0	23.5	3.0	Upper Volta	3300	9
77.6	15.6	4.0	Chad	3266	
94.9	17.4	5.0	Niger	2355	
100.0	5.1	6.0	Mauritania	0	10

Percent Chage in Secondary Per Capita Enrollment 1962-66

Range = 1,383.00 Mean = 241.17 Standard Deviation = 478.[illegible]3

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
5.1	5.1	1.0	Mauritania	1300	1
20.7	15.6	2.0	Chad	140	9
44.1	23.5	3.0	Upper Volta	57	
60.9	16.8	4.0	Senegal	20	10
78.3	17.4	5.0	Niger	13	
100.0	21.7	6.0	Mali	-83	

Table 47

Higher Education Enrollment

Total Nationals in Higher Education in 1961

Range = 903.00 Mean = 258.33 Standard Deviation = 318.29

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	951	1
38.5	21.7	2.0	Mali	271	8
62.0	23.5	3.0	Upper Volta	125	10
77.6	15.6	4.0	Chad	93	
94.9	17.4	5.0	Niger	62	
100.0	5.1	6.0	Mauritania	48	

Total Nationals Abroad in 1961

Range = 316.00 Mean = 155.50 Standard Deviation = 118.80

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	364	1
38.5	21.7	2.0	Mali	271	3
62.0	23.5	3.0	Upper Volta	95	9
77.6	15.6	4.0	Chad	93	
94.9	17.4	5.0	Niger	62	10
100.0	5.1	6.0	Mauritania	48	

With regard to primary and secondary students, the legacy of "privilege" is clearly changing in light of contemporary realities. Yet the basic pattern still results in encouraging "brain drain" (out migration) and retreat from the rural areas at an even greater rate than in the past. Insofar as students may become more involved in business or technological careers, rather than teaching, the possibility of assigning them to rural areas probably deceases even further. While the experiment of "national civilian service obligation" has been tried in several African countries at the university level, it may also be possible to consider it at the secondary school level (i.e., one year national service obligation at a decent pay scale, with particular emphasis on working in rural areas). Other programs or incentives to retain students in rural areas have been lacking, with a few exceptions noted in our earlier section on rural animation.

Enrollment projections are possible for primary and secondary school students into the future. We have included these, at ten year intervals, through the year 2,000, in Appendix 5.

With regard to non-formal education, and educational innovation (as related to rural development needs), we are aware that a number of important experiments are taking place at present in the Sahel-Sudan region. While there has been some resistance on the part of national educators to the idea of "second rate" education (often related to the sensitivity about "degrees"), there are a significant number of modifications in the inherited educational frameworks, ranging from the encouragement of "modern" Koranic schools (in Mauritania), to the public television efforts (Télé Scolaire) in Upper Volta, to the farm demonstration-participation schools in Senegal and Mali.

5.2.3 Problems and prospects: We have consciously included military and education in the same category in considering potential implementation structures. Historically, the military has not been involved in education or rural mobilization in this region, yet as in many third world countries (including Ivory Coast, with its corps civique) the potential is great and a considerable amount of international experience is available on this matter. We are not suggesting a change in the structure of the military, but an improvement of its technical capacity (e.g., in health, education, engineering) and a consideration as to how this technical capacity may be brought to bear on problems of ecological survival and reconstruction.

With regard to educational structures, there is probably a need to continue the "elite producing" mechanisms, in order to build a solid cadre of administrative and technical personnel. At the same time, a parallel program for rural development might be considered and encouraged. There are a number of experiments in this area, but few of them are conceptually integrated into the notion of ecological reconstruction. There continues an ambiguity as to the purpose of education.

The use of teachers, students, and militia in situations of drought disaster has many precedents, but we are also concerned with the long term implications of such involvements. Crucial questions include whether African languages will be used in rural education, and whether career and reward structures can be devised to attract capable and committed personnel, and help prevent rural "brain drain."

In the cases both of educational structures and of military structures a vastly under-utilized resource is women. We are aware that in the Muslim areas of the Sahel-Sudan region, the role of

women has often been prescribed. But are also aware that Europeans, or foreigners in general for that matter, have failed to take women into account in their development schemes--both in terms of performers in the schemes and in terms of the unintended impacts devolving upon women and families as a result of new behaviors and roles designed for men. We should note that in several of these countries, efforts are being made to incorporate women into the national development effort. Problems of shifting and conflicting statuses and roles will undoubtedly attend the more explicit incorporation of women into development efforts, yet the role of women may prove decisive in many areas.

In the next section we will examine in more detail the relationship of language policy to rural mobilization policy.

5.3 Implementation Processes

The basic structures of government and society depend on patterns of communication and contact for the process of interaction to occur. In this section, we will examine a) communications and language patterns, b) communications and media patterns, c) spatial connectivity, and d) problems and prospects. The process of communications, in particular, is essential to our overall diagnosis of the problem of ecological reconstruction. Assuming that various technological, economic and organizational solutions are devised at various social structural levels, it will be essential to communicate such information across levels. Planners at the national, regional and international levels, as well as farmers and herdsmen at the grassroots level, must be able to communicate with each other if viable social and economic schemes are to emerge and be carried out. Communications theory is often regarded as the single most important element in linkage and mobilization theory.

The cybernetics model developed at MIT by Norbert Weiner et al has been incorporated by social scientists, such as Karl Deutsch into a comprehensive theoretical model of government and society. (See Deutsch, 1966). In a multilingual state, the communication problem is even more complicated (see Fishman et al, 1968).

We are consciously including language policy and language use in our section on communications, rather than in its "usual" place, under culture and ethnicity, or even in an education section. Communications, as a category in itself, is intimitely bound up with language patterns and language policy. In our considerations below, we will examine the degree of language spread and the comprehensibility of any given language or set of languages, as well as the technological means available for communication with a national or regional system.

5.3.1 Communications and language patterns: With regard to language spread in the Sahel-Sudan region, we are concerned with literacy in French, and with patterns of indigenous language use. In 1950, the average percent literacy in French was 2.6%. Fifteen years later (1965), the average was 5.3% (ranging from 7% in Senegal, to 3% in Niger). When it is considered that much of this literacy is represented in the urban areas, it is our estimate that current literacy in French in the rural areas is approximately 1%. If the existing trends toward rural literacy in French are projected into the future, it is likely that a figure of less than 10% would still characterize the rural areas in the year 2000. The base figures are shown in Table 48.

By contrast, the number of indigenous languages is very high, with a few languages spoken by major groups, and many smaller language groups. The number of languages per country ranges from

Table 48

Percent Literate

Percent Literate 1965

Range = 4.00 Mean = 5.33 Standard Deviation = 1.37

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.5	Senegal	7	1
40.3	23.5	1.5	Upper Volta	7	
55.9	15.6	4.0	Chad	5	5
77.6	21.7	4.0	Mali	5	
82.6	5.1	4.0	Mauritania	5	
100.0	17.4	6.0	Niger	3	10

Percent Literate 1950

Range = 2.00 Mean = 2.67 Standard Deviation = .75

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
15.6	15.6	3.0	Chad	3	1
37.3	21.7	3.0	Mali	3	
42.4	5.1	3.0	Mauritania	3	
59.2	16.8	3.0	Senegal	3	
82.6	23.5	3.0	Upper Volta	3	
100.0	17.4	6.0	Niger	1	10

Change in Percent Literate 1950-67

Range = 133.00 Mean = 111.17 Standard Deviation = 49.49

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
17.4	17.4	1.0	Niger	200	1
34.2	16.8	2.5	Senegal	133	6
57.6	23.5	2.5	Upper Volta	133	
73.2	15.6	4.0	Chad	67	10
94.9	21.7	5.0	Mali	67	
100.0	5.1	6.0	Mauritania	67	

27 in Upper Volta, to 2 in Mauritania, with an average of 15 languages per country. This averages 3.8 languages per million. (See Table 49.)

The most striking language pattern of the region is not the exoglossic situation (i.e., French) or the total number of indigenous languages, but the existence of major local languages and the potential for a functional literacy in indigenous languages. Thus, in each of the six countries there is at least one major vernacular language which is understood by at least 50% of the population (i.e., as first or second language). The average situation per country is that 63% of the people understand the major vernacular language. (See Table 50.)

But are these languages capable of being standardized and utilized in a mass way? Again, it is ironic that in three of the countries (Chad, Mauritania, Niger) the languages are fully "mature standard languages" with full literatures and orthographies, (i.e., Arabic and Hausa respectively). In Mali and Senegal, the major languages are standardized, but not fully "mature" (i.e., Bambara and Wolof, respectively). (For definitions, see Appendix 5.) Only in Upper Volta, is the Mossi language less developed in terms of standardization (see Table 51). In all six countries, the major language is used as a lingua franca (see Table 52); see Appendix 5 for definitions). The UNESCO language center in Niamey has contributed to the standardization of languages in the area (particularly Fulani, Hausa, and Kanuri).

Nevertheless, until quite recently, language policies in the region have discouraged any widespread use of vernacular languages. Mauritania is the only country which uses an indigenous language (Arabic) in the processes of government, in education, and in regular broadcasting. These policies have begun to change. In Niger,

Table 49

Number of Languages

Number of Languages Spoken C1967

Range = 25.00 Mean = 14.67 Standard Deviation = 8.28

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
23.5	23.5	1.0	Upper Volta	27	1
39.1	15.6	2.0	Chad	22	2
60.8	21.7	3.0	Mali	15	5
78.1	17.4	4.0	Niger	14	6
94.9	16.8	5.0	Senegal	8	8
100.0	5.1	6.0	Mauritania	2	10

Number of Languages Per Million Population C1967

Range = 4.70 Mean = 3.82 Standard Deviation = 1.66

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
15.6	15.6	1.0	Chad	6	1
39.1	23.5	2.0	Upper Volta	5	3
56.4	17.4	3.0	Niger	3	6
78.1	21.7	4.0	Mali	3	8
94.9	16.8	5.0	Senegal	2	10
100.0	5.1	6.0	Mauritania	1	

Table 50

Percent Speakers Major Vernacular Language C1967

Range = 37.00 Mean = 62.83 Standard Deviation = 12.46

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
5.1	5.1	1.0	Mauritania	87	1
22.4	17.4	2.0	Niger	70	5
39.2	16.8	3.0	Senegal	60	8
54.8	15.6	4.5	Chad	55	9
78.3	23.5	4.5	Upper Volta	55	
100.0	21.7	6.0	Mali	50	10

Table 51

Primary Language Standardization

Range = 2.00 Mean = 3.33 Standard Deviation = .75

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
15.6	15.6	2.0	Chad	4	1
20.7	5.1	2.0	Mauritania	4	
38.0	17.4	2.0	Niger	4	
59.7	21.7	4.5	Mali	3	5
76.5	16.8	4.5	Senegal	3	
100.0	23.5	6.0	Upper Volta	2	10

Table 52

Lingua Franca

Range = 1.00 Mean = 4.17 Standard Deviation = .37

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
23.5	23.5	1.0	Upper Volta	5	1
39.1	15.6	2.0	Chad	4	10
60.8	21.7	3.0	Mali	4	
65.8	5.1	4.0	Mauritania	4	
83.2	17.4	5.0	Niger	4	
100.0	16.8	6.0	Senegal	4	

literacy in local languages is encouraged in adult "alphabétisation" programs. In Senegal and Upper Volta some broadcasting is done in vernacular languages, etc.

In light of the ecological crisis in the region, it is perhaps an opportune time to consider a reassessment of language policy. Many African states have adapted language policies to meet post-independence needs. (Thus, during the civil war, Nigeria broadcast in all major vernacular languages, as a way of mobilizing national sentiment.) This need not mean an abandonment of French, but rather a reconceptualization of the target groups of language policy. French may be appropriate in certain urban situations but less so in the rural context. The three obvious language targets would be those who need to be literate in French, those who need to be literate in French and English (e.g., people in government, technological work, or interstate commerce), and those who should be literate in a vernacular language (perhaps rural development staff). The present policy which characterizes most of the states of encouraging literacy in French only, may promote elite formation and linkages with the international community; but it is less suitable, given the time constraint, as a viable means of mobilizing rural farmers or herdsmen (or their children).

Important experiments in the use of indigenous languages in primary education have been conducted throughout west Africa, and these experiments should be examined in detail. (See, for example, the work of the School of Education, University of Ife, Nigeria.) A full description of the indigenous languages of the Sahel-Sudan region is included in Appendix 5. National and regional language boards would be an important step toward solving this language problem: For a summary of language variables, see Table 53 .

Table 53

Summary of Languages Variable

Country	Official Language	Language Policy	% Literate in French (1967)	Number of Languages	Languages Per Million	Major Language	Major Language Standardization	Lingua Franca	% Lingua Franca Speakers in Country	Capital City Language
Chad	French	2	5	22	6.6	Arabic	4	Arabic Sara	55 28	Arabic
Mali	French	2	5	15	3.2	Bambara	3	Bambara Fulfulde	50 20	Bambara
Mauritania	French	6	3	2	1.8	Arabic	4	Arabic Fulfulde	87 23	Arabic
Niger	French	2	3	14	3.9	Hausa	4	Hausa Songhai	70 19	Hausa/ Songhai
Senegal	French	2	7	8	2.2	Wolof	3	Wolof Fulfulde	60 24	Wolof
Upper Volta	French	2	7	27	5.3	Mossi	2	Mossi Dyula (Malinke)	55 21	Mossi

Language Policy: degree to which vernacular languages used: scale from 1 (low) to 6 (high)

Major Language: standardization: degree to which language is orthographicized: 1 (low) to 4 (high)

5.3.2 Communications and media patterns: The extent of communications media is equally important (to language policy) in achieving mass communications. The four major "indicators" of communications media potential we have selected are: radios, newspapers, cinemas, and telephones. We regard the composite of these indicators as a baseline from which future policies might be assessed.

With regard to radios, there is a considerable disparity between Senegal and the others. Thus, in 1966, Senegal had 260,000 radio receivers, while the next higher number was 70,000 (in Niger). The rates of increase in radio receivers averaged 262% in the period 1960-65. In 1965, the number of radios per 1,000 population averaged 25, but ranged from 73 in Senegal to 6 in Mali. The long term pattern is quite clear, however, and within the next decade or so, it is likely that all of the urban populations, and most of the farm populations will have access to radio communications (See Table 54). In addition to individual radio sets, government policymakers may want to consider the possibility of establishing public radio receiving units in as many villages as possible. (The average cost for such receivers would be about $40 per set.)

In this trend toward radio communications continues, the question of language policy in broadcasting becomes all the more important. Table 55 shows the existing radio transmitting facilities in the region, and the languages of broadcast. The economic costs of switching to multiple indigenous languages for broadcasting is relatively low, and the benefits (in terms of rural mobilization) could be quite high. More detailed analysis should be undertaken of these situations on a case by case basis.

With regard to newspapers, the basic issue is not media, but language policy, since newspapers (up to the present time) have

Table 54

Radios

Number of Radio Licenses/Receivers in Use in Thousands 1964

Range = 230.00 Mean = 78.50 Standard Deviation = 82.45

Population Percent Cumulative	Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	260	1
34.2	17.4	2.0	Niger	70	9
57.6	23.5	3.0	Upper Volta	50	10
62.7	5.1	4.0	Mauritania	31	
78.3	15.6	5.0	Chad	30	
100.0	21.7	6.0	Mali	30	

Radios per 1,000 Population, 1965

Range = 67.00 Mean = 24.50 Standard Deviation = 23.04

Population Percent Cumulative	Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	73	1
21.9	5.1	2.0	Mauritania	29	7
39.2	17.4	3.0	Niger	20	8
62.7	23.5	4.0	Upper Volta	10	10
78.3	15.6	5.0	Chad	9	
100.0	21.7	6.0	Mali	6	

Percent Change in Radios per 10,000 Population 1960-65

Range = 956.00 Mean = 262.50 Standard Deviation = 335.58

Population Percent Cumulative	Country	Rank	Country Name	Value	Range Decile
17.4	17.4	1.0	Niger	999	1
33.0	15.6	2.5	Chad	200	9
54.7	21.7	2.5	Mali	200	
59.7	5.1	4.0	Mauritania	81	10
76.5	16.8	5.0	Senegal	52	
100.0	23.5	6.0	Upper Volta	43	

Table 55

RADIO BROADCASTING CAPABILITIES

IN THE SAHEL

	Total Number of Transmitters	Locations	KW's	Languages
Chad	3	All in Fort Lamy	30 KW 4 KW 1 KW	French
Mali	1	Bamako	2 KW?	French
Mauritania	1	Novakchott	?	French
Niger	1	Niamey	?	French
Senegal	2	Rufisque (16 miles from Dakar)	?	French, Arabic English, Portuguese, Wolof, Tukulor, Serer, Diola, Mandingo, Sarakolé, Fulani
Upper Volta	3	Ouagadougout	11 w/40 watts	French, Mossi, Bobo Fulani, Senufo, Dyula

Source: Commercial Radio in Africa, 1970.

been published in French. While this is not necessarily the future trend--in northern Nigeria, the major newspaper is in Hausa--it is unlikely to be reversed in the foreseeable future. Thus, circulation and number of newspapers is largely limited to the urban areas (and Senegal). Even in Senegal, the daily circulation in the mid-1960's was only 20,000. The next highest country, Mali, was only 3,000, and in Mauritania it was zero. In short, it is unlikely that newspapers, or printed media in an exoglossic language will serve as a regular channel of communication in the rural areas in the remainder of this century. (See Table 56 for baseline figures.)

The question of cinemas is intriguing because of the visual component, and the possibility of shifting into indigenous languages (through dubbing, in most cases). Yet the cinemas at present are largely located in the urban areas (and Senegal). The average number of cinemas per country in 1966 was 20, ranging from 77 in Senegal to 2 in Niger (see Table 57). The idea of mobile cinema units may be a solution, and most ministries of information have some of these units. The cost of fuel and the problem of repairs, and technical support are considerable in the rural areas, but the prospect remains one of considerable viability, especially if language policy can be adjusted to the rural audience.

On another dimension of communications, the use of telephones is perhaps more a measure of connectivity between and within urban areas, than of communication in the rural areas. The number of telephones in use in 1967 averaged 6,867 per country, but most of this is accounted for in Senegal (see Table 58). As improvements in radio-telephone technology improve, and important link could emerge between the rural and urban areas. Without entering into the difficult area of social structural obstacles, we should still note that at present it is unlikely to be economically or technically feasible as part of a rural

Table 56

Newspaper Circulation

Circulation of Daily Newspapers, 1965 in Hundreds

Range = 200.00 Mean = 45.50 Standard Deviation = 69.60

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	200	1
38.5	21.7	2.0	Mali	30	9
54.1	15.6	3.5	Chad	15	10
77.6	23.5	3.5	Upper Volta	15	
94.9	17.4	5.0	Niger	13	
100.0	5.1	6.0	Mauritania	0	

Newspaper Circulation Per 10,000 1965

Range = 60.00 Mean = 12.67 Standard Deviation = 21.25

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	60	1
38.5	21.7	2.0	Mali	6	9
54.1	15.6	3.5	Chad	4	10
71.5	17.4	3.5	Niger	4	
94.9	23.5	5.0	Upper Volta	2	
100.0	5.1	6.0	Mauritania	0	

Percent Change in Newspaper Circulation Per Capita 1960-65

Range = 108.00 Mean = 20.83 Standard Deviation = 37.75

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
23.5	23.5	1.0	Upper Volta	100	1
39.1	15.6	2.0	Chad	33	7
44.1	5.1	4.0	Mauritania	0	10
61.5	17.4	4.0	Niger	0	
78.3	16.8	4.0	Senegal	0	
100.0	21.7	6.0	Mali	-8	

Table 57

Number of Cinemas C1966

Range = 75.00 Mean = 19.33 Standard Deviation = 26.20

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	77	1
38.5	21.7	2.0	Mali	17	8
54.1	15.6	3.0	Chad	8	10
59.2	5.1	4.0	Mauritania	7	
82.6	23.5	5.0	Upper Volta	5	
100.0	17.4	6.0	Niger	2	

Table 58

Telephones in Use

Number of Telephones in Use, 1967, in Hundreds

Range = 250.00 Mean = 68.67 Standard Deviation = 86.27

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	260	1
38.5	21.7	2.0	Mali	46	9
54.1	15.6	3.0	Chad	38	
71.5	17.4	4.5	Niger	29	10
94.9	23.5	4.5	Upper Volta	29	
100.0	5.1	6.0	Mauritania	10	

Telephones Per 10,000 1968

Range = 61.00 Mean = 22.17 Standard Deviation = 20.99

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	67	1
21.9	5.1	2.0	Mauritania	25	7
43.6	21.7	3.0	Mali	16	9
59.2	15.6	4.0	Chad	11	10
76.5	17.4	5.0	Niger	8	
100.0	23.5	6.0	Upper Volta	6	

Telephones Per 10,000 Percent Change 1963-1968

Range = 220.00 Mean = 72.00 Standard Deviation = 68.24

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
5.1	5.1	1.0	Mauritania	213	1
26.8	21.7	2.0	Mali	78	7
44.1	17.4	3.0	Niger	60	
67.6	23.5	4.0	Upper Volta	50	8
83.2	15.6	5.0	Chad	38	
100.0	16.8	6.0	Senegal	-7	10

mobilization strategy.

The question of television is often mooted as a means of rural mobilization. (Thus, in India at present, a space satellite loaned to the government of India, is being used in village instructional television, using several indigenous languages.) While this does not seem quite as feasible in an area such as west Africa (with larger numbers of language groups), it is the sort of technology which should be explored in a creative way. One pervasive problem with educational television in west Africa, as in many other areas, has been the problem of repairs and keeping trained personnel committed to work in the educational sector.

5.3.3 Connectivity: The concept of connectivity has been developed by geographers with reference to linkage between nodes in an interactive system. Thus, in a national or regional model, the nodes would in most cases be cities, and the forms of linkage might be roads or railroad track. Connectivity patterns are related to communications patterns in that they provide the infrastructure for the exchange of goods, people, and messages. To this extent, connectivity is similar to a "transportation network," but is less "production" oriented, insofar as the units of exchange may be messages, as well as physical goods. Social scientists (especially geographers) working with spatial connectivity models have suggested optimal transportation linkages based on demographic, social, and economic considerations. There is a considerable literature by geographers working in west Africa on this subject. (See Soja, 1969; Riddell, 1970; Eighmy, 1969). Communication of messages and diffusion of innovation (especially innovation regarding environmental types of technology and forms of social organization) have been regarded within this report as an essential part of rural mobilization.

The opportunity for rural farmers and herdsmen to have access to major arteries, or even feeder roads, within a national or regional system is hypothesized to be a major factor in the spread of technology (see Mabogunje 1972).

Since landlocked states are dependent on coastal states for a continuation of most transportation linkages, it is clear that many of the transportation problems in the Sahel-Sudan states are regional in nature. We will discuss regional connectivity in the next section. In this section, we will try to establish a baseline for judging connectivity capacity. We will examine four indicators of such capacity: railway system, road system, number of cars, and number of commercial vehicles. We will also discuss some of the existing national criteria for establishing road and rail systems.

We are not concerned in this section with actual internal allocation of transportation facilities. The transportation volume of the FINAL REPORT, contains an elaborate allocation of resources model, which can even take into account social and political factors (if such factors can be "costed," even in approximate terms). We are concerned with the question of whether a connectivity system is presently available in the six Sahel-Sudan countries, and if so, to what extent. We regard connectivity to be a precondition for sustained communication, and sustained communication to be a precondition for rural mobilization. We are aware that at present most connectivity is between urban centers.

There are two states which have road/rail systems developed to any extent (Senegal and Upper Volta), and four in the early stages of development. There is only one country (Senegal) which has a minimal number of vehicles for spatial linkage. This pattern has become highly visible during the drought relief efforts, and we are aware that

there has been an infusion of vehicles into the region as a result of the drought. (Perhaps there has also been a greater awareness of the problem of vehicle maintenance/repair.) The baseline from which these changes have occurred (e.g., the mid-1960s) may be summarized below.

With regard to railroad track, Senegal has an elaborate system, and Upper Volta is clearly linked into the Ivory Coast system. Mali is partially linked into the Senegal system, and Mauritania uses the railway for evacuation of mineral ore. Chad and Niger do not have any railroad track at all (see Table 59).

Regarding the number of miles of improved road, Senegal and Upper Volta have more than four times roadage per square mile than the other four countries combined. Mauritania and Chad have almost no road system at all. While this is a rather obvious diagnosis, we stress it because of the importance of the pattern to the possibility of policy implementation and rural mobilization (see Table 60).

With regard to passenger cars in use, the average per country in 1966 was 7,883, ranging from 29,800 in Senegal, to 1,600 in Mauritania at the bottom. There was an average of 21 cars per 10,000 population in 1966. Senegal has two-thirds of all cars in the region (see Table 61).

With regard to commercial vehicles, the pattern is roughly the same, with Senegal and Mali at the top, and Niger and Mauritania at the bottom. The average number of commercial vehicles per 100,000 in 1966 was 214. Perhaps more importantly, there was not a notable increase in the number of vehicles between 1958 and 1966. (The total average increase was 40 percent, or 5 percent per year.) (See Table 62 .)

The question as to how governments regard transportation infrastructure is important to our consideration as to whether road/rail

Table 59

Number of Miles Railroad Track Per 100,000 Square Miles Area

Range = 788.00 Mean = 213.00 Standard Deviation = 277.61

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	788	1
40.3	23.5	2.0	Upper Volta	313	7
45.3	5.1	3.0	Mauritania	92	9
67.0	21.7	4.0	Mali	85	
82.6	15.6	5.0	Chad	0	10
100.0	17.4	6.0	Niger	0	

Table 60

Miles of Improved Roads Per 1000 Square Miles of Area 1967

Range = 34.00 Mean = 13.00 Standard Deviation = 13.42

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
23.5	23.5	1.0	Upper Volta	35	1
40.3	16.8	2.0	Senegal	28	3
62.0	21.7	3.0	Mali	8	8
79.3	17.4	4.0	Niger	4	10
84.4	5.1	5.0	Mauritania	2	
100.0	15.6	6.0	Chad	1	

Table 61

Passenger Cars in Use

Passenger Cars in Use, 1966, in Hundreds

Range = 282.00 Mean = 78.83 Standard Deviation = 98.77

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	298	1
38.5	21.7	2.0	Mali	54	9
62.0	23.5	3.0	Upper Volta	45	
77.6	15.6	4.0	Chad	33	10
94.9	17.4	5.0	Niger	27	
100.0	5.1	6.0	Mauritania	16	

Cars per 10,000 1966

Range = 72.00 Mean = 21.17 Standard Deviation = 26.32

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	80	1
32.4	15.6	3.0	Chad	10	10
54.1	21.7	3.0	Mali	10	
59.2	5.1	3.0	Mauritania	10	
82.6	23.5	5.0	Upper Volta	9	
100.0	17.4	6.0	Niger	8	

Table 62

Commercial Vehicles in the Sahel

Commercial Vehicles in Use, 1966, in Hundreds

Range = 161.00 Mean = 69.83 Standard Deviation = 53.68

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	188	1
38.5	21.7	2.0	Mali	55	9
54.1	15.6	3.0	Chad	54	
77.6	23.5	4.0	Upper Volta	51	
94.9	17.4	5.0	Niger	44	
100.0	5.1	6.0	Mauritania	27	10

Commercial Vehicles Per 100,000 1966

Range = 423.00 Mean = 214.50 Standard Deviation = 147.41

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	526	1
21.9	5.1	2.0	Mauritania	251	7
37.5	15.6	3.0	Chad	160	9
54.8	17.4	4.0	Niger	128	10
76.5	21.7	5.0	Mali	119	
100.0	23.5	6.0	Upper Volta	103	

Commercial Vehicles Per 100,000 Percent Change 1958-1966

Range = 50.00 Mean = 39.50 Standard Deviation = 15.23

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
5.1	5.1	1.0	Mauritania	68	1
22.4	17.4	2.0	Niger	44	5
38.0	15.6	3.0	Chad	40	6
61.5	23.5	4.0	Upper Volta	37	7
83.2	21.7	5.0	Mali	30	8
100.0	16.8	6.0	Senegal	18	10

systems will be designed to meet simple production needs, or to deal with the broader issue of national linkage. Significantly, the land-locked states are all conscious of the need to design road/rail systems which will meet social and political needs, as well as production evacuation and import needs. Illustrative examples are numerous in this regard. Thus, in early 1974, the civilian government of Upper Volta requested $51 million dollars from international sources to construct a railway across the country. The railway would run from Ouagadougou to Tambou (212 miles), where the manganese deposits are located. (There are an estimated 13 million tons of manganese oxides in Tambou.) The railway links for Ouagadougou to Abidjan are already connected. The railway will also link development projects in Upper Volta, Niger, and Mali, since Tambou borders on those countries. There are plans to extend the railway to Ansongo (Mali) and to Niamey (Niger). While economists have various opinions about the economic profitability of the railroad, in terms of returns on the manganese deposits, the government of Upper Volta has argued that the railway is justified by political and social factors. (The railway would also have provided relief supplies to an area hard hit by the drought.)

While there do not exist, at present, accounting procedures to evaluate social and political costs and benefits, it is usually clear from government statements whether a particular transportation project is of central priority to their efforts at national (or regional) linkages. Several countries in west Africa have come to regard road and rail linkage as central to their efforts at nation building. Two examples of this are the "national unity road" in Niger, which would link up all of the towns on the east-west axis from Niamey to Lake Chad. Another example is the Trans-Cameroon railway linking up the

northern and southern parts of Cameroon.

The question of linkage between a country, or the region as a whole, and the international world will not be considered in this section. Clearly, the port of Dakar has major significance in this regard. (For a detailed study of "Dakar and West African Economic Development," see Peterec, 1967.) We are concerned with how Dakar is linked to the rural areas. (Peterec deals with this in his chapters on "The Economic Hinterland," and "Transportation Links with the Hinterland.")

5.3.4 Problems and prospects: The communications process in the Sahel-Sudan region entails consideration of language policy, media facilities, and spatial connectivity. We are suggesting that technical opportunities exist for policy changes in each of these areas, geared to establishing linkage between national and rural communities.

We do not in any way mean to suggest that changes in language policy may not involve difficult socio-political-economic trade-offs. The riots occurring in Nouakchott in early 1966, focused on the issue of language policies. With the establishment of Arabic (in addition to French) as an official language, certain ethnic groups felt that administrative and governmental posts were less accessible.

It is ironic that in the Sahel-Sudan region, where most national governments have not encouraged the use of vernacular communications systems, the most significant communication network at present is probably the long distance traders who communicate almost exclusively in indigenous languages. Yet, it is not likely that such traders will be capable of conveying the massive and sustained amounts of information necessary for a strategy such as one involving ecological reconstruction of the region.

It would be possible to propose a range of remedial suggestions, but we have no means at our disposal to look at concrete situations in detail nor to assess specific implementation capabilities, costs and benefits at this point. Here we are primarily concerned to develop the logic of the relationship between communications and mobilization rather than to make specific suggestions at the project level. The operationalization of communications priorities could be worked out in culturally specific ways, and within particular geographical zones. Perhaps a few policy options would prove illustrative in this regard: priority use of radio (and possibly television) in indigenous languages; establishment of mobil communication vehicles; establishment of national and regional language boards (to work on problems of language standardization); regional communication centers with repair facilities (plus an adapted technology of communications so that the need for repairs is reduced); the use of evening schools (using indigenous languages) in rural areas (a traditional time for religious education in the area is 4-6 p.m., after work and before dinner/prayers); more localized educational planning, with local participation, and production of educational materials in indigenous languages. The use of micro-wave telephone facilities might serve to coordinate decentralized mobilization units. The international aid community (both private and public sectors) clearly has the capacity to assist in the technology of communications, if indigenous political leaders identify this as a priority area.

We should also note that new patterns of communication create new images, expectations and aspirations among the new mass audiences which are not necessarily intended by the media designers. Mass media out of control, or developed in isolation from coordinated programs can create a fearful impact.

With regard to connectivity potential, it is important to recognize that even the minimal structure at present has been primarily geared to external economic needs, and not necessarily to indigenous economic or social needs. It is also the case that some road construction is geared to political objectives, and that the policy of the regime in power is central to understanding such patterns, especially given the pattern of regime turnover. Some political policies are more geared to establishing interaction between rural and urban areas than others. If a government does not have a policy including rural mobilization, it is unlikely that any amount of international assistance will alter the situation substantially.

Thus, there is a need to link up different parts of the country, geographically and demographically, while at the same time linking into the international system. The consequences of such connectivity are often not predicatable in social terms. (Thus, in the last 25 years, the major spread of Islam in west Africa occurred along transportation routes.) Will increased connectivity simply increase out-migration to the coast and urban areas? The answer clearly depends on the incentive structure at work in the urban-rural nexus. That is, connectivity between the rural areas and the national system is a necessary condition to rural mobilization, but not a sufficient guarantee that rural mobilization (as opposed to emigration) will occur, without considering other policy parameters.

In any case, transportation, especially with regard to main arteries, is clearly a matter of regional as well as national planning. Feeder roads might also be a matter of local planning, although not usually considered so at present. The feeder road system would be an important priority in rural mobilization. In other parts of west Africa, feeder roads are often done through "community development" efforts.

Given the history in this region of "forced labor" (corvee) on roads during the colonial era, it may not be feasible to consider community involvement in rural road development, until the whole institutional approach to urban-rural relations has been reconceptualized.

We are also aware that the construction of major arteries may well result in increasing the socio-economic stratification within a country. Where geographic regions have an ethnic or cultural base, this may increase ethnic stratification. If this reaches a certain threshold, it could result in political conflict. While differential distribution of rewards is probably inevitable in this region, and may be directly related to the growth of transportation systems, there may be some way in which the "benefits" can be distributed to various parts of the country, including the more remote rural areas where life situations are currently more acute. Hence we call attention once again to the fact that none of these developments can be assessed in isolation, but must be seen in the context of a larger effort.

With regard to the question of whether rail or road development is a greater priority, it is clear that while railways are better suited for mineral evacuation, road systems may be more flexible and responsive to socio-political (as well as economic) demands. Yet, railways are more efficient in terms of energy expended for unit of weight moved.

The levels question is quite important to planning transportation facilities. We would suggest it be recognized that transportation planning requires regional, national, and local involvement in an institutionalized way. (Even if implementation is national.)

Finally, we would note that the professional transporters in

many of these countries are from particular socio-ethnic clusters. In some cases, the transporters are organized into labor unions (see Lewis 1970), but in all cases, the "transporters" might have important inputs to make at the planning stage.

We will discuss regional infrastructure in Chapter Seven.

6. REGIONAL LEVEL: DECISION-MAKING AND INTERACTION

In this chapter, we will examine four topics: a) dimension of regional interaction (including organizational-administrative legacy, trade relations, infrastructural linkage, and governmental linkage), b) the recent growth of regional institutions (including Francophone instituions, Anglophone/Francophone institutions, interstate commissions, and drought related committees), c) possibilities for inter-university linkage (including universities and policy decision-making), and d) the relationship of northern Nigerian institutions to the Sahel-Sudan ecological problem. (A Niger-Nigeria case study of relations "North-South Relations in West Africa: Lessons from the Case Study of Niger-Nigeria" (CRED), is included in the M.I.T. Report.)

Our purpose here is to identify the major patterns of regional cooperation (both within the Sahel-Sudan region, and between the Sahel-Sudan states and the coastal states) and to consider the potential for regional forms of planning and implementation related to ecological problems. In particular we are interested in whether the existing set of institutional relationships are in the best interests of the Sahel-Sudan region, and whether linkages between the French and English speaking states might contribute in some important ways to the survival and development of both areas.

6.1 Dimensions of Regional Interaction

6.1.1 The organizational/administrative legacy: Of the six Sahel-Sudan states under consideration, five were centrally administered during the colonial period (1900-60) as part of the French West African Federation (Fédération d'Afrique occidentale Française). The sixth state, Chad, was administered as part of the French equatorial. The African Federation. During this period, the states shared a common monetary policy, similar political structures, and

in most cases, free flow of factors-of-production (including manpower). The inland states in west Africa were connected with coastal Francophone states more than with each other. The two major coastal states, in terms of economic support of the federation were Senegal and Ivory Coast. This heavy reliance of inland states on coastal infrastructure is reflected in Table 63.

Table 63

Per Capita Contributions to the Budget of the Federation of West Africa: 1954 (in CFA francs)

Senegal	4,590
Mauritania	28
Soudan (Mali)	15
Guinea	1,773
Ivory Coast	4,560
Upper Volta	11
Dahomey	670
Niger	21

Source: Berg, p. 403.

The Ivory Coast opposed continued federation at the time of independence partly because it did not want to support financially the entire federation. Prior to independence, however, Ivory Cast did set up a Conseil de l'entente (in May 1959) including Upper Volta, Niger, Dahomey, and Ivory Coast. (Togo joined in 1965.) All of the six states joined the "French community" (Communauté Franco-Africaine) in September 1958, but after independence in 1960 this became a dead letter.

In September 1961, the French encouraged the formation of the African and Malagasy Union (UAM), (Union Africaine et Malgache), which was supposed to encourage political cooperation. This was

dissolved in March 1964, after the founding of the Organization of African Unity (OAU), because of OAU pressure and rivalry between Senegal and Ivory Coast. The UAM was replaced by the African and Malagasy Union for Economic Cooperation (UAMCE), consisting of nine Francophone African states plus Rwanda. (Ivory Coast, Niger, and C.A.R. did not ratify the agreement.) The UAMCE was "dissolved," more or less, in late 1964 due to latent conflict between Senegal and Ivory Coast.

The Afro-Malagasy Common Organization (OCAM) was established in February 1965 and in many ways was a revised version of UAM. (Mauritania withdrew in May 1965.) The OCAM has continued to the present time, although in 1972 the name changed to OCAMM to include Mauritius and Chad, and Cameroon withdrew in July 1973. Both of these major organizations are described in detail by Jalloh, (1973), who has analyzed the UAM and the OCAM in terms of their functional orientations. These analyses are presented in Tabular form in Appendix 6.

In brief, the major issue areas of UAM, in terms of number of items treated, was diplomatic participation in global affairs (18 percent). The second major issue was regulation and support of mass media communications (13 percent). The least important issue was agricultural protection.

With regard to OCAM, Jalloh analyzes the agendas of four major conferences of heads of state: Tananarive (1966), Niamey (1968), Kinshasa (1969) and Yaounde (1970). In summary, external relations functions accounted for 43 percent of the agenda items, political constitutional functions for 1.7 percent, socio-cultural functions for 20 percent, economic functions 35 percent. Mass media communications, in this latter category, accounted for 2.8 percent of the total items. Jalloh further examines the types of decisions that

were made at the national level, those that were made at the regional (OCAM) level, and those where there was decision-making at both levels. These patterns are shown in Table 64.

Simultaneously in 1959, the seven former French states in west Africa joined the West African Customs Union (UDAO) (Union douanière des états de l'Afrique occidentale). This consisted of a general secretary, a council of ministers, and regular conventions. An earlier council had been set up on monetary policy: West African Monetary Union (BCEAD) (Banque Central des états de l'Afrique de l'ouest). At independence, Mali signed the convention but did not ratify it. Togo joined in 1963. In June 1966, the UDAO was replaced by a looser arrangement called the Customs Union of west African States (UDEAO), with a secretariat at Ouagadougou.

In equatorial Africa, a Customs and Economic Union (UDEAC) was set up in 1964, which included Chad. In 1968, Chad withdrew from UDEAC and joined Zaire and others in a Union of Central African States (UEAC), which had political and military forms of cooperation as well as economic. Chad did cooperate with UDEAC states in 1972, in their joint demographic, agricultural and industrial censuses. Chad has remained a member of the Franc zone bank in Central Africa: Banque des états de l'Afrique Centrale (BEAC), restructed in Fort Lamy in February 1973.

The African Development Bank (ADB) was established in August 1963 with 28 African member states (Anglophone and Francophone). This followed the establishment of the Organization of African Unity (OAU) in May 1963 (Anglophone and Francophone).

In addition to the two main trends of west African regionalism (intra-Francophone, and OAU-related Anglophone-Francophone) there were intra-regional efforts towards federation. In 1959, Senegal and Mali formed the "Mali Federation" which was dissolved in August 1960 with considerable ill will on both sides (until 1963). The

Table 64

SCOPE, STAGE, AND LOCUS OF DECISION-MAKING IN THE OCAM

Issue Area	Number of Issues	Stage	Locus
Education and research	28	Detailed collective goal-setting	Substantial activity at collective level
Economic development and planning	20	Detailed collective goal-setting	Some collective
Diplomatic influence and participation in global affairs	16	Detailed collective goal-setting	Substantial activity at collective level
Global economic, commercial, scientific and technical arrangements	15	Collective decision on policy guidelines	Substantial activity at collective level
Movement of goods, services and other factors of production (not including capital) within the customs union	12	Detailed collective goal-setting	Some collective
Diplomatic influence and participation in intra-African affairs	12	Detailed collective goal-setting	Equal activity at both levels
Regulation and support of transportation	11	Detailed collective goal-setting	Substantial activity at collective level
Economic aid to or from other polities	10	Collective decision on policy guidelines	Substantial activity at collective level
Cultural and recreational affairs	7	Collective decision on policy guidelines	Substantial activity at collective level
Continental economic, commercial, scientific and technical arrangements	7	Detailed collective goal-setting	Collective is dominant
Economic, commercial, scientific and technical relations with major trading partners (France and the EEC)	7	Detailed collective goal-setting	Substantial activity at collective level
Regulation and support of mass media of communications	5	Detailed collective goal-setting	Collective is dominant
Fiscal policy	4	Collective problem recognition	All national
Exploitation and protection of national resources	4	Collective problem recognition	Some collective

Table 64 (cont.)

SCOPE, STAGE, AND LOCUS OF DECISION-MAKING IN THE OCAM (cont.)

Conflict resolution and management among members	4	Collective problem recognition	Some collective
Agricultural protection	3	Collective definition of action alternatives	Some collective
Regulation of economic competition and other government controls in prices and investments	3	Detailed collective goal-setting	Some collective
Military security	3	Discussion with no collective problem definition	All national
Decolonization and human rights	2	Collective definition of action alternatives	Some collective
Public health and safety and maintenance of order	2	Detailed collective goal-setting	Some collective
Access to legal-normative system	1	Collective problem recognition	All national
Social welfare policies	1	Collective problem recognition	Some collective
Cold war, arms control and disarmament	0	No discussion, no collective problem recognition	All national
Economic, commercial, scientific and technical relations with minor trading partners	0	No discussion, no collective problem recognition	All national
Political participation	0	No discussion, no collective problem recognition	All national
Organization and administration of the civil service	0	No discussion, no collective problem recognition	All national
Counter-cyclical policy	0	No discussion, no collective problem recognition	All national
Labor-management relations	0	No discussion, no collective problem recognition	All national
Balance-of-payments stability	0	No discussion, no collective problem recognition	All national
Domestic monetary policy	0	No discussion, no collective problem recognition	All national

Source: Jalloh, 1973, pp. 184-88

formation of the entente has been mentioned above, but increasingly throughout the 1960's it took the form of political cooperation as well as economic cooperation. Free factor-flows were encouraged and "common citizenship" was discussed. For further discussion of Francophone organizations, see Mytelka (1974). (Figure 8 illustrates the various multilateral institutions discussed above.)

6.1.2 Trade linkages: In our consideration of trade relations in west Africa, we are less concerned with the economic aspects, than with the patterns of interaction which they represent. While trade relations do not always indicate institutional cooperation, they may provide a guide to the salience of units within a larger system. In this section, we have devised and coded variables on a dyadic basis, i.e., each state by every other state. Thus, our unit of observation is the dyad, not the state. This increases our "N" from 6 to 15 (i.e., 6 states x 5 possible relations per state, divided by 2 to avoid duplication).

In addition to the intra-Sahel-Sudan relations, we will also look at Sahel-Sudan relations with the contiguous coastal states. In both cases, we will try to establish a time trend, for the years 1962, 1965, 1968. In general, there is a four year time lag between the publication of UN statistics and the year represented. Thus 1970 data are currently available (as of July 1974) but not 1971 data, which we would need to continue our three year interval.

The values in the following tables represent the sum (in thousands of U.S. dollars) of each country's imports from another state, and its exports to that state for the given year. The dollar value of trade has not been adjusted for inflation, etc. The sources for our data are UN, Foreign Trade Statistics for Africa: Series A: Direction of Trade. For additional data on west African trade relations, see Wepsiec (1971).

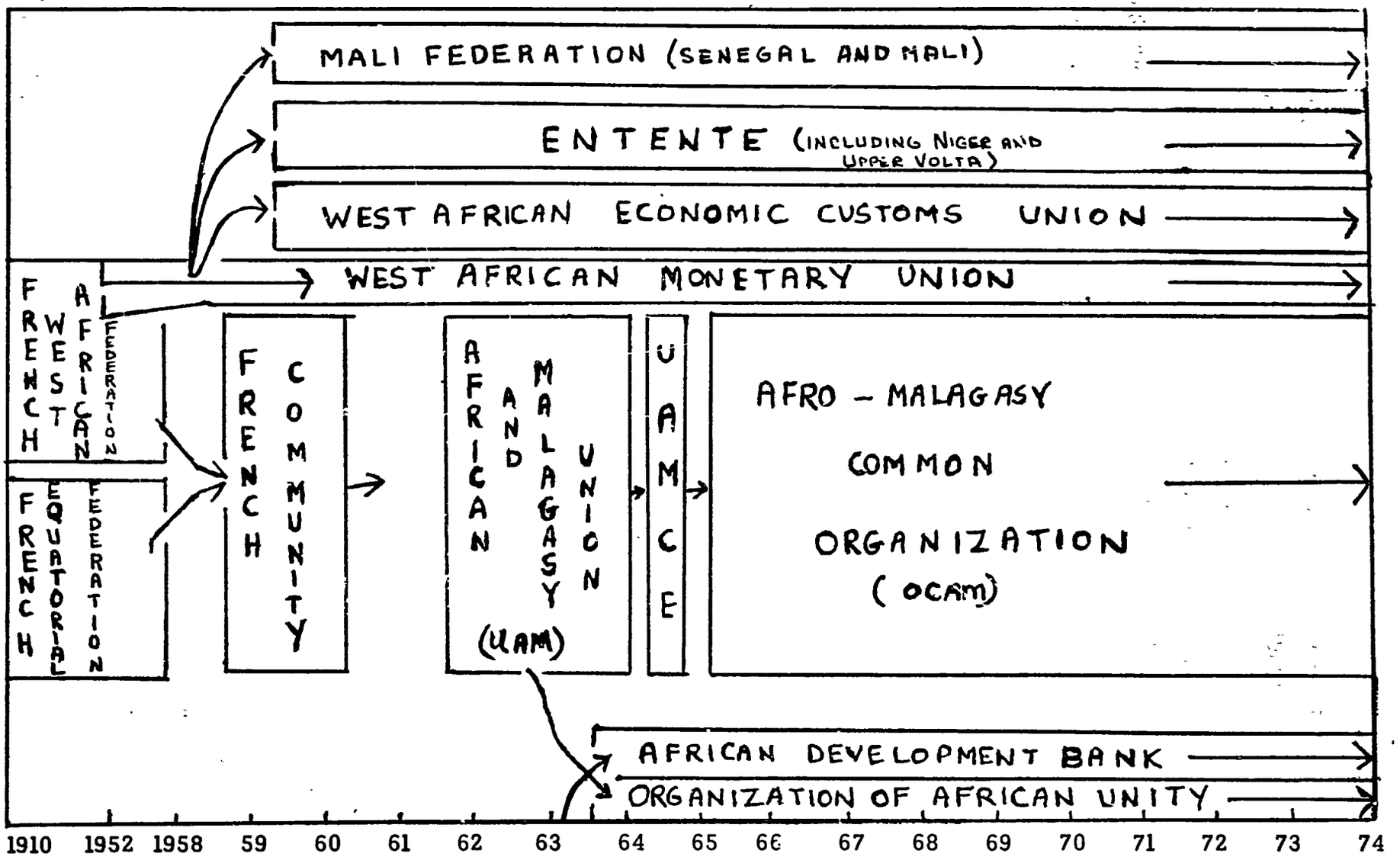


Figure 8. Multilateral African Institutions with Sahel-Sudan State Members -- 1910-1974

Within the Sahel-Sudan region, the dyadic patterns between 1962 and 1968 are interesting in that they do not show any marked increase in trade. In six dyads there is a modest increase. In five dyads there is a decrease and in four dyads there is no change. (Note: zero trade for Mali and Senegal in 1962 is disregarded because it reflects political rather than economic considerations.) (See Table 65.)

Analyzing the four land locked Sahel-Sudan states (i.e., excluding Mauritania and Senegal) in relationship to their contiguous coastal neighbors, we find a significant increase in trade during 1962-1968. In seven dyads trade significantly increases and in only two dyads trade does not increase (perhaps for reasons due to the Nigerian civil war) (see Table 66). In particular, we would expect trade with Nigeria, Ivory Coast, and Ghana to continue to increase.

Looking at the summary trends for all intra-Sahel-Sudan states relations gives a dramatic picture of the low level, stable, relations within the Sahel-Sudan region. This is in marked contrast to the higher magnitude, and greatly increasing Sahel-coastal trend. These patterns are shown in Figure 9.. A further illustration of this is shown in the trade relations between Niger and Nigeria, in contrast to the Niger-Sahel trade levels and slope (see Figure 10).

In short, coastal contiguity seems to be an important factor for the four land locked Sahel-Sudan states. We will include a multivariate statistical analysis in Chapter Eight showing the exact importance of this variable in relation to other variables.

6.1.3 Infrastructural linkage: Part of the general low level of trade interactions within the Sahel-Sudan region is due to the competitive nature of the exports and partly due to the weak transportation infrastructure within the region. As mentioned in our

Table 65

Intra-Sahel Trade (by Dyad): 1962, 1965, 1968

Variable: The sum of all trade between pairs of states in thousands of unadjusted U.S. dollars.
Variable Source: UN Trade Series A Selected Issues.

		1962	1965	1968
Chad	Chad-Mali	0	0	0
	Chad-Mauritania	210	474	0
	Chad-Niger	14	73	11
	Chad-Senegal	679	128	230
	Chad-Upper Volta	1	0	297
Mali	Mali-Chad	0	0	0
	Mali-Mauritania	17	195	122
	Mali-Niger	580	405	69
	Mali-Senegal	0	2634	1653
	Mali-Upper Volta	446	2551	755
Mauritania	Mauritania-Chad	210	474	0
	Mauritania-Mali	17	195	122
	Mauritania-Niger	0	01	N.A.
	Mauritania-Senegal	01	0	0
	Mauritania-Upper Volta	0	0	2
Niger	Niger-Chad	14	73	11
	Niger-Mali	580	405	69
	Niger-Mauritania	0	01	N.A.
	Niger-Senegal	43	177	0
	Niger-Upper Volta	492	260	330
Senegal	Senegal-Chad	679	128	230
	Senegal-Mali	0	2634	1653
	Senegal-Mauritania	01	0	0
	Senegal-Niger	43	177	0
	Senegal-Upper Volta	106	41	33
Upper Volta	Upper Volta-Chad	1	0	297
	Upper Volta-Mali	446	2551	755
	Upper Volta-Mauritania	0	0	2
	Upper Volta-Niger	492	260	330
	Upper Volta-Senegal	106	41	33
Sum		2589	6939	3502
Average		172.6	462	250.1

Table 66

Inland Sahel-Sudan States Trade Relations with Contiguous Coastal States
1962 - 1965 - 1968

Variable: The sum of all trade between pairs of states in thousands of U.S. dollars.

	1962	1965	1968
Chad-Cameroon	1005	0	3656
Chad-Nigeria	2397	3071	788
Mali-Ivory Coast	2155	6307	5272
Niger-Dahomey	384	602	164
Niger-Nigeria	4934	6489	N.A.
Upper Volta-Dahomey	125	297	153
Upper Volta-Ghana	6156	2897	2167
Upper Volta-Ivory Coast	1762	7283	16019
Upper Volta-Togo	19	0	82
Average:	2104.11	2994.0	3537.63

Source: U.N. Trade Series A Selected Issues

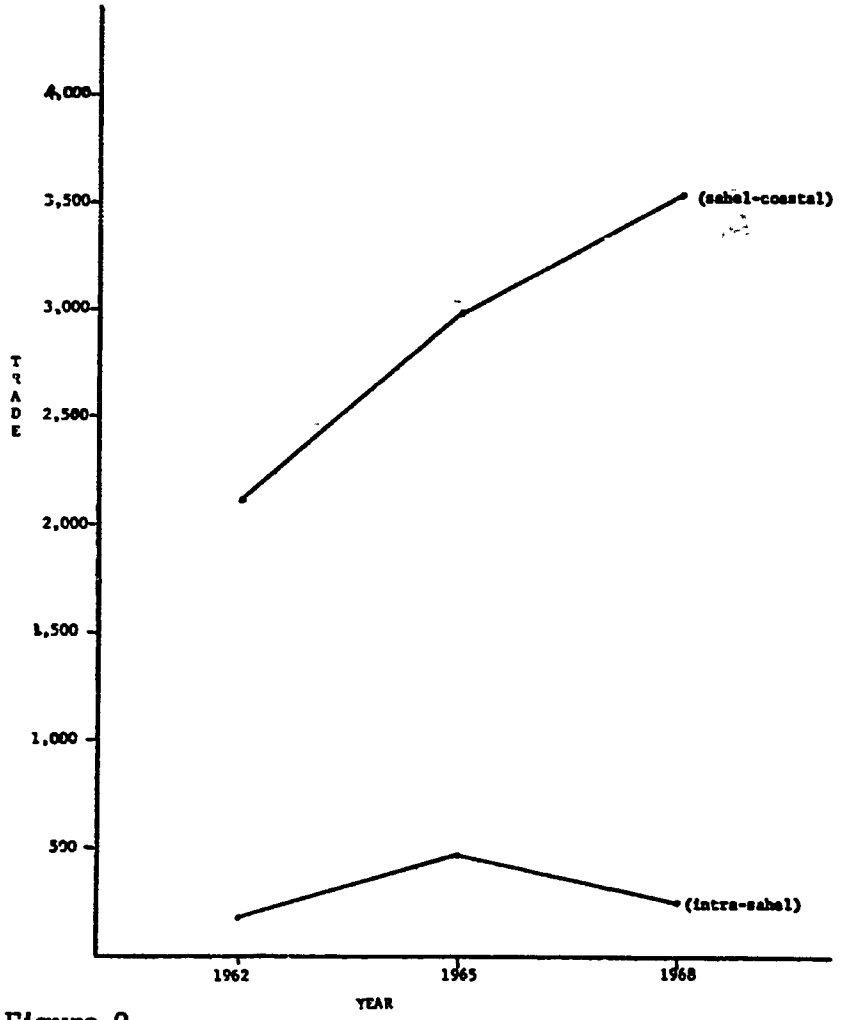


Figure 9

Dyadic Trade Averages - Intra-Sahel and Sahel-Coastal, 1962, '65, '68 (in thousands of unadjusted US dollars)

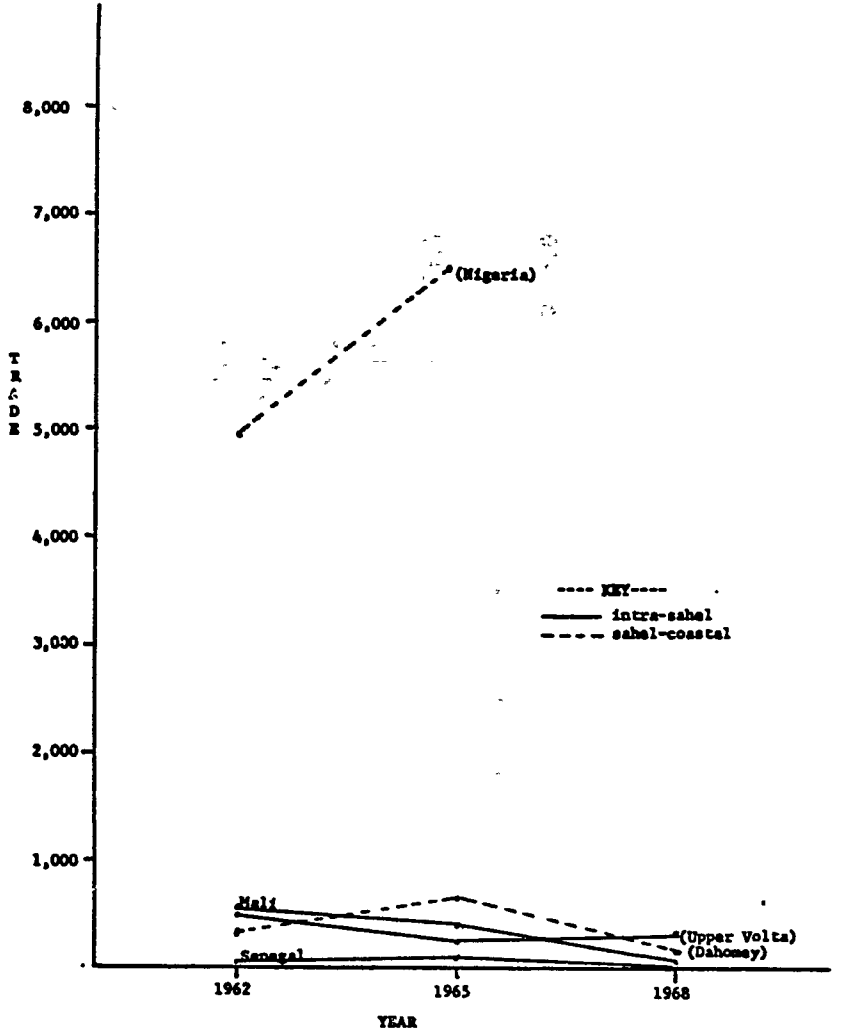


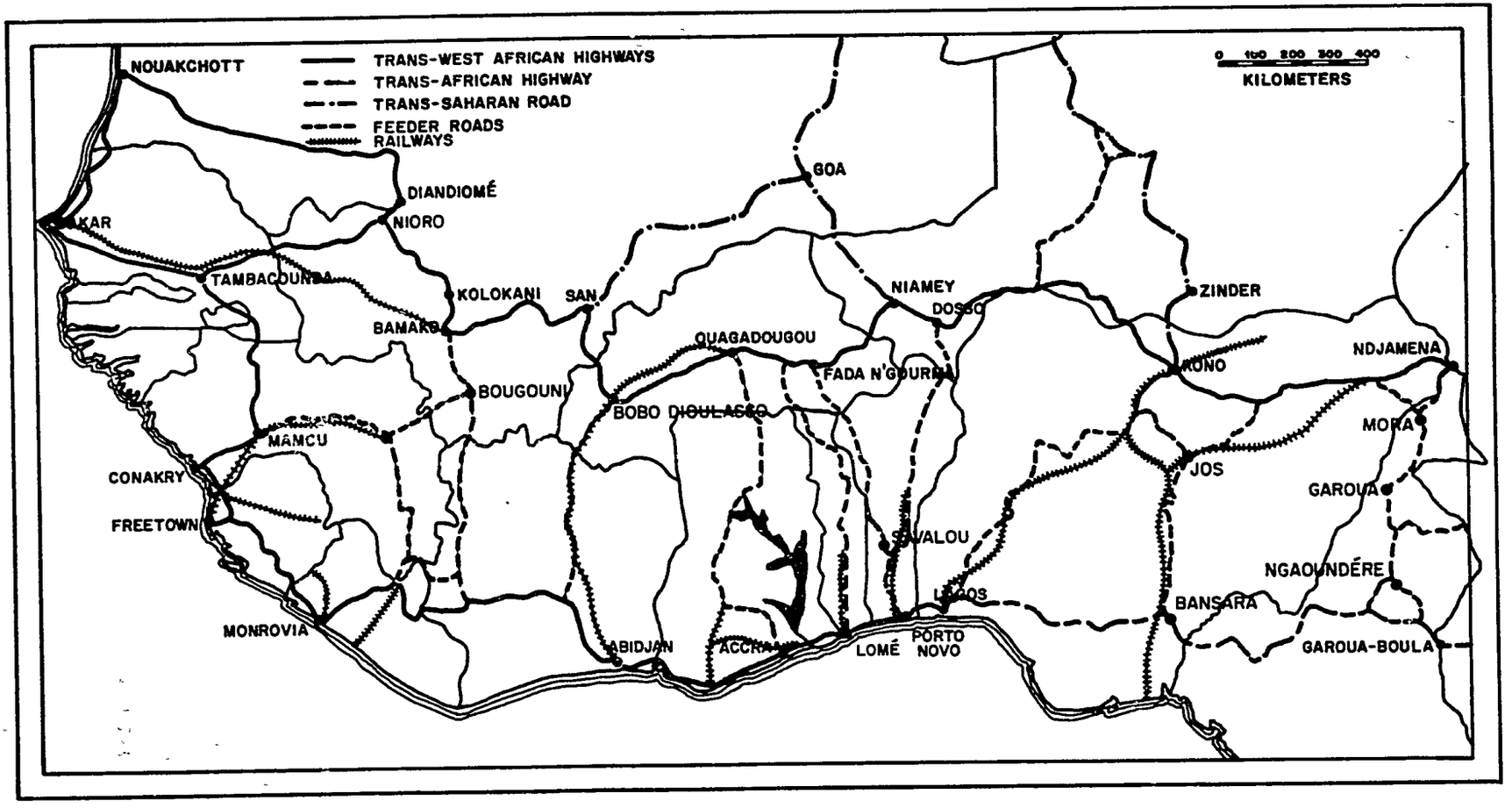
Figure 10

Intra-Sahel + Coastal Trade for Niger 1962, '65, '68 (in thousands of unadjusted US dollars)

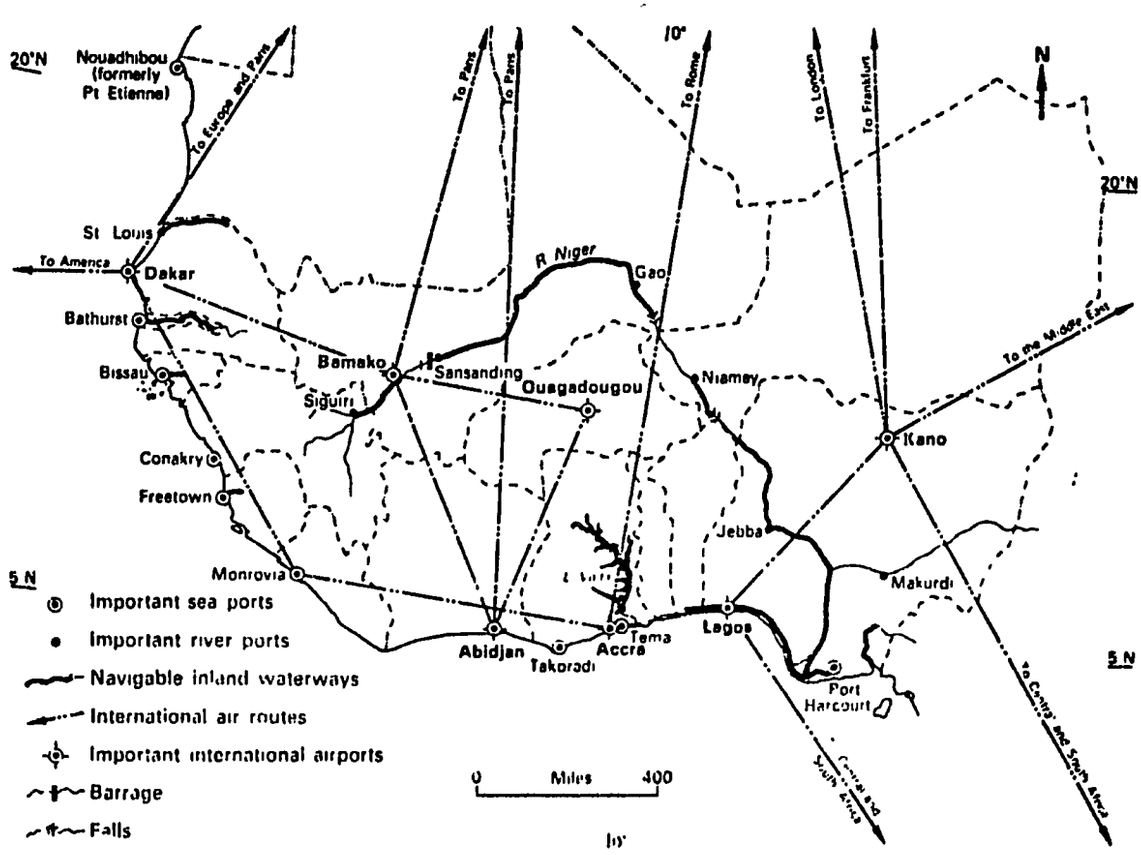
section on connectivity, Senegal and Upper Volta do have road/rail systems which connect them into a regional framework, and Chad and Mauritania have almost none. In this section we are interested in summarizing these regional linkage patterns. Map 10 indicates the major railways and roads in west Africa, and Map 11 indicates the international airways and waterways. Drought migration patterns in relation to the transportation linkages are shown in Map 12. We have coded the base map for surface linkage, which is shown in Table 67.

The question of regional infrastructure in communications is also germane to this section. Telecommunications linkage data are available through United Nations publications, but have not been systematically analyzed, due to time constraints. It will be noted that the UAM was dealing with interstate media communications as a priority issue.

We are aware that a considerable amount of regional planning is currently underway in the area of transportation. We are not in a position to evaluate this planning systematically. On an illustrative level, in January, 1974, the Economic Commission on Africa (ECA) sponsored a conference in Niamey at which fifteen African states attended. The topic was road networks in west Africa. Two routes were considered. One was from west to east, across the Sahel linking Dakar to N'Djamena (Chad), crossing Mauritania, Mali, Upper Volta, Nigeria, and Cameroon (5,500 kilometers). The other route was from north to south: Dakar to Lagos, through Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo and Dahomey (4,500 kilometers). Both of these plans are basically lateral rather than inland-coastal. The implications for regional interaction are clearly related to infrastructural decisions.

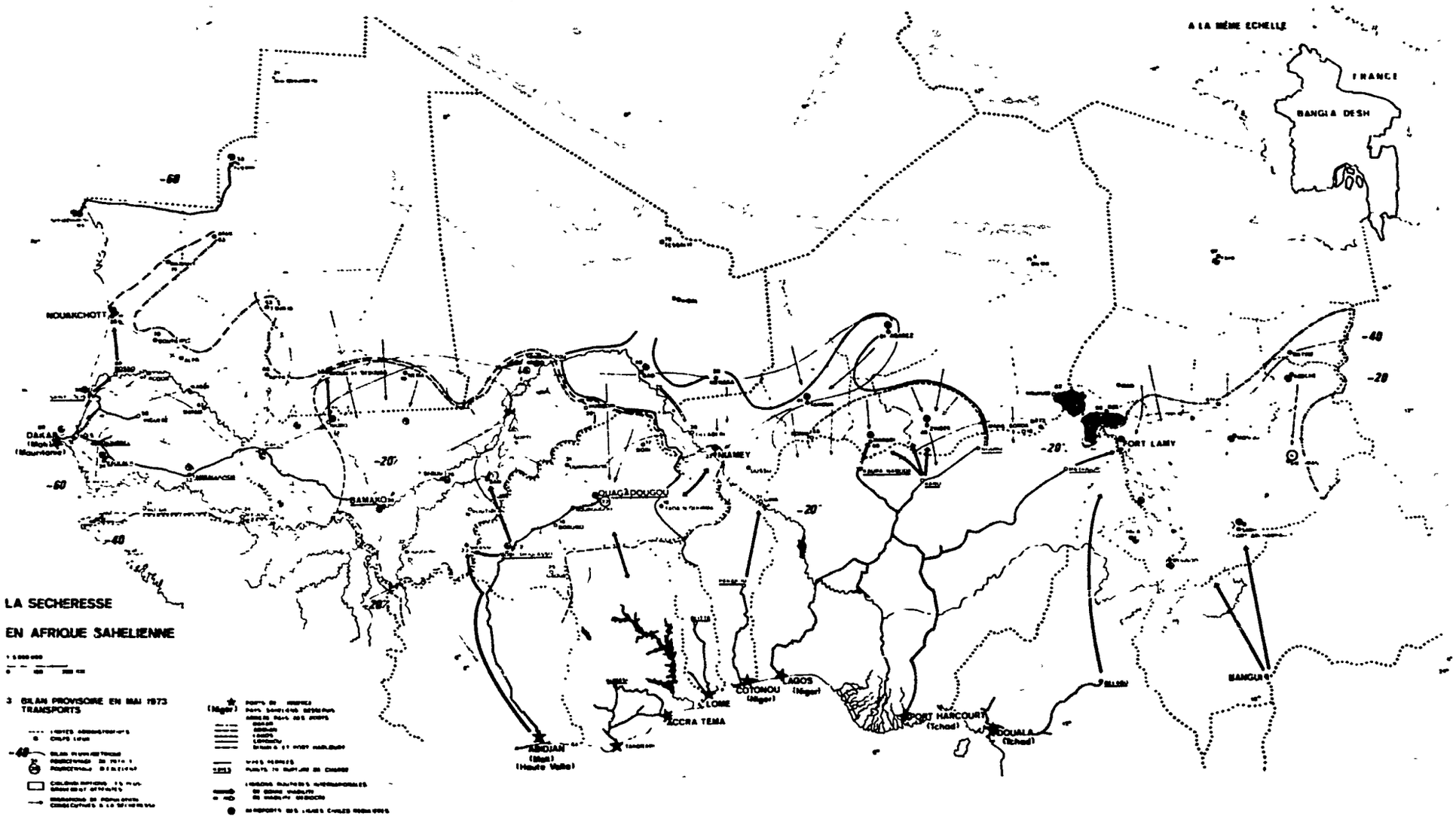


Map 10. Railways and Major Roads in west Africa.



Map 11. International Airways and Internal Waterways in west Africa.

Source: Iloeje, (1972)



Map 12. Drought Migration Patterns in Relation to the Transportation Linkages.
Source: Poncet, 1973.

Table 67

Infrastructural Linkage

A. Intra-Sahel

	road link direct	road link indirect	rail link direct	rail link indirect	air link direct	air link indirect	Telecommunication	Waterway Link dir.	Waterway Link indirect
Chad									
Mali	0	0	0	0	0	0		0	0
Mauritania	0	0	0	0	0	0		0	0
Nig.	0	0	0	0	0	0		0	0
Senegal	0	0	0	0	0	0		0	0
Upper Volta	0	0	0	0	0	0		0	0
Mali									
Chad	0	0	0	0	0	0		0	0
Mauritania	0	0	0	0	0	0		0	0
Nig	1[a]	0	0	0	0	0		1	0
Senegal	1[b]	-	1[c]	-	1	1		0	0
Upper Volta	3[d]		0	0	1	-		0	0
Mauritania									
Chad	0	0	0	0	0	0		0	0
Mali	0	0	0	0	0	0		0	0
Nig	0	0	0	0	0	0		0	0
Senegal	0	0	0	0	0	0		0	0
Upper Volta	0	0	0	0	0	0		0	0
Niger									
Chad	0	0	0	0	0	0		0	0
Mali	1	0	0	0	0	0		1	-
Mauritania	0	0	0	0	0	0		0	-
Senegal	0	1[f]	0	0	0	0		0	-
Upper Volta	1[e]	0	0	0	0	0		0	-
Senegal									
Chad	0	0	0	0	0	0		0	0
Mali	1	-	1	0	1	-		0	0
Mauritania	0	0	0	0	0	0		0	0
Nig.	0	1[g]	0	0	0	0		0	0
Upper Volta	0	1[h]	0	0	0	1		0	0
Upper Volta									
Chad	0	0	0	0	0	0		0	0
Mali	3[i]	0	0	0	1	0		0	0
Mauritania	0				0	0		0	0
Nig	1	0	0	0	0	0		0	0
Senegal	0	1	0	0	0	1		0	0
Chad									
Cameroon	-	-	-	-	-	-		-	-
Nigeria	0	0	0	0	0	0		0	0
Mali									
Ivory Coast	0	-	0	0	1	-		0	-
Guinea	1	-	0	0	0	0		1	-
Niger									
Dahomey	1[j]	-	0	-	0	0		0	0
Nigeria	3[k]	-	0	-	0	0		1	0
Upper Volta									
Dahomey	0	1[l]	0	0	0	0		0	0
Ghana	1[m]	-	0	-	0	0		0	0
Ivory Coast	0	0	1[n]	0	0	0		0	0
Togo	1	-	0	0	0	0		0	0

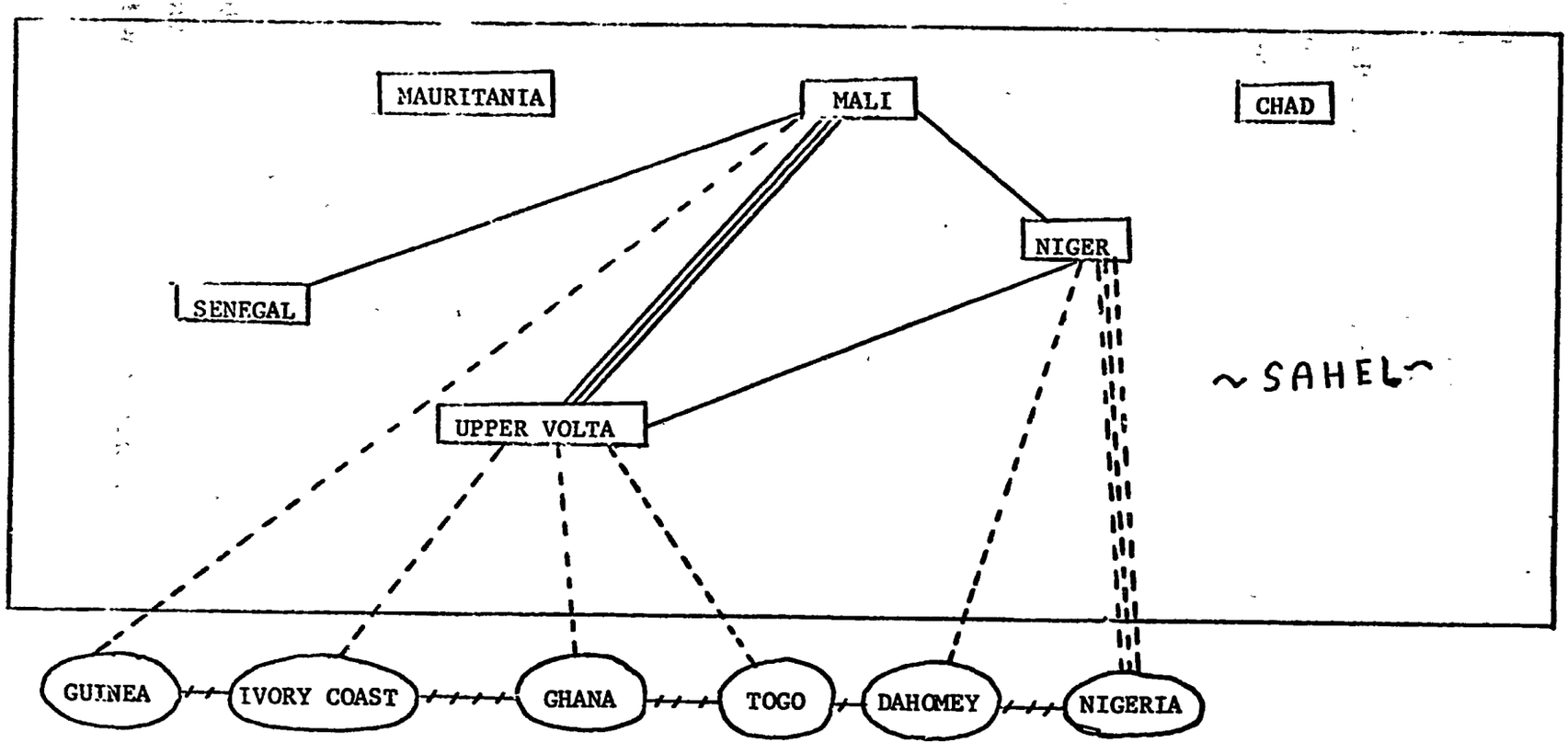
a, Gao-Niamey; b, Dakar-Bamako; c, Dakar-Bamako; d, Mopti-Ouagadougou, Segu-Bobo, Bamako-Bobo; e, Niamey-Ouagadougou; f, Mali; g, Mali; h, Mali; i, Ouagadougou-Mopti, Bobo-Segu, Bobo-Bamako; j, Parakou-Niamey; k, Kano-Zinder, Kano-Maradi, Sokoto-Konni; l, Nigeria; m, Tamele-Cuagadougou; n, Bouake-Bobo

The intra-Sahel-Sudan regional patterns for transportation linkages are quite clear. Two of the countries--Chad and Mauritania--have virtually no contact with the other four. The remaining four states (Senegal, Mali, Upper Volta, Niger) are connected through an east-west road system (which is of minimal quality). With regard to relations between the Sahel-Sudan region and the coastal states, Niger is potentially linked to four west African states: Nigeria, Dahomey, Togo and Ivory Coast. Upper Volta is linked with three west African states: Ivory Coast, Ghana and Togo (plus Sierra Leone) (see Figure 10). As of the present time, there is very little airline contact between the Sahel-Sudan states (excluding Senegal) and the Anglophonic coastal states.

Since much of the current drought relief effort (e.g., foodstuff) is being channeled into the Sahel-Sudan region through coastal ports, such as Lagos, Abidjan and Dakar, the chances are that this will encourage the strengthening of infrastructural linkage between coastal and inland states.

6.1.4 Inter-governmental linkage: We are concerned in this section with examining the extent of joint membership in international governmental organizations (IGOs) and the extent of direct interactions between decision-making elites in the Sahel-Sudan countries. We will also look at exchange of messages.

We have coded a dyads joint IGO "score" for 1963 and 1967 to indicate the number of overlapping or shared memberships in all international governmental organizations. The data were coded from the Yearbook of International Organizations. The types of organizations for which a dyad might receive a score of one shared membership would be as diverse as OCAM, the UN, the OAU, or the ADB. During the 1960s, African states were the regional group with



(Niger and Upper Volta depend on coast)

--- KEY ---
——— intra-sahel linkage
- - - - sahel-coastal linkage
/-/-/-/ coastal linkage

Figure 10. Intra-Sahel + Sahel - Coastal Surface Linkages (from Iloeje).

the fastest rate of growth in memberships in IGO's. This is largely a reflection of their recent eligibility for membership in many international organizations and the proliferation of African regional organizations. The Sahel-Sudan states are no exception to this trend. In every dyad there has been an increase in joint membership in international/African organizations. At the same time there has also been an increase in joint IGO membership involving Sahel-Sudan states and coastal states. Both data sets are shown in Appendix 6.

Elite interaction refers to the frequency of attendance at multilateral organizations and conferences, plus the frequency of visits and messages involving more than two states. In short, this is a measure of frequency distribution of interactions of high level governmental leaders (e.g., prime ministers, ministers, special delegates).

To arrive at these dyadic frequencies for each year, a six month sample was coded of all reported multilateral interactions. Interactions were noted by rank of participating officials, although we have not weighted the raw scores by rank. These codings were all taken from Africa Diary, which is a compendium of news reports issued weekly, and has relatively comprehensive coverage on elite behavior. (In the appropriate months for 1965, for example, 36 newspapers were cited by Africa Diary, including Le Monde, Afrique Nouvell, The London Times, West Africa, New York Times, the Ghanaian Times, etc. The same patterns seems to hold for 1962 and 1968.) We present the results in Appendix 6. Of the 15 dyads within the Sahel-Sudan all of the elite interactions decreased over time, with one exception. The same pattern holds between Sahel-Sudan states and coastal states. Our interpretation is that despite the increase in IGO's, the actual amount of time spent in multilateral communications decreases, possibly as a reflection of the increased concern with

internal matters and possibly as a reflection of the turnover of elites whereby second generation elites have fewer personal contacts with each other than first generation elites. In short, the amount of elite interaction in organizations (such as OCAM) actually decreases during the 1960s.

This same pattern is confirmed in looking at inter-elite messages. These include all publicly recorded messages sent between members of multilateral organizations. This may be interpreted as the "bilateral follow through" to issues raised in multinational organizations. Since we have coded all messages, some of these reflect protest or "non-cooperation" but the total number of negative messages is only about 13 percent. Thus 87 percent of the messages are positive and cooperative. The patterns are included in Appendix 6. In 9 of the 15 dyads there is no change; in four dyads the communications are reduced; and in only two dyads do the communications increase. These same ratios hold with regard to Sahel/coastal states as well. The raw frequencies are shown in Appendix 6.

In short, inter-elite communications and direct interaction among the Sahel-Sudan states decreased during the 1960s. While this pattern may be reversing itself as a result of the drought situation (to be discussed later), it is indicative of a trend line of behavior before the drought, which may or may not serve as the guide to any post-drought interactions. It may also be that the decline from the high level of pre-independence interaction represents a more "normal" level of interaction with the coastal states, with whom economic salience is increasing. We will present a multivariate analysis of factors accounting for inter-governmental interaction in Chapter Eight. A summary chart indicating the relations between the increase in IGO membership and the decrease in elite interaction in shown in

Figure 11.

6.1.5 Problems and prospects: The importance of regionalism to an ecological solution in west Africa has been stressed in earlier sections, e.g., in agriculture and livestock production all development alternatives suggest dependency on a growth in regional integration or cooperation. That importance should be re-emphasized here. From an historical perspective we should note that prior to the French colonization of the Western Sahel the ecosystem network of this region was quite complex, and well integrated into the larger system of the African continent (Skinner, 1973). The nomadic pastoral northern populations and the southern more sedentary groups were linked through complex trade and commercial relations extending from the Mediterranean region in the North to the peoples of the forest zone in the South.

In addition, history shows that over long centuries, beginning very early and pursued during the Middle Ages, until the 16th to 18th centuries, various empires uniting large aggregates of peoples, e.g., the vast empires of ancient Mali, the Toukouleur Empire, ancient Ghana, and Songhai Empire, Bornu, Kanem, and so forth, had arisen and declined through various mechanisms. The historic developments of the Sudan and Sahel regions had, in effect, arrived at integrating the sub-continent by establishing trans-Saharan commerce and by opening southern regions producing gold, kola, ivory and slaves.

With the expansion of the European commercial system the last of the great empires in this region began to crumble. The existing integration of the region gave way to the new European forces. The dividing-up of the sub-continent among the colonial powers of England, France, Germany, Spain and Portugal created a political fragmentation foreign to African history and geography, in

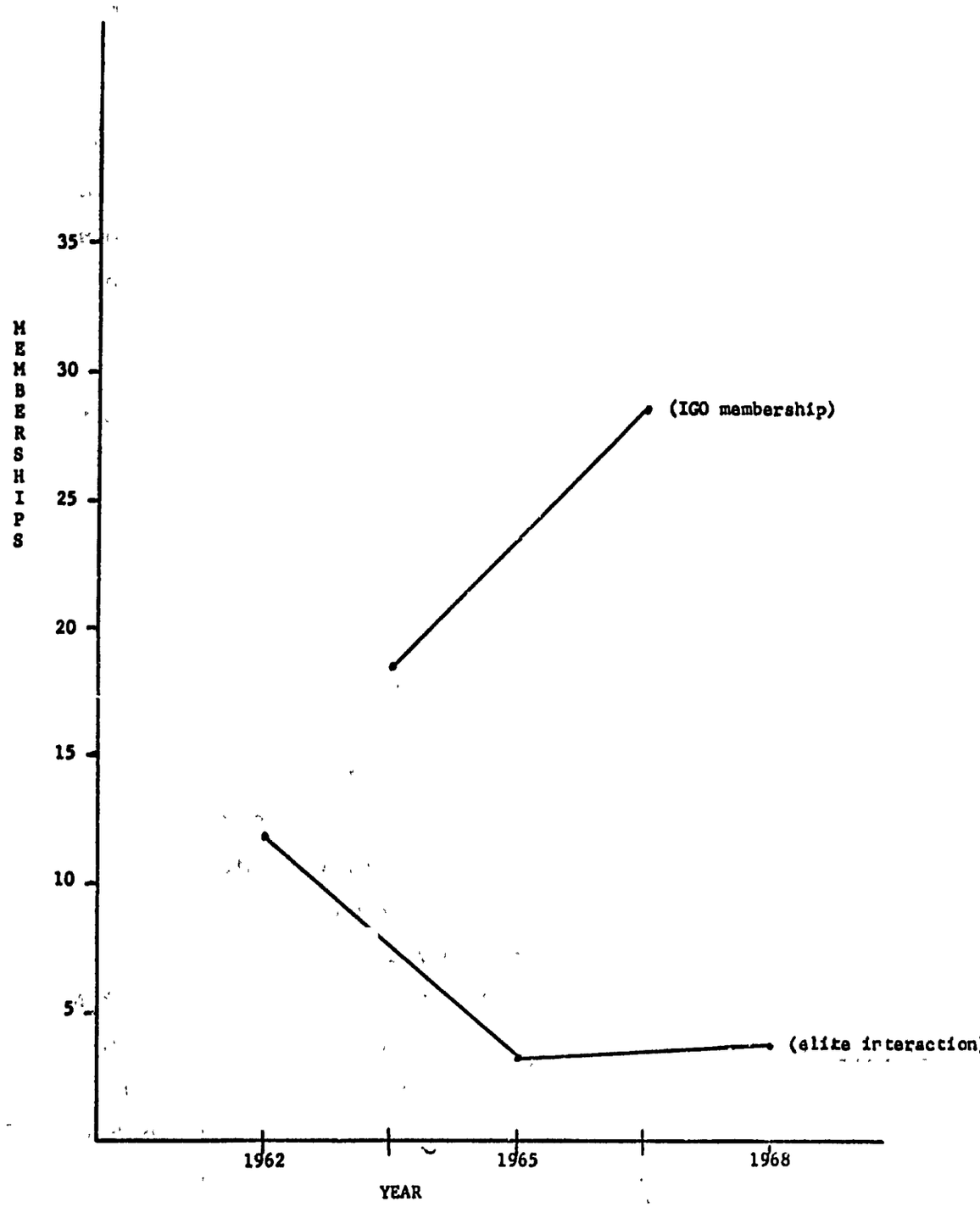


Figure 11. IGO Membership and Elite Interaction Dyadic Averages for Intra-Sahel-Sudan States: 1962, 1965 and 1968

many places destroying ancient social ties and currents of exchange by the creation of previously unknown borders.

The absorption of the Sahel into the French colonial network, and the reorientation of its economies and peoples accompanying that shift, culminated at the time of independence in a balkanized continent. Consequently, the issues of national unity, or national integration, and regional grouping or groupings (especially in the area of economic groups) have been areas of primary emphasis for the Sahel-Sudan countries since the time of their independence.

The Sahelian societies achieved their greatest affluence, or their most prosperous operations, when they were united in larger units. It appears that potentiality for regional cooperation is an important dimension in our examination of any potential development scheme.

In this section we have tried to show that the recent inherited infrastructure in the Sahel-Sudan region was quite strong in terms of administrative linkage, with the exception of Chad, stemming from the fact that French West Africa was a centralized federation during the colonial era. Yet trade linkage and infrastructural linkage between the states of the Sahel-Sudan region is weak. Since independence the degree of interaction at the multilateral decision-making level has decreased in volume (at least until the drought). But a legacy of "regionalism" persists which might be an important aid to dealing with problems of ecological reconstruction. In short, there has been a history of close administrative ties <u>within</u> the Sahel-Sudan zone, and economic ties <u>between</u> that zone and the coast (at least the francophone areas). Because of the economic importance of Anglophone coastal west Africa, these patterns of linkage seem to be increasing in salience.

In terms of policy options, a number of the decision-making structures have been established within OCAM to deal with certain

types of problems. In the past these have been largely in the field of diplomatic relations with the external world. In the future it is possible they could be strengthened in the fields of communications, transportation, livestock/pastoralism, and economic cooperation. We will examine some of the recent developments in institutional cooperation in these areas in the following section.

On the other hand, a discussion of problems and prospects of regional interaction must deal with the impact of state structures on this process. The dynamism of state structures developed between 1957 and 1960 has asserted itself with considerable force. Despite the weaknesses that everyone agrees to find in these structures, and despite their so-called "artificial" character, the African states have been steadily developing their influence and hold on more and more jealously to their autonomy and their singularity. This historical process is probably inevitable but it entails extremely important consequences for African development. African political leaders, who have been preoccupied by this situat'on over the last ten years, will have to continue to discover and develop means of counter-acting this disintegrating force. We have tried to take note of the great number of efforts at creating new frameworks of integration and fighting back the consequences of economic and political balkanization.

6.2 The Growth of Regional Institutions

In this section we will assess some of the more recent trends in institutional cooperation between west African states. In our previous section, we looked at patterns of interstate cooperation during the decade of the 1960s. By the end of the 1960s, the inherited patterns of linkage were beginning to give way to the pressures of geographic contiguity and economic salience, particularly vis-á-vis Nigeria. The impact of the drought on the trend toward closer

cooperation between Anglophone and Francophone west Africa will be assessed. In particular we will look at recent trends in west African Francophone institutions, west African Anglophone/Francophone institutions, patterns of interstate commissions, drought related committees, drought related committees, and problems and prospects.

6.2.1 West African Francophone institutions: The structure of OCAM has been mentioned earlier. Yet in recent years, OCAM has been perhaps less significant in economic and political matters in the Sahel-Sudan region than the Council of the Entente. To review, the Entente was formed on May 29, 1959 by the presidents of the Ivory Coast, Niger, Upper Volta, and Dahomey. Togo joined in December 1965. The purpose of the Entente was to promote political, economic and social coordination. There were periodic meetings of a ministerial council with representatives from each of the five governments. The Entente has established several subagencies which have functioned as interstate institutions.

The most important of these agencies has been the Mutual Aid and Loan Guarantee Fund (Fonds d'entraide et de garantie des emprunts), set up in 1966. The purpose of the Fund is to promote the economic integration of the region, to help prepare specific economic projects and to obtain assistance from donor organizations, to provide guarantees to encourage investments, and to encourage trade and commerce. The secretariat of the Fund consists of a director, an administrative secretary and several professional advisors. At the end of 1973, the capital of the Fund amounted to 4.6 billions CFA francs (i.e., $19,000,000). The Fund has obtained loans from U.S. AID, The French Aid and Cooperation Fund, the European Development Fund, and the Canadian International Development Agency. There have been several projects concerned with

livestock and meat and a new organization, the Meat and Livestock Community (Communauté économique du bétail et de la viande) was established at Ouagadougou in May 1970. The projects include animal health, cattle trails, and slaughter houses.

The Fund has also set up a program to stabilize supplies and prices of cereals, including construction of storage facilities and the establishment of a regional cereals office in 1972 in Upper Volta and Niger. Other agricultural projects, such as large-scale tomato production in Upper Volta have been undertaken.

The Fund has also tried to encourage trade and economic integration with neighboring states, particularly Ghana. These have included discussions on transport, telecommunications, common statistical systems, regional industrial development, and payment problems between the Entente and Ghana and Nigeria. Ghana has recently become an official observer at the Entente's land transportation committee.

The Fund has sponsored meetings of the directors of the national schools of administration to encourage exchange of students, teachers, information, and documents. Exchanges took place in the summer of 1973.

In 1969 the Fund took responsibility for the Regional Road Maintenance Center, located near Lome, with instruction in both French and English.

The Fund also has taken responsibility for improved communications within the Entente region. Plans for a microwave network have been established for linking Togo and Upper Volta.

In short, the Entente, dominated by the Ivory Coast, has emerged as a significant and powerful institution in the region. This pattern has resulted partly from direct international aid and loans to the Entente.

The Francophone West Africa Economic Community (CEAO) (Communauté économique de l'Afrique de l'ouest) was established in Bamako in May 1970, and authorized in June 1972 by The Heads of State of Ivory Coast, Niger, Upper Volta, Dahomey, Senegal, Mauritania and Mali. It was originally set up as a counterbalance to the proposed West African Economic Union, which includes English-speaking states. In 1973, however, Dahomey withdrew because of her desire (c.f. Togo) to join in an economic union which included Nigeria. CEAO headquarters are in Ouagadougou. The secretary general is Sheikh Ibrahima Fall. CEAO is expected to become operational after a series of detailed consultations which have been taking place throughout 1974. A second ministerial council will meet at the end of 1974 to ratify decisions of CEAO technicians. Interestingly, the CEAO will have a court of arbitration. During this year, the secretariat is nominating members to specialized agencies. They are discussing matters such as customs dues and a regional development tax. The secretary general of CEAO has appealed to other west African states to join it rather than forming a second economic committee in west Africa.

The West Africa Monetary Union (UMOA) has been in existence since before independence. At present it includes six west African states: Senegal, Upper Volta, Ivory Coast, Niger, Dahomey, and Togo. (The CFA franc is also used by Cameroon, Chad, Central African Replublic, Gabon, and Zaire.) The finance ministers of the UMOA states meet regularly to discuss monetary matters. In January 1974, France announced its decision to float the franc, and the currencies of the franc zones in Africa were to be floated alongside the French franc. In February, President Senghor announced that the CFA franc was to become independent of the French franc on May 1.

Speaking on behalf of the six UMOA states, Senghor said that the CFA franc would be fixed in relation to gold, and that the African states did not want their currency to float with the franc.

The Malian franc, of course, is independent of the CFA franc and Mauritania currency (the ouguiya) has also been independent of the CFA franc. The question of monetary linkage to France will be considered in Chapter Seven.

6.2.2 West African Anglophone/Francophone Institutions: A West African Regional Group (WARG) had been formed in the UN Economic Commission for Africa in 1963. Further meetings of west African leaders were held in Liberia in 1965. Out of this came the articles of association for the West African Economic Committee (WAEC), signed by fourteen countries on May 14, 1967 in Accra. These articles declared that WAEC should "promote through the economic cooperation of member states a coordinated and equitable development of their economics, especially in industry, agriculture, transport and communications, trade and payments, manpower and natural resources; to further the maximum possible interchange of goods and service; to eliminate progressively customs and other barriers to the expansion of trade as well as a restriction on current payment transactions and on capital movements." An interim council of ministers, interim economic commission and provision of secretariat were set up. Until December 1973, however, little was done to implement the articles of association. In April 1968, only nine states ratified a protocol establishing a West African Regional Group (Ivory Coast, Togo, Dahomey, Niger and Sierra Leone, did not sign). Yet subsequently (especially after the end of the Nigerian civil war in 1970) Nigeria and Togo have pursued the matter. Meetings were held in Lome (Togo) in December 1973.

In February 1974, jurists and others from 15 west African states, including Guinea-Bissau, met in Accra to consider a draft treaty for WEAC, prepared by Togo and Nigeria. The draft calls for a west African common market in which goods and people would move without restriction. Industrial policies would be harmonized and joint projects would be encouraged. Countries attending include Ghana, Nigeria, Dahomey, Upper Volta, Ivory Coast, Guinea, Sierra Leone, Senegal, Mauritania, Mali, Niger, Gambia, Guinea-Bissau, Liberia and Togo. Ministerial meetings were scheduled for the spring 1974.

In March 1974, the CEAO chairman, President Diori, called for a merger of CEAO and WEAC, in an effort to group Anglophonic and Francophonic west Africa. In March 1974 President Senghor spoke of creating a "great west African economic community which would stretch from Nouakchott to Kinshasa." In April 1974, President Moktar Ould Daddah publicly supported the bringing together of Anglophonic and Francophonic African states into a regional economic community. He stressed that it was important to break down "the linguistic divisions left by colonialism."

The question as to whether the WEAC will emerge as a strong regional body remains to be seen. This issue is partly related to current negotiations between the African states and the European Economic Community (to be discussed in Chapter Eight) and partly to the policy of Ivory Coast. If an institution such as the WEAC were to emerge, it would probably facilitate some of the regional planning and coordination of implementation that have been discussed as possibilities in other parts of this report, including the idea of a west African commission on pastoralism.

A major problem with such a regional community seems to be the concern hinted at by the smaller states, that they might be

dominated by Nigeria. (See "North-South Relations in West Africa: Lessons from the Case Study of Niger-Nigeria," CRED.) If a regional economic community is to succeed in even getting started, a series of negotiations could probably be required which dealt with allocation of "rewards" within the system. (Thus, for example, Nigeria is already supplying Liberia, Ghana, and Sierra Leone with oil.)

6.2.3 Interstate commissions: A number of regional commissions exist in west Africa. The three described below are selected because of their relevance to ecological reconstruction and development. The Lake Chad Commission was created in 1964 and has four member states: Nigeria, Chad, Niger and Cameroon. The commission acts primarily as a research center, and it has been able to collect and disseminate numerous proposals dealing with Lake Chad. The commission does not have the political or financial structure to implement projects. There is an executive secretary and a secretariat. Because of the drought situation, the Chad Commission has increased in importance. In December 1974, a second meeting of the heads of state of the commission was held in Yaounde (attended by Gowon, Diori, Ahidjo, and Tombalbaye). (President Bokassa of CAR attended as an observer because CAR has two rivers--the Chari and the Logone--which feed into Lake Chad.) The heads of state have contributed to a development fund to assist in implementing projects of the commission. President Diori was elected chairman for 1974 and served until the coup in April 1974.

Nigeria has a long-term plan to cultivate 700,000 acres near Lake Chad by the end of 1980. Other projects in the region include locust control, fisheries research, paper production from papyrus, and contour mapping of the area. The heads of state examined draft

agreements on free movement of fishermen on the lake, management of a development fund, and trade agreements on cattle, meat, and agricultural products.

The commission has carried out studies on transport, water, geology, minerals, fishing, livestock, agriculture, tsetse fly eradication, and bovine pneumonia. A meeting of the commission was scheduled for May 1974, at N'Djamena (Chad).

The Senegal River Development Organization (OMVS) (L'Organisation pour la mise en valeur de la valée du fleuve Sénégal), includes three states: Mali, Mauritania, and Senegal. It was created in March 1972 to succeed. The Organization of Senegal River States (OERS) which had included Guinea, as well as Mali, Mauritania, and Senegal and had functioned since 1968. (Senegal and Mali had resumed relations in 1963, and the four Senegal river states had cooperated since 1963. Guinea and Senegal have had strained relations since 1970. The appropriate ministers and experts of the OMVS met periodically to discuss projects. In March 1974, at the meeting in Dakar, they examined the possibility of a fund to aid development of the river basin. A subsequent meeting was held in Nouakchott in April. Development of the river basin is to include construction of a hydroelectric dam at Manatali (30,000 m. CFA francs) and a second dam in the delta (10,000 m. CFA francs.) Plans were discussed to develop the ports of Saint Louis and Kayes. Feasibility studies of mineral deposits were also examined.

The Niger River Commission was created in 1964, and was amended in 1968. The first meeting of the Ministerial Council was held in Niamey in March 1974. There are now six states participating in the commission: Cameroon, Dahomey, Mali, Niger, Nigeria, and Chad. (The original signatures also included Ivory Coast, Cameroon, and Guinea.) The budget of the commission is 101 m. CFA francs.

The chairman for 1974 will be Mali's minister of industrial development and public works, Mamadou Keita. The Niger River Commission is structured in a comparable fashion to the Senegal River Development Organization. The Liptako-Gourma Integrated Development Authority grew out of The Niger River Commission in 1971, and includes three states (Mali, Niger, Upper Volta).

In addition to the multilateral regional commission there are several bilateral commissions of potential significance to regional cooperation.

The Nigeria-Niger Joint Commission (NNJC), was formed in Niamey in December 1973. The two heads of state met to discuss regional development and cooperation, including the proposed electricity supply from Kainju Dam to Niger and the development of the Niger River from Warri to Niamey. The headquarters of the NNJC will be in Niamey.

The Cameroon-Chad Joint Commission held its sixth ordinary session in Yaounde in February 1974. Topics discussed included commercial exchanges, road transport linkage, customs and excise, free movement of persons, and the extension of the TransCameroon Railway. In February 1974, the president of Chad announced his intention to work more directly with Nigeria and Libya. He explained his reasons for withdrawing from OCAM and stressed the need for regional groupings.

The relations between Senegal and Gambia have always held a special place in studies in west African regionalism, since the concept of Senegambia has a long history. In 1964, the United Nations undertook a special study of possible future relations between the two states and considered federation as well as various degrees of economic integration. Throughout the 1960s Gambia tried to maintain

its independence, and expressed concern about being submerged within the Francophone system. At present, Gambia is working closely with the Sahel-Sudan states.

6.2.4 Drought related committees: A Permanent Interstate Committee (Comité inter-état permanent) was established in May 1973 by the six Sahel-Sudan states to coordinate efforts to combat the drought. In September 1973, the committee was transformed into the Interstate Committee for the struggle against the drought in the Sahel, Comité inter-état pour la lutte contra la sécheresse au Sahel (CILSS). The Interstate Committee for the struggle against the drought in the Sahel (CILSS) is mentioned in this section because of its potential significance to the whole idea of dealing with ecological and climatic problems on a regional basis, rather than on a national basis. The committee is trying to develop long term programs in agriculture, forestry and transportation, as well as deal with immediate problems of relief.

Participating in the September meeting at Ouagadougou were the heads of state of the six Sahel states. (Chad was represented at the ministerial level.) Subsequently, Ethiopia and Gambia have also participated in discussions, and in December 1973, Gambia became a full member of the committee. A "coordinator" was appointed: Captain Antoine Dakoure, the Upper Volta Minister of Agriculture. The function of the committee was to approve a "first priority list" of projects compiled by national and international experts, including emergency measures such as the distribution of food to isolated areas. The total cost of the list was 200 m. CFA francs. The Sahel-Sudan governments expressed their wish that international donors act as a group and this principle was accepted. A major meeting was established for the fall 1974 to discuss projects and proposals. The committee has had several meetings throughout 1974 and has been primarily concerned

with emergency relief. In March 1974, there was a two day meeting in Bamako of the permanent committee which called for more flexibility in financing anti-drought projects in the Sahel.

At the Bamako meeting, the Regional Coordinator of the CILLS (Minister Dakoure) stressed several major points: 1) The Ouagadougou Conference was important in setting the frame of action to be undertaken in a medium and long-term rehabilitation program. Donors were asked to respect the projects outlined at the Ouagadougou Conference, rather than identifying and formulating projects outside that frame. Donors were asked to consider long term financial support. 2) The relationship between CILLS and the United Nations was important in coordinating a program of rehabilitation. 3) There was a need to keep studies and surveys which normally precede the execution of certain projects to a minimum. 4) The CILSS had a secured budget, and was recruiting local African staff. A division of responsibilities within the CILSS had been made. 5) In every country a committee for the coordination of drought-related activities had been created, and that each country would nominate a correspondent who would act as representative of the CILSS. It was stressed that Gambia had been a full member since December, and that donors should direct support and consideration to that country as well.

The meeting in Bamako circulated detailed descriptions of the aid and relief commitments as of that date, and reviewed the list of projects under consideration.

In assessing the significance of the CILLS we are led to several preliminary conclusions: 1) it is a problem-oriented committee and hence serves as an important example of the need for regional planning in functionally specific areas; 2) the inclusion of Gambia makes the CILSS one of the few functioning Anglophone/Francophone bodies in

the region; 3) the location of the headquarters in Ouagadougou, creates a center of coordination outside of Dakar, which could be important in decentralizing decision-making beyond the Senegal/Ivory Coast nodes.

At the same time, the creation of the CILSS suggests that there may be an additional level of government between the international community and the grassroots level through which the international community must work.

Thus, it becomes all the more important to consider the nature of the relations across levels--including the international community, the regional community, the national community, the local government community, and the farmers and herders--all of whom must play important roles in any development strategy or strategies.

6.2.5 Problems and prospects: The patterns of decision-making and interaction described above cover a broad spectrum of regional cooperation, ranging from bilateral focused commissions to multi-national all purpose organization. Clearly, the decision to move toward institutional linkage between Francophone and Anglophone states is a political matter and one that is currently under consideration. While there are trends in this direction, many of the problems, including social, political, economic and technical, have yet to be encountered. The agreements so far have been at the highest political levels (presidential and ministerial). The implementation of these agreements by civil servants and technicians will require a cadre of administrators and technicians who are trained bilingually, and geared to regional rather than national approaches. Specific training centers might be set up to encourage this exchange comparable to the training centers in Lome (Togo).

While many of the forms of institutional cooperation deal with economic policy (including trade and monetary policy), it is clear that some major political decisions remain ahead in terms of trade policy

and monetary policy. It is also clear that the free movement of capital and raw minerals will probably be ineffective if it is not accompanied, to some extent, by the free movement of people. Mabogunje (1972) makes this point most cogently. Significantly, in the West African Economic Community treaty drafts of 1974 there are provisions for free movement of peoples. This pattern of interstate cooperation has profound implications for the drought stricken states.

With regard to the modus of institutional relations, it is clear that most of the regional organizations are used for discussion, data collection, and broad gauge planning, but that implementation is still handled at the national level. This creates severe strains within the regional organizations and in some cases, renders them ineffective. As in the case of the Lake Chad Commission, this point is well recognized by the governments involved and some efforts may be taken to set up an implementation component to the commission.

The specific functions covered through regional cooperation have concentrated more heavily on production than on infrastructure and ecological systems. Thus, communications, transportation and water redistribution are still relatively undeveloped as areas for regional cooperation. The matter of livestock and pastoralism has hardly been touched.

It is clear that a whole pattern of inland-coastal relations are developing, with the major coastal being Senegal, Ivory Coast, and Nigeria. Colonial emphasis as well as more contemporary economic modernization on attempts have proceeded largely from the coast towards the interior, and recent events have not brought about a change in this respect. If this pattern is to continue and expand, it is likely that the inland, or land-locked states, will suffer certain common problems. Some of these problems involve transit trade and

others include location of industry. Some of these problems are identified by Cervenka in his work on "Land Locked Countries of Africa" (1973).

Then, too, the question of the role of Nigeria in west African regional relations remains to be resolved. Nigeria, with 80,000,000 people and considerable oil resources (plus a large segment of trained manpower) is larger and probably more economically viable than the rest of west Africa combined. Nigeria seems to be moving towards closer relationships with west African states and many west African states have been reciprocating. Those regional institutions which are based on the earlier Francophonic linkages and which do not take Nigeria into account, are likely to become increasingly outmoded.

In short, the forms of regional cooperation in west Africa are in a state of flux at present. Many of the regional functionally specific institutions are too decentralized to work effectively with each other. The establishment of several commission headquarters in Ouagadougou seems to be a counterbalance to the natural gravity toward Dakar, Abidjan, and Lagos. At the same time, it is often overlooked that several of the northern states of Nigeria fall within the Sahel-Sudan zone and locations such as Sokoto, Kaduna, Zaria, Kano, and Maiduguri could well become important regional training and cooperation centers for Sahel-Sudan regional problems.

6.3 Possibilities for Inter-University Linkage

In this section we will consider briefly the role of universities and policy decision-making, the position of the northern Nigerian institutions in relationship to the Sahel-Sudan region, and related problems and prospects. We are especially interested in opportunities for regional cooperation.

6.3.1 Universities and policy decision-making: Most universities are organized around both disciplinary departments and problem focused institutes. As such, they constitute an important resource of skilled manpower which may be brought to bear on such ecological crisis as the drought. They form an alternative source of ideas and skills to the government ministries, and at the same time often serve as an intermediary between the international scientists and technicians and the particular national governments. While most universities in Africa have come to be nationally oriented, many of them had initial orientations toward broader regions and international concern. Our question is how university institutions can be utilized to meet an environmental crisis.

During the late colonial period the four major universities in west Africa were the University of Dakar, Fourah Bay College (Sierra Leone), University of Ghana at Legon (Accra), and the University of Ibadan in Nigeria. Each of these institutions was linked initially with a counterpart institution in Europe. Since independence most of the states in west Africa have transformed polytechnical institutions, or 6th-form colleges into embryonic universities. This process is most noticeable in the coastal states, and has occurred more rapidly in English-speaking Africa than in French-speaking Africa.

In French-speaking west Africa, the two major universities have been at Dakar and Abidjan. Within the Sahel-Sudan zone of French-speaking Africa, the University of Dakar has traditionally served the entire area, while two newer institutions have recently opened at Ouagadougou (Upper Volta), and Nojamena (Chad). Within the Sahel-Sudan zone as a whole, the two major universities have been at Dakar, and in Zaria (northern Nigeria). The growth of Ahmadu Bello University (Zaria) since its founding in October 1962 has made it one of the strongest universities in Africa. The University of Dakar has served

French-speaking west Africa for decades, and is complemented by the research facilities at the Institut Fondamental d'Afrique Noire (I.F.A.N., Dakar).

The University of Dakar has been undergoing a transformation of identity and purpose in recent years. In February 1974, an agreement between France and Senegal gave Senegal full control over all research facilities at the institutions within Senegal and provided for the gradual Senegalization of the institutions themselves. In 1974, there were 145 French professors at Dakar and 131 African professors. The announced goal of the government of Senegal is to increase Senegalese representation on the faculty to 75 percent in the near future. Dakar will clearly continue to be the major university in Francophone west Africa, and will probably move towards the creation of an indigenous cadre of scholars and scientists and technicians, who may be able to focus on ecological problems of national and regional scope. The "regionalist" history and origin of the University of Dakar provides an ethos and scope appropriate to the concerns of this report. Whether Dakar will focus more on "modern" sector/urban/industrial problems or agricultural/rural/ecological problems remains to be seen.

The other functioning university in the Francophone Sahel-Sudan region is the University of Chad at N'Djamena, founded in 1972. The university includes three courses of study: Institut des Lettres (French, English, Arabic, History and Geography), Institut des Sciences (mathematics, physics, chemistry, and biology), and the Institut des Droits (administration and economics). In fall, 1974, a new Institut d'Elevage (animal husbandry) will open. The university is designed to provide advanced education for teachers going into the secondary school system. Yet there are no specific teacher training courses. Enrollment in 1972 was 50 students, and in 1973-74

there were 150 students, for a total of 350. The forty teachers at the university during 1973-74 included thirty-six Frenchmen, two Americans, one Egyptian, and one Englishman. In 1974-75, this staff will be supplemented by four Russians and three Chadians.

In Ouagadougou, there have been research and administrative institutes, but not until April 1974, did President Lamazana issue a decree founding a National University at Ouagadougou. The university will be based on the Niger Higher Education Center, and will be administered by a rector.

There has been some explicit consideration of "regional" universities in the six state region. The idea would be to have each country build a school specialized in a particular course of study. For example, there has been such a proposal advanced by Upper Volta and Niger. One country would develop an Institut des Lettres and the other an Institut des Sciences, with equal acceptance of students. Yet this idea has never reached fruition, and each country continues to encourage students to go to national facilities, or to France. In Upper Volta, The School of Hydrology, built to serve 13 west African countries, has an optional enrollment of 40 students. As of 1973, the school had only 13 students, nearly all from Upper Volta.

It will probably be the case that advanced specialization on a regional basis will not be possible until there are some minimal university facilities in each of the six states (i.e., at least letters and sciences). At that point, the idea of regionally specialized universities or institutes may gain some political support.

A number of the west African states have national schools or institutions of administration and other research/training centers. The Council of the Entente has tried to encourage the exchange of students and teachers at such institutions and at the administrative training institute near Lome, instruction is in both English and French.

To date, however, there has been relatively little institutional linkage between Francophone and Anglophone university systems. In 1969, an Association of African Universities was established and the first meeting of African university leaders was held in Accra, in July 1972. The proceedings of this conference are published (see Yesufu, 1974), and a general theme was the need to relate universities to the needs of "the common man."

Closer working relations between individual scholars in Francophone and Anglophone west Africa has been occurring, although much of this contact is still located in the coastal cities. As mentioned above, the major university (in addition to Dakar) in the Sahel-Sudan region is Ahmadu Bello University in northern Nigeria. In the following section we will examine the existing structures of Ahmadu Bello University as they might relate to research and policy evaluation or ecologically related matters.

6.3.2 The northern Nigerian institutions: Because northern Nigeria is part of the same ecological and cultural zone, as much of the six-state area considered in this report, we would like to raise the question as to whether some regional linkage or focus might be developed in Northern Nigeria. At present there is one major university in the four northern states (Ahmadu Bello), and two universities which will be functioning within the next two years: in Kano (Abdullahi Bayero College), and Maiduguri (Polytechnical Institute).

As of 1973, the research and teaching staff of Ahmado Bello University (ABU) numbered nearly 900, and the student population was approximately 5,000. This included 470 students in the faculty of administration, 98 in the faculty of agriculture, 374 in the faculty of education, 397 in the faculty of engineering, 132 in the faculty of environment design, 284 in the faculty of medicine, 417 in the

faculty of science, 139 in the faculty of veterinary medicine, and 852 in the faculty of arts and social sciences. In addition to the faculties, there are research and training institutions of administration, education, health, and agricultural research. Three departments and/or institutions in particular are well developed and appropriate to our concern with drought related problems in the Sahel-Sudan region: the faculty of veterinary medicine, the faculty of agriculture, and the institution of administration. A doctor of veterinary of medicine degree, based on a five year curriculum program, is offered, and special concern is given to the situation of "Fulani cattle" which are a mainstay of the economy of northern Nigeria. The faculty of Agriculture offers post-graduate degrees at the M.Sc. and Ph.D. levels and important experimental agricultural stations have been established throughout the northern states. The Institution of Administration is concerned with in-service training of administrators as well as research into traditional and modern modes of institutional management. Since the drought is affecting the northern states of Nigeria (which have a larger population than the combined total of the six Sahel-Sudan states) it would seem appropriate to consider some form of task force orientation towards ecological reconstruction which could be geared to regional, rather than solely national problems.

6.3.3 Problems and prospects: Several observations may be made about the present patterns of university linkage in west Africa: 1) the coastal universities have been more concerned with basic research dealing with rain forest and woodland ecological zones than with Sahel or Sudan zones; 2) there has been relatively little contact between university systems in Francophone and Anglophone areas, although this pattern seems to be changing in a direction

parallel to increased inter-governmental cooperation in west Africa; 3) while undergraduate facilities are being developed in several of the west African states, the pattern seems to be one of consolidating graduate and research facilities in a select number of universities (at present within the Sahel-Sudan zone Dakar and Zaria are the two main centers, although the situation in Ouagadougou is not yet clear); 4) the research problems related to agriculture, environment, animal husbandry, and administration transcend national boundaries and it is an inherent capability within and between universities to deal with regional problems in a way that national ministries are often unable to achieve.

We would point out that it might be profitable to raise the question of international aid for inter-university linkage in the Sahel-Sudan region to be considered at the university, national and regional levels. In the immediate future, it is quite possible that Nigeria, which has been giving aid in various forms to its neighbors, will be able and willing to supply some of the African manpower needed to deal with the human and livestock components of the drought problem. In particular, Zaria is located within the Hausa/Fulani/Arabic language and culture zone. Many of the administrative and technical elites in northern Nigeria are Fulani-speaking. Thus, efforts related to Fulani pastoralism and human refugee patterns might well invo[illegible] personnel from northern Nigeria. An increasing number of northern Nigerian students and teachers are learning French.

7. INTERNATIONAL LEVEL: STRUCTURE AND INTERACTION

In this chapter we will focus on the international level of structure and interaction. Our purpose is to identify those aspects of the situation which would directly impinge on the issues of mobilization, national decision-making, and regional cooperation. Given the current ecological crisis in the Sahel-Sudan, our report would be incomplete if we did not consider the role of the international community in relation to these problems. We will focus briefly on international structure and process (as it effects the Sahel-Sudan), relations with France and the European Economic Community, and relations with the rest of the world.

7.1 International Structure and Process

7.1.1 National diplomatic structures: Given the high levels of interaction between the international community, the regional organizations, and the national governments of the six Sahel-Sudan states which has resulted from the drought relief effort, the question arises as in our consideration of national implementation structures: to what extent is there an indigenous national structure to accommodate increased levels of interaction? We are not in a position to evaluate the quality of organizational capabilities in the six states, but rather are concerned with the presence or absence of personnel who can interact with the regional and/or international community.

Senegal has by far the largest diplomatic structure, followed by Mali, Upper Volta, Chad, Niger and Mauritania. The diplomatic structures of all states had to be constructed in the immediate post independence period. Using crude figures for 1963, the average number of diplomats sent from each Sahel-Sudan state was 34,

ranging from 72 in Senegal, to 11 from Mauritania. In terms of diplomats received, Senegal and Mali had almost twice as many as the other four combined. This pattern is shown in Table 68.

The actual organizational structure varies from country to country. The major study of foreign policy structures in any of the six states in Skurnik (1972) who looks at Senegal. Since all international contact with the six Sahel-Sudan states must be routed through the respective ministry of foreign affairs, the example of Senegal, as a developed prototype, is useful in assessing national structure and process of linkage with the international community. The formal structure is indicated in Figure 11.

Given the relatively small-scale national diplomatic structures, the opportunities for regionalist approaches to international linkage appears to have become a serious option. The regional drought committee (CILLS) is perhaps an example of this. The joint negotiations with the European Economic Community is another. In short, some of the six states may achieve economies of scale by joint diplomatic action, even though this matter is as sensitive as any other aspect of national sovereignty.

The United Nations Institute for Training and Research (UNITAR) has been engaged in technical training of personnel working with international community. There is also a general program in the United Nations for diplomatic development. There are no specific training programs in west Africa, although there are special training institutes in Dakar, under UNITAR.

A serious question, given our concern with ecological survival and reconstruction, is the extent to which national diplomatic structures may be oriented more specifically to the "modern sector," Or whether they possess the necessary technical attitudinal components necessary to deal effectively with rural development?

Table 68

Number of Diplomats

Number of Diplomats Sent to Foreign Countries 1963

Range = 61.00 Mean = 33.67 Standard Deviation = 22.73

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	72	1
38.5	21.7	2.0	Mali	55	3
62.0	23.5	3.0	Upper Volta	33	7
77.6	15.6	4.0	Chad	16	10
94.9	17.4	5.0	Niger	15	
100.0	5.1	5.1	Mauritania	11	

Number of Foreign Diplomats Received 1963

Range = 137.00 Mean = 77.33 Standard Deviation = 48.91

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	163	1
38.5	21.7	2.0	Mali	115	4
62.0	23.5	3.0	Upper Volta	82	6
77.6	15.6	4.0	Chad	40	9
94.9	17.4	5.0	Niger	38	10
100.0	5.1	6.0	Mauritania	26	

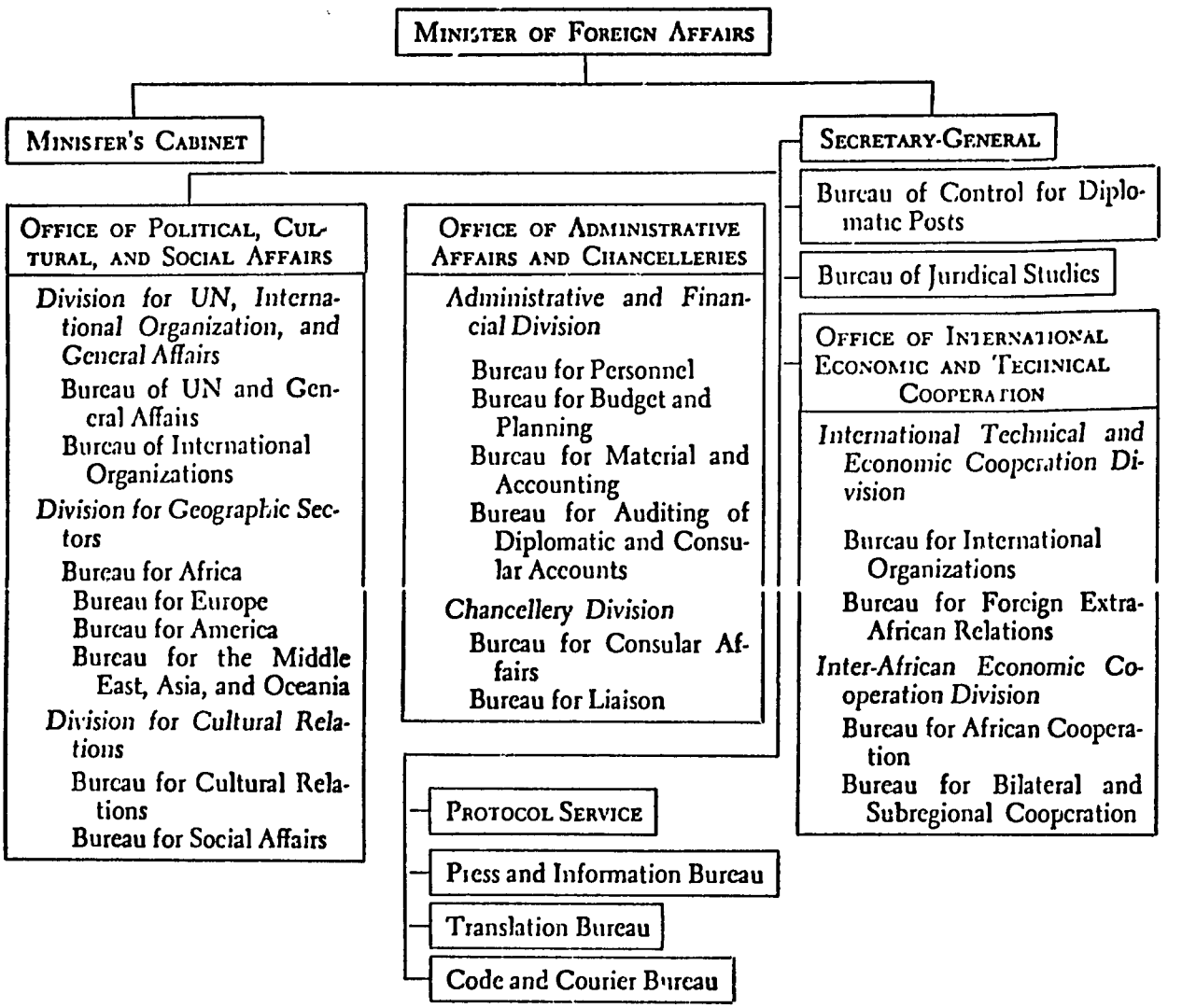


Figure 11. Foreign Ministry of Senegal, Organization in 1967.

Source: Skurnik, 1972, p. 71

We are also concerned with the "seasonal fluctuations" in the level of diplomatic interaction (perhaps as a result of crisis situations at periodic time points) and the implications this has for the creation of national diplomatic structures. If national structures are constructed to cover any possible emergency (e.g., ecological), there may be heavy costs and over-staffing in non-crisis periods.

One possible way of dealing with the problems of the technological components within the diplomatic structure, and the need for a structure which can expand and contract (depending on the situation) is the possibility of rotating civil servants from other ministries through the foreign office. Thus, officials from agriculture, livestock, economic development, communications, etc., could be rotated during normal periods, so that some interaction patterns are established which would be utilized in periods of high demand, e.g., on ecological markets. We are aware that "career structures" in most bureaucracies are more geared to vertical mobility than to horizontal mobility. We are concerned, however, that a technological component be built into the national linkage structure, and that a highly specialized division of labor between ministries may be dysfunctional to a larger problem-solving orientation. It is perhaps because of some of the inefficiencies with the implementation process under a vertical mobility system, that the military has taken power in a number of countries. There are statements often expressed by the military about the need to bring in the technological component and to "get things done."

7.1.2 Multilateral and bilateral processes: In general, the six Sahel-Sudan states work closely with the various African multilateral groups--at the United Nations, at the Organization of African Unity, at the negotiation sessions with the European Economic

Community, and with various transnational technical groups. The Economic Commission for Africa (of the United Nations) has headquarters in Addis Ababa (Ethiopia), but does not have regional offices (e.g., in west Africa). The ECA (under Robert Gardiner) has tried to gear up for the drought problem in Africa, in terms of long-range planning, but there is no direct participation in planning in west Africa. The Organization of African Unity (OAU), with headquarters in Addis Ababa (Ethiopia) has also begun to focus on drought-related problems in Africa (including Ethiopia), and has encouraged regional solutions (as distinct from purely national solutions) to such problems. The various technical agencies of the United Nations differ in their attitude toward regional offices. World Health Organization (WHO) has regional offices, while Food and Agricultural Organization (FAO) and UNESCO normally do not have regional offices.

In general, the United Nations agencies have encouraged a regionalist approach to planning and implementation. Thus, for example, in March 1974, the World Bank announced a fund for a twenty year campaign against river blindness. African governments participating include Dahomey, Ghana, Ivory Coast, Mali, Niger, Togo and Upper Volta. The project will be administered by WHO, working with FAO, UNDP and World Bank. There have also been a number of international and regionalist science and technology organizations in west Africa. These include the west African Science Association (WASA) (Association Scientifique de l'ouest Africain) and the Conference on Applied Science and Technology in Africa (CASTA) which was held in February, 1974 in Dakar. (A second CASTA meeting is scheduled for 1980.) Climatic conditions and water supplies were important CASTA agenda items. CASTA and WASA have close institutional linkages with UNESCO, the ECA, and OAU.

Our purpose is not to review the entire range of multilateral organizations working in the six Sahel-Sudan states, but to indicate that the multilateral/regionalist approach is very central to the international linkage structure of these states.

On the bilateral side, the pattern has been one of interaction at the highest political level, at least throughout the 1960's, when the regular diplomatic structures were not as developed. Thus, bilateral meetings between heads of state, were, and are, a common process of breaking through the bureaucratic bottlenecks in order to achieve new types of interstate interaction. Given the single party structure or the military structure in most states, and the centralization of foreign policy decision making in the hands of a few people, it is not surprising that this mode of interaction has emerged. Given the patterns of national political instability in several of the states, however, it is not clear whether personal diplomacy at the summit level will be cumulative in its effects, or merely temporal. The best recent example of this is Niger, where the former president (Diori) became personally involved in many of the bilateral (and multilateral) visits and negotiations between states.

The bilateral process of visits, meetings and conferences at the highest level, does make international linkage highly visible, and the pattern of bilateral relations highly visible. For sample periods in the 1960's, we have coded such visits, as a measure of bilateral interactions between African states. The general process seemed to decrease since independence, perhaps as heads of state become more involved in their own domestic situations, and the general process of post-independence relationships came to be established. The patterns for the 1960's are shown in Table 69.

In addition to commissions and normal bilateral relations, a

Table 69

Bilateral Political Interactions: 1962-68

Sahel States with all other African States

(meetings, visits, conferences, at highest level)
(recorded in Africa Diary)

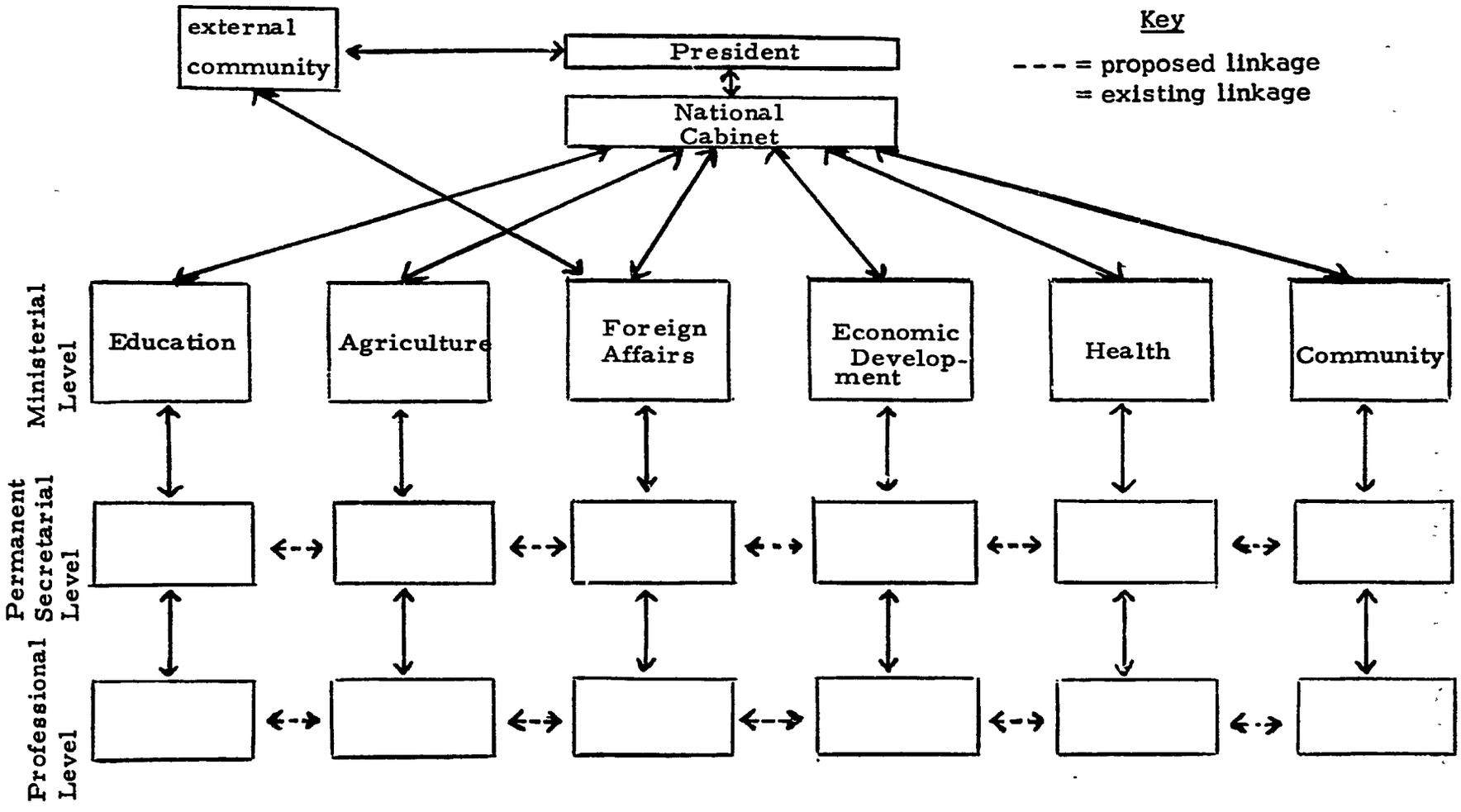
Sahel-Sudan States	1962	1965	1968	row totals	
Chad	--	Ghana (m,m,) C.A.R. (v)	Algeria (m)	3 4	countries c,v,m
Mali	Mauritania (c) Ghana (c) Ivory Coast (v,v,) Dahemey (v) Senegal (v)	U.A.R. (v) Ivory Coast (v) Zaire (m)	Ghana (m) Ghinea (m,v,v,)	10 13	countries c,v,m
Mauritania	Morocco (other) Mali (m) Ghana (v)	--	--	3 3	countries c,v,m
Niger	Mali (v)	Ghana (m) Ivory Coast (m)	--	3 3	countries c,v,m
Senegal	Mali (m,m,m,) Gambia (v) Guinea (c)	Gambia (v,c,)	Gambia (v)	5 8	countries c,v,m
Upper Volta	Niger (c)	Tanzania (m) Ghana (m)	Ghana (v,v,v,c)	4 7	countries c,v,m
column totals	14 countries; 16,c,v,m,	10 countries; 12,c,v,m,	5 countries; 10,c,v,m,		

number of states have entered into cultural and technological cooperation agreements. Such agreements have been signed between Niger and Chad. Morocco and Mauritania signed trade and commerce agreements in April 1974. Ivory Coast and Mauritania signed trade and cooperation agreements in April 1974 (affecting businessmen and fishermen). Upper Volta and Ghana (depending on regime turnover) have close working relationships on livestock and meat.

7.1.3 Problems and prospects: The question of "effective utilization" of external aid, may be partly related to the issue of internal structure and process within the national ministries. We are not in a position to assess the current patterns, and this is clearly a matter which should be done internally within each country. We are identifying the issue as important. The question of horizontal mobility and rotation has been raised. A prototype for this pattern is indicated in Figure 12.

We also note that the process of summit diplomacy (both with regard to bilateral and multilateral relations) is probably essential in the initial period of establishing new sets of relations between states, given the decision-making process within each of the national structures. A follow through effort by trained civil servants is then essential, and this is perhaps one reason why some proposals have never been implemented. We are not recommending the creation of an elaborate superstructure of civil servants. We are raising the question as to how a state or states can achieve a "task force" orientation toward problems, such as ecological survival and reconstruction, by gearing the civil service (including foreign service) in a more problem oriented interdisciplinary manner.

We will examine selected patterns of international interaction in more detail below.



Horizontal Mobility Option:

1) Task force orientation (interdisciplinary).
2) Expansion and Contraction of Capabilities of foreign ministry.
3) Lateral rotation and mobility at permanent Secretarial and Professional level.

Figure 12. Prototype of National Diplomatic Structure.

7.2 Relations with France and Europe

In this section we will deal with the post-independence period interstate relations between France and the Sahel-Sudan states and then relations with the European Economic Community.

7.2.1 Relations with France: Although the French colonial legacy is important, we are more concerned to interpret recent patterns and prospects, rather than to review the history with the six states. There are two works which deal with the background in some detail: de Lusignan (1969) and Corbett (1972). We will try to summarize patterns in four areas: French residents in the Sahel-Sudan region; aid and cooperation; mutual defense agreements; and monetary systems and trade. Since the topic of monetary policy is being dealt with in the economics volume of this FINAL REPORT, we will not consider it here, except to note certain political implications.

--French residents in the Sahel-Sudan: There has always been a large number of French residents in Senegal, but very few in the other five states. At the time of independence in 1960, Senegal had the second largest percentage of European residents per capita in all of black Africa (after Zambia). (Considering the east African settlers, this was a remarkable situation.) The following table illustrates this point.

Percent European Population	1920's	Rank*	1960's	Rank
Senegal	.36	3	2.00	2
Mali	.06	21	.17	18
Mauritania	.04	23	.21	15
Chad	.03	25	.10	25
Niger	.02	27	.09	27
Upper Volta	.02	27	.09	27
Average for 32 African states:	.14		.45	

* of 32 African countries

Source: Morrison et al. (1972) p. 14.

At the time of independence in 1960, there were about 40,000 French residents in Dakar alone. The socio-economic consequences of this group has been studied in detail by Rita Cruise O'Brien (1972). Until the Senegalese-French convention of spring 1974, French citizens in Senegal had the same privileges as Senegalese. By spring 1974, the number of French in Dakar dropped to about 20,000, half of the 1960 figure. As will be mentioned below, in spring 1974, agreements were signed to reduce significantly the number of French military and technical personnel in Senegal.

--Aid and cooperation: At the time of independence, France signed aid and cooperation agreements with each of the six Sahel states. In most cases, these agreements have been supplemented with specific agreements on particular topics (e.g., the Franco-Senegalese Committee for Higher Education). With the exception of Mali and Upper Volta, the four remaining Sahel states agreed to a clause in the original independence agreements which gave the French prior rights to exploit oil, uranium, and rare earth deposits, and to block exports of these materials to third countries in the case that France needed them for Defense. While the implementation of this agreement has not always been exact, the Mauritania has revised some of the agreements, it is indicative of the extent to which the Sahel-Sudan states were legally committed to the French. The total quantities of international economic aid, including France, will be dealt with in the Economics volume, but the French contribution is about half of all aid in most states. There is some disagreement as to the total amount of French aid, due to the complexities of the monetary system. (Thus, for example, in February 1974, the Secretary General for Afro-Malagasy Affairs, M. Jacques Foccart, met with the Inter-state Drought committee, and "corrected" the

Carnegie Foundation estimate of French aid related to the drought which was given as $7 million, to a figure of $40 million.) The point is that there is considerable discrepancy in accounting systems related to aid. For a baseline estimate of aid, see Table 70.

After the French elections in spring, 1974, the new Cooperation Minister, M. Pierre Abelin announced that the French government would rethink its policies toward Africa, and three study groups were set up. Also, a balance sheet was being prepared of all aid since 1960. The Cooperation Ministry includes the functions of the former Secretary General for African and Malagasy Affairs (i.e., M. Jacques Foccart); Abelin announced (in June, 1974) that French aid would be on a bilateral basis, and would include Arab states and Anglophonic Africa, but that the Francophone states would continue to have a privileged position.

In the field of cultural-educational-linguistic affairs, there are a number of specific bilateral treaties between France and the Sahel states. In spring, 1974 a new agreement was drawn up with Senegal on matters of scientific research. All research institutes in Senegal were turned over to the Senegalese and agreements were made for the development of the University of Dakar.

--Mutual defense: Agreements have existed between France and the Sahel-Sudan states regarding defense, including training, equipment and in two cases (Senegal and Chad), the maintenance of military bases. In the case of Chad, the defense treaty was invoked in 1968 with regard to the rebellion of the Chad National Liberation Front, and in fall of 1969, approximately 2,500 French Foreign Legion troops were sent to assist the government. Because of a change of Chad government policy on this matter, French troops are no longer officially fighting in Chad. (For details, see Corbett, 1972.)

Table 70

Aid from Ex-Metropole

Aid From Ex-Metropole Per/Capital U.S. $ 1963

Range = 11.54 Mean = 5.46 Standard Deviation = 4.15

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	12	1
21.9	5.1	2.0	Mauritania	9	4
39.2	17.4	3.0	Niger	3	9
54.8	15.6	4.0	Chad	3	
78.3	23.5	5.0	Upper Volta	2	10
100.0	21.7	6.0	Mali	1	

Aid From Ex-Metropole Per/Capital U.S. $ 1967, $ Times Ten

Range = 6.80 Mean = 4.45 Standard Deviation = 2.52

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	8.5	1
21.9	5.1	2.0	Mauritania	7.3	3
39.2	17.4	3.0	Niger	3.4	8
54.8	15.6	4.0	Chad	3.1	
78.3	23.5	5.0	Upper Volta	2.7	9
100.0	21.7	6.0	Mali	1.7	10

With regard to Senegal, in April 1974, a new agreement was signed which replaced the agreement of 1960. France agreed to hand over all military bases in Senegal, and withdraw half of her troops. The bases were handed over in May , 1974, and the withdrawal of 950 of the 2,250 troops is to be completed by April 1975. In addition, France agreed to withdraw approximately 1,000 technical assistants associated with the military assistance program.

In short, the original defense agreements which were signed at independence have been modified in reality, and the French military presence in the Sahel-Sudan states seems to be diminishing. What would happen, if a political crisis arose (e.g., in the Presidential elections in Senegal 1977), is difficult to predict. In Table 71, de Lusignan summarizes the military agreements as of 1967.

--Monetary and trade system: The details of the monetary agreements are presented in the economic volume. In short, the monetary system of the Sahel-Sudan states (except for Mauritania and to a lesser extent Mali) is coordinated in Paris. Adjustments to this arrangement have taken place during the spring of 1974. (See section on West African Monetary Union.) Trade patterns between France and the Sahel-Sudan have been high for the past fifty years but with significant variations between countries (see Table 72).

--Problems and prospects: The socio-economic model inherited from the colonial period and continuing into the present has been one of general economic extroversion. However, the relations between France and the Sahel-Sudan states, may be undergoing a transformation (the recent change of government in France would seem to confirm this trend in west Africa). As will be discussed below, France has interacted with the Sahel-Sudan states through the European Economic Community in an important way, and these

Table 71

TABLE French Military Agreements with Sahel-Sudan States (1967)

Country	Total armed forces	Defence estimates (million CFA francs)	Total budget *1965* (million CFA francs)	Remarks /Agreements
Chad	900	1,426	10,500	Bilateral defence agreement with France. Small French base in Fort Lamy.
Mauritania	1,000	1,000	5,581	Bilateral and technical assistance agreement with France.
Mali	3,500	2,175 (Mali francs)	10,025 (Mali francs)	All French troops left Mali in 1961; there is no defence treaty with France. Military equipment received from Soviet Union and Eastern Europe (before 1968 coup).
Niger	1,200	900	8,386	Bilateral defence agreement with France and regional defence agreement with France, Dahomey and Ivory Coast.
Senegal	5,500	5,200	45,948	Bilateral defence treaty with France. Centre of a 'zone d'outre-mer'.
Upper Volta	1,500	700	4,974	No defence treaty with France nor any French bases. Only technical co-operation agreement which provides for French military assistance.

Source: de Lusignan, 1969

Table 72

Trade with Metropole

Trade With Metropole As Percent of Total Trade 1968

Range = 50.00 Mean = 45.67 Standard Deviation = 17.70

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	77	1
34.2	17.4	2.0	Niger	56	5
49.8	15.6	3.0	Chad	51	6
73.2	23.5	4.0	Upper Volta	34	9
78.3	5.1	5.0	Mauritania	29	10
100.0	21.7	6.0	Mali	27	

Trade With Metropole As Percent of Total Trade 1962

Range = 59.00 Mean = 51.50 Standard Deviation = 18.41

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	74	1
32.4	15.6	2.0	Chad	64	2
37.5	5.1	3.0	Mauritania	55	4
54.8	17.4	4.0	Niger	54	
78.3	23.5	5.0	Upper Volta	47	5
100.0	21.7	6.0	Mali	15	10

Per Cent Export Trade With Metropole, 1955

Range = 79.00 Mean = 63.33 Standard Deviation = 27.41

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
17.4	17.4	1.0	Niger	85	1
39.1	21.7	2.0	Mali	81	
55.9	16.8	3.0	Senegal	80	
71.5	15.6	4.0	Chad	73	2
76.5	5.1	5.0	Mauritania	55	4
100.0	23.5	6.0	Upper Volta	6	10

Table 72 (cont.)

Percent Import Trade With Metropole 1925

Range = 59.00 Mean = 43.00 Standard Deviation = 20.68

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
5.1	5.1	1.5	Mauritania	62	1
22.4	17.4	1.5	Niger	62	
44.1	21.7	3.0	Mali	51	2
60.9	16.8	4.0	Senegal	49	3
76.5	15.6	5.0	Chad	31	6
100.0	23.5	6.0	Upper Volta	3	10

Percent Export Trade With Metropole C. 1925

Range = 74.00 Mean = 37.67 Standard Deviation = 27.40

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	74	1
38.5	21.7	2.0	Mali	59	3
43.6	5.1	3.5	Mauritania	45	4
60.9	17.4	3.5	Niger	45	
76.5	15.6	5.0	Chad	3	10
100.0	23.5	6.0	Upper Volta	0	

relations are currently being redefined. Since independence, Mauritania has moved closer to some of the Arab states, and has dropped out of the franc zone. Chad currently seems to be balancing its dependence on France by increasing relations with her neighbors (Libya, Cameroon, and Nigeria). From 1960-68, relations between France and Mali were strained (Mali was out of the franc zone) and about 1/3 of Malian trade was with China. Under the military regime (since 1968) relations have been "correct."

The cornerstone of French policy is west Africa seems to be centered around Ivory Coast. Because of the traditional rivalry between Senegal and Ivory Coast (as the two strong Francophone states) Senegal seems more willing to explore new forms of relationships outside of the Francophone zone (including relations with Gambia, because of the unique geographic contiguity). Because of the internal politics of Francophone west Africa (e.g., relations between particular factions in Upper Volta with Ivory Coast leaders) the inland states have varied in their relations with Ivory Coast and France. It will not be part of this analysis to look at the relations between Senegal, Ivory Coast, and Nigeria, but these strong economic growth centers are clearly tied into international relations. In particular, it remains to be seen whether Ivory Coast (which did not support the Nigerian government during the civil war), can move toward closer cooperation with Nigeria. This, in turn, depends in large measure on the relationship of west Africa to the European Economic Community. Since French-Nigerian relations have improved considerably since the civil war (1967-70), it is highly possible that west Africa will work toward closer interstate cooperation, cutting across Anglophone/Francophone lines, and that this will eventually "normalize" bilateral relations between the six Sahel-Sudan states and France.

This pattern of "normalization" already seems to be taking place, within France, and within Africa.

7.2.2 Relations with the European Economic Community: The Yaounde convention expires on February 1, 1975. (This convention regulates the relations of the "associated" states to The EEC.) Negotiations between the forty-three African, Caribbean, and Pacific (ACP) states, and the nine members of the European Economic Community (EEC) including Britain, began in Brussels on October 17, 1973 with the first major negotiating session November 21-December 14, 1973, and the second negotiating session beginning January 14, 1974. In June, 1974, ministers from the ACP states met in Dakar to coordinate positions, and a meeting was scheduled for July 26, 1974 in Jamaica. In this section we will examine the participants and issues in the negotiations, look at African inter-state cooperation and look at the impact on the Sahel-Sudan states.

--Participants and issues: All six Sahel states have been members of the Yaounde Convention, which is comprised of 19 states in all, including several other Francophone west African states (Ivory Coast, Togo, Dahomey, Cameroon). With the entry of Britain into the Common Market, and the expiration of the Yaounde convention, the question arose as to the relation of African states--both Anglophone and Francophone--to the European countries. Thus, the nine African commonwealth countries (including, in west Africa, Nigeria, Ghana, Sierra Leone, and Gambia) and four other African states (including Guinea and Liberia) have been among the African states negotiating with Europe.

The issues have been mainly trade and aid. With regard to trade, the African states have insisted on free access of agricultural products into Europe, and the removal of non-tariff barriers to trade

(including rules-of-origin agreements). There has been some effort to discuss compensatory finance to ACP countries, in cases where prices fluctuate. With regard to aid, the ACP countries have been concerned with the scope of aid, the programming of aid, and the need for recipient participation in management and administration of aid.

Because of the political turnover in Britain and France (and Italy, Germany) during spring 1974, the negotiations have been at a standstill as of August 1974, and the resolution of particular issues remains to be decided. Of more importance to our analysis, however, has been the impact of the negotiations on the cooperation between Anglophonic and Francophonic Africans.

--Inter-African Cooperation: Because of the nature of the issues discussed (mainly trade and aid), the potential for factionalism within the ACP group is high, but does not seem to have materialized. To the contrary, the African group has solidified its position on virtually every question. (With some minor exceptions, such as Senegal's favoring of reverse preferences in some cases.)

Since the north African states are negotiating separately with the EEC, the Organization of African states has not been involved officially with the negotiations. The spokesman for the ACP states has been Olu Sani, the Nigerian Ambassador in Brussels. A Committee of African Ambassadors has been set up in Brussels and has held meetings in Addis Ababa. The second African Ministers meeting was also held in Addis in February 1974. There have been working groups of technical and political representatives of the African states.

The impact of this cooperation has had two major effects, which are interrelated. The first has been to diminish the barrier between Francophone and Anglophone Africans. According to Mr. George

Thomson, one of the two British Common Market Commissioners, the Brussels negotiations between the EEC and Africans have "done more to break down the barriers between English and French speaking Africans than anything in the last decade" (West Africa, May 6, 1974, p. 519). The second effect is more specific: Nigeria and Togo took the initiative in reviving the idea of the West African Economic Community, as a "supplement" to the EEC relationships. The meeting on the 12 west African states in February (in Accra) has been described in the chapter on regionalism. Additional meetings were scheduled in Niamey and Lagos to consider and sign the treaty. In our conclusion we will consider whether the extent to which the possible consequences for institutional cooperation depends on the outcomes of the EEC negotiations, and the WAEC negotiations.

--Impact on the Sahel states: Whatever the final outcome of the EEC negotiations in Brussels--and there do not seem to be major issues separating the EEC from the ACP groups (the question of total amounts of aid, and a few restrictions on certain agricultural items)--the idea of a combined English-speaking, French-speaking African group in relationship to Europe (including Britain) has already made its impact. The important role of Nigeria in the negotiations has also been recognized by the African states. Nigeria seems to be proceeding cautiously on matters of cooperation with west African states, but Nigeria's impact on the region is increasing at a rate which defies linear projection, and is probably exponential. (Thus, for example, the oil revenues in Nigeria for 1973 were approximately $7 billion, making Nigeria the sixth largest producer of oil in the world.) This situation has emerged dramatically since the end of the Nigerian civil war (1970) and perhaps the EEC negotiations have made Nigerian strength more visible.

A number of leaders from the Sahel-Sudan states have expressed themselves during the spring of 1974, as supporting the idea of institutional structures in west Africa which could relate to problems of trade and aid. The EEC negotiations in Brussels have provided a stage and an important stimulus for such a formation.

7.2.3 Problems and prospects: The redefinition of west African relations with Europe appears to be at a threshold stage, because of the EEC negotiations which include both the British and French. The impact of these negotiations have been closer Francophone/Anglophone cooperation within west Africa. The impact on the relations with France seems to be the encouragement of "normalization of relations with west Africa."

Thus, there is a clear option, perhaps for the first time in west Africa, for the European states not to retain exclusivity of bilateral relations with African states, and for the African states to move toward greater diversity of external linkages, and exchange of trade, capital, and manpower.

There is also a clear option, perhaps for the first time, that the west African states will cooperate across European language zones.

We are not in a position to evaluate the options associated with the specific agenda items of the EEC negotiations, except to note the opportunity for greater African involvement in the planning administration and aid programs. This makes the question of an "ecological" approach to aid all the more crucial.

7.3 Relations with Other States

In this section, we will examine the relations between the Sahel-Sudan states and other states in the international community,

excluding Europe (which has been mentioned earlier) and other African states (since this has been discussed to some extent in the section on regionalism). Also, we are not in a position to assess relations with the north African/middle eastern states. We will look at relations of the United States and the Sahel-Sudan states, and DAC/Eastern block relations. We will assess the impact of the drought on international relations and try to summarize problems and prospects.

7.3.1 Relations with the United States: Relations between the Sahel-Sudan states and the United States in the area of trade have been minimal, and throughout the 1960's did not exceed 5% of total trade for any Sahel-Sudan state.

The U.S. aid program in the six Sahel states during the 1960's was also minimal. U.S. aid to the entire Sahel-Sudan region accounted for only 3% of all U.S. aid to black Africa (1968), and of this amount Senegal received about half. The total amount of U.S. aid through 1968 ranged from $32 million to Senegal, to $3 million for Mauritania. In short, until the drought, the extent of U.S. aid to the area was minimal. These patterns are shown in Tables 73, 74, 75 and 76.

7.3.2 Other aid patterns: Eastern bloc aid to the area has been minimal in two of the countries (Senegal, and Mali) and non-existent, until recently, in the remaining four. (See Table 77).

The development Assistance Committee (DAC), including the U.S., Canada, Japan, Australia, and most Western European countries, have also given some aid, averaging 6¢ per year per capita during the late 1960's (see Table 78). The exact details of DAC assistance programs for the period 1961-71 is available in OECD, Flow of Resources to Developing Countries, (1974). (Appendix Seven gives figures for 1972.) In general, the 1972 figures register a decline.

Table 73

U.S. Aid to Africa

Total U.S. Aid to Africa Through 1968 in Millions U.S. $

Range = 29.00 Mean = 14.67 Standard Deviation = 9.25

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	32	1
38.5	21.7	2.0	Mali	19	5
55.9	17.4	3.0	Niger	15	6
79.3	23.5	4.0	Upper Volta	11	8
94.9	15.6	5.0	Chad	8	9
100.0	5.1	6.0	Mauritania	3	10

U.S. Aid in 1968 in Hundred Thousands U.S. $

Range = 36.00 Mean = 13.83 Standard Deviation = 12.17

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	36	1
34.2	17.4	2.0	Niger	21	5
57.6	23.5	3.0	Upper Volta	14	7
73.2	15.6	4.0	Chad	10	8
94.9	21.7	5.0	Mali	2	10
100.0	5.1	6.0	Mauritania	0	

Table 74
Trade with U.S.

Trade With U.S. as Per Cent of Total Trade, 1968

Range = 5.00 Mean = 3.33 Standard Deviation = 1.70

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
15.6	15.6	1.5	Chad	5	1
20.7	5.1	1.5	Mauritania	5	
38.0	17.4	3.0	Niger	4	2
54.8	16.8	4.5	Senegal	3	4
78.3	23.5	4.5	Upper Volta	3	5
100.0	21.7	6.0	Mali	0	10

Trade With U.S. as Per Cent of Total Trade, 1962

Range = 5.00 Mean = 3.00 Standard Deviation = 1.53

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
5.1	5.1	1.0	Mauritania	6	1
20.7	15.6	3.0	Chad	3	6
38.0	17.4	3.0	Niger	3	7
61.5	23.5	3.0	Upper Volta	3	
78.3	16.8	5.0	Senegal	2	8
100.0	21.7	6.0	Mali	1	10

Table 75

U.S. Aid Per Capita

U.S. Aid Per/Capita in U.S. $, 1968

Range = .92 Mean = .34 Standard Deviation = .31

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	0	1
34.2	17.4	2.0	Niger	0	5
49.8	15.6	3.0	Chad	0	7
73.2	23.5	4.0	Upper Volta	0	8
94.9	21.7	5.0	Mali	0	10
100.0	5.1	6.0	Mauritania	0	

U.S. Aid Per/Capita In U.S. $, 1962 x 100

Range = .93 Mean = .37 Standard Deviation = .32

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	.93	1
38.5	21.7	2.0	Mali	.59	4
55.9	17.4	3.0	Niger	.40	6
79.3	23.5	4.0	Upper Volta	.20	8
94.9	15.6	5.0	Chad	.10	9
100.0	5.1	6.0	Mauritania	0.00	10

Percent Change in U.S. Aid Per/Capita 1962-1968

Range = 193.00 Mean = .83 Standard Deviation = 66.00

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
5.1	5.1	1.0	Mauritania	100	1
22.4	17.4	2.5	Niger	35	4
45.9	23.5	2.5	Upper Volta	35	
62.7	16.8	4.0	Senegal	-1	6
78.3	15.6	5.0	Chad	-71	9
100.0	21.7	6.0	Mali	-93	

Table 76

U.S. Aid as Per Cent of Aid for 32 African Countries

U.S. Aid As Per Cent of Aid For 32 African Countries, 1968

Range = 1.30 Mean = .49 Standard Deviation = .44

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	1.30	1
34.2	17.4	2.0	Niger	0.70	5
57.6	23.5	3.0	Upper Volta	0.50	7
73.2	15.6	4.0	Chad	0.35	8
94.9	21.7	5.0	Mali	0.07	10
100.0	5.1	6.0	Mauritania	0.00	

U.S. Aid as Per Cent of Aid for 32 African Countries, 1961

Range = 2.00 Mean = .95 Standard Deviation = .70

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
16.8	16.8	1.0	Senegal	2	1
38.5	21.7	2.0	Mali	1	3
55.9	17.4	3.5	Niger	1	5
79.3	23.5	3.5	Upper Volta	1	
94.9	15.6	5.0	Chad	0	10
100.0	5.1	6.0	Mauritania	0	

U.S. Aid As Per Cent of Aid for 32 African Countries, 1964

Range = 2.00 Mean = 1.02 Standard Deviation = .76

Population Percent		Rank	Country Name	Value	Range Decile
Cumulative	Country				
21.7	21.7	1.0	Mali	2.20	1
39.1	17.4	2.0	Niger	1.60	3
55.9	16.8	3.0	Senegal	1.40	4
71.5	15.6	4.0	Chad	0.50	9
76.5	5.1	5.0	Mauritania	0.20	10
100.0	23.5	6.0	Upper Volta	0.20	

Table 77

Total Eastern Bloc Aid 1958-65 In Millions U.S. $

Range = 7.00 Mean = 1.50 Standard Deviation = 2.57

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	7	1
38.5	21.7	2.0	Mali	2	8
54.1	15.6	3.0	Chad	0	10
59.2	5.1	4.0	Mauritania	0	
76.5	17.4	5.0	Niger	0	
100.0	23.5	6.0	Upper Volta	0	

Table 78

Net Aid From DAC Nations Per/Capital in U.S. Cents Average Annual 67-69

Range = 8.00 Mean = 6.12 Standard Deviation = 2.73

Population Percent Cumulative	Population Percent Country	Rank	Country Name	Value	Range Decile
16.8	16.8	1.0	Senegal	11	1
21.9	5.1	2.0	Mauritania	7	6
39.2	17.4	3.0	Niger	5	7
54.8	15.6	4.0	Chad	5	8
78.3	23.5	5.0	Upper Volta	3	10
100.0	21.7	6.0	Mali	3	

7.3.3 International drought relief aid: While it is premature to do a statistical analysis of drought aid patterns, it is clear that the earlier pattern of "neglect" has been replaced by a concerted effort to deal with drought related problems. The details of this are presented in the volume on economics. U.S. involvement in Sahelian drought relief began in 1968, when Mali, Senegal and Niger asked for emergency food. By the beginning of 1974, total U.S. drought contributions were approaching $100,000,000.

The U.S. is a part of an international effort to assist the Sahel-Sudan states and overall drought aid covers many types of assistance ranging from money, equipment, personnel, produce, services to outright allocations of food. Major assistance includes food, cash, and a variety of aid in kind. Total help from the international community through early 1974 amounted to nearly $135,000,000, as indicated in Table 79.

The question remains as to whether there will be continued high levels of international involvement when the drought subsides. If our climatic analysis is correct, and the drought is cyclical, the question of ecological rehabilitation after the drought may be the crucial one. Whether the international aid community will be able to continue the drought period levels of aid during the "rehabilitation" period is not within our province to project. The hypothetical possibilities, in terms of magnitudes and directions (not exact amounts) are shown in Figure 13. If the "diversification" of external relations continues, the international community may remain involved, rather than assume the Sahel-Sudan region is a "French responsibility." Whether aid levels will return to "normal" (i.e., low) levels, or whether they can be engaged in productive reconstruction remains to be seen.

Table 79

SAHEL DROUGHT ASSISTANCE
Total International Contributions

I. **Major Food Contributions**

United States	256,000 tons cereals	$37,000,000 1/
European Economic Community	111,000 tons cereals	11,100,000 2/
France	70,000 tons cereals	7,000,000 2/
Canada	26,000 tons cereals	2,600,000 2/
Germany	32,000 tons cereals	3,200,000 2/
China	50,000 tons cereals	5,000,000 2/
Russia	10,000 tons cereals	1,000,000 2/
Other Concessional Imports	70,000 tons cereals	7,000,000 2/
Estimated Value of Miscellaneous Contributions of speciality foods by various bilateral and international donors-dried milk, CSM, etc.		2,500,000
Total Food Contributions		$76,400,000

1/ Value of food plus ocean freight plus inland transport.
2/ Estimated Market Value.

II. **Major Cash Contributions for Disaster Relief Purposes**

European Economic Community	$22,000,000
Nigeria	3,750,000
Zaire	110,000
United Nations (Sahel Zone Trust Fund)	8,290,000
United States	4,400,000 */
Total Cash Contributions	$38,550,000

*/ Excludes $300,000 U.S. Contribution to Sahel Trust Fund.

III. **Various Contributions in Kind**

Belgium - Airlift and financing of ground transport
Canada - Airlift and well drilling programs
France - Airlift and support of country budgets
Federal Republic of Germany - Airlift and ground transport
Spain - Airlift and ground transport
United Kingdom - Airlift
USSR - Airlift
Other - South Korea, Taiwan, USSR and several other countries have made grants up to $50,000 each to Upper Volta

Estimated Total Contributions in Kind	$20,000,000
TOTAL	$134,950,000

Source: Sheets and Morris (1974), p. 129

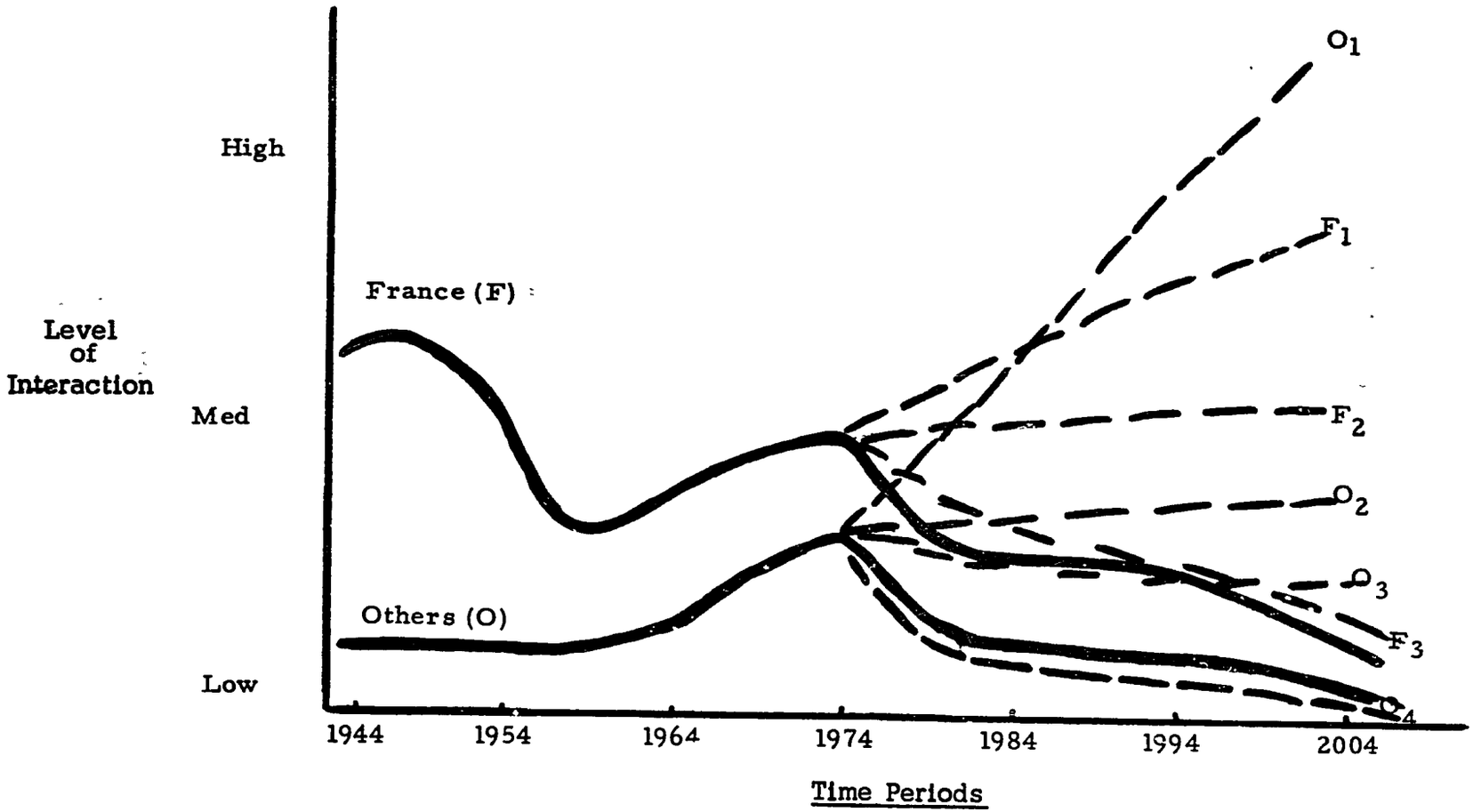


Figure 13. International aid: hypothesized directions, depending on donor decisions.

7.3.4 Problems and prospects: The Sahel-Sudan states, with the exception of Senegal, have had extremely low levels of international interaction, apart from their relationships with France. The recent drought, and the EEC negotiations, have had the effect of encouraging diversification of international relations. At the same time, the diplomatic structure (apart from the political and technical structures) has been unable to accommodate the recent acceleration of dyadic relations. The question as to whether diplomatic linkage will be developed in each state will be coordinated through the interstate drought committee (CILLS) or through some form of West African Economic Community, remains to be seen.

If it is handled on a state by state basis, there will be a costly redundancy of structures, and perhaps an inappropriate use of aid funds. If aid is coordinated through the interstate structure, it can be rationalized more, but it is not clear that the interstate structure has been developed to the point where African national interests are fully integrated. In the long term, parallel structures will probably emerge between regional and national structures, but will depend on political coordination. The need for bilingual coordinators (English/French) is very clear from the present situation.

Over time, the states will probably diversify international relations, but if their economic destinies are to be linked to the coastal African states, it is likely that their political destinies will be as well. While this is clearly an internal matter, the consequences will affect the definition and the solution of the ecological problems.

At the same time, the history of relations concerning the international community in general indicates that aid programs have always been subject to diverse, competing, and sometimes conflicting objectives. In general, the motivational component of national self-interest has played a major role. Thus, many assistance monies

have not been spent to the best advantages of recipient countries.

A reorientation of assistance attitudes and ideologies within the international community toward greater emphasis on humanitarian objectives would require changes in the institutional structure of aid programs, their magnitude, and content. Assistance programs should be thoroughly reassessed and restructured within a framework geared toward international cooperation.

Clearly, there is room for policy decisions on the part of donor countries in regard to the Sahel-Sudan which would greatly facilitate international interaction and more appropriate uses of funds. The question of "effective utilization" of external aid is not confined to the issue of internal structure and process within the national ministries. It is also significantly related to the issue of internal structure and process within the international assistance organizations. The need for cooperation, and new institutions, attitudes and policies in international assistance efforts is clearly demonstrated in the work of Sheets and Morris, "Disaster in the Desert: Failures of International Relief in the West African Drought" (1974). (For one of the most comprehensive and systematic treatments of the issues of international assistance and development, see Gunnar Myrdal, The Challenge of World Poverty (1970).

8. DECISION-MAKING, IMPLEMENTATION AND INTERACTION: ANALYSIS/SUMMARY

In this chapter we will try to analyze and summarize the various patterns of decision-making, implementation, and interaction discussed in Part II of this volume (i.e., chapters 3-7). First, we will summarize the dimensionality of variables, look at variations between the six countries, and examine the conceptual and statistical relationship between dimensions. Second, we will look at regional interactions, and especially the question as to whether demographic, cultural, or national characteristics are statistically important in explaining different types of regional linkage. Finally, we will assess in a more conceptual way the problem of inter-level linkage and the possibilities for vertical linkage, including national-local, and national-regional-international linkage.

8.1 National Decision-Making and Implementation

8.1.1 Summary of dimensionality: We have looked at the structures of decision-making, including regime types, and decision-making procedures. The question of decision-making continuity is also relevant, given the history of regime turnover, but we are in no position to project these patterns into the future. With regard to participation in decision-making we have looked at electoral representational and conflict variables. On the implementation side, we have looked at budget data, military structures, educational structures, language patterns, communications media, and connectivity.

The central tendencies on each of these dimensions is summarized in Table 80 and Table 81.

Table 80

Summary Measures for Decision-Making Variables

Dimension	Identifier	Variable	Mean	Standard Deviation	Range
1. Electoral Base					
	PEVORU	Pct. Vote Cast for New Ruling Party in Election Prior to Independence	77.33	12.49	40.00
	NOVOIE	No. of Voters in Election Prior to Independence as Pct. of Population	22.83	8.29	26.00
	NOVOIR	No. Votes for New Ruling Party (First Election) as Pct. of Total Vote	98.67	1.70	5.00
	NOVOIE	No. Voters Voting in First Election After Independence as Pct. of Population	48.67	8.26	25.00
2. Representational Base					
	COMWGT	Weighted Communal Instability	4.17	6.12	17.00

Table 81

Summary Measures for Implementation Variables

Dimension	Identifier	Variable	Mean	Standard Deviation	Range
1. Budget Scope					
	GOEP68	Govt. Expenditures in 1968 in millions of US $	65.50	60.65	174.00
	GOSP68	Govt. Spending in 1968 as Pct. of GNP	16.17	4.67	13.00
	GOEX68	Govt. Spending per Capita in 1968 in US $	19.00	15.33	45.00
	GOSP38	Ratio of Gov't. Spending to GNP, Rate of Growth, 1963-1968	1.00	35.69	108.00
	GREV35	Govt. Revenue--Rate of Growth 1963-1965	6.00	15.78	43.00
	GOSP35	Govt. Spending--Rate of Growth 1963-1965	2.33	22.43	66.00
	WAGRUB	Pct. of Wage and Salary Earning Population Employed in the Public Sector, 1966	32.17	2.67	7.00
2. Military					
	ODB67	Total Defense Budget 1967 in Hundreds of US $	8382.33	6099.92	18181.00
	DEF667	Defense Budget as Pct of GNP, 1967	2.78	0.59	1.60
	DEFG65	Defense Budget as Pct. of Govt. Expenditures, 1965	14.85	3.63	10.40
	TMAN67	Total Manpower in Armed Forced in Hundreds, 1967	22.83	16.82	46.00
	ARFPPO	Armed Forces per 100,000 Population, 1967	68.00	43.70	124.00
	CHARF7	Pct. Change in Total Armed Forces Manpower, 1963-1967	59.83	46.19	117.00
	ISEC67	Police and Internal Security Forces in Hundreds, 1967	15.50	8.75	26.00
	INTSEC	Size of Police and Internal Security Forces Per 100,000 Population 1967	54.33	18.43	48.00
	CHINSE	Pct. Change in Internal Security Forces Per 100,000 Population 1964-1967	16.67	37.64	118.00
	SARF67	Size of Air Force, 1967	191.67	123.88	350.00
3. Education					
	PTGX65	Educational Expenditures as Pct. of Total Govt. Expenditure, 1965	13.78	3.08	9.80
	PGDP65	Educational Expenditure as Pct. of GDP, 1965	2.17	0.46	1.30
	EXHE65	Pct. of Total Education Budget That was Expenditure for Higher Education, 1965	6.13	6.20	16.90
	EXSE65	Pct. of Total Education Budget That was Expenditure for Secondary Education, 1965	28.27	5.00	14.20
	EXPR65	Pct. of Total Education Budget That was Expended for Primary Education, 1965	53.87	9.74	29.20
	TEPR66	Total No. of Primary Teachers, 1966	2711.00	1583.89	4108.00
	PTEA62	Total No. of Primary Teachers, 1962	1727.33	1035.98	3060.00
	PTEA55	Total No. of Primary Teachers, 1955	541.17	379.54	1045.00
	STEA61	Total No. of Secondary Teachers, 1961	265.80	270.29	719.00
	STEAIN	Pct. Change in Secondary School Teachers, 1955-1961			
	TNHE61	Total Nationals in Higher Education in 1961	258.33	318.29	903.00
	ABHE61	Total Nationals Abroad in 1961	155.50	118.80	316.00
	SECE66	Total Secondary Enrollment, 1966	7435.67	8453.47	24563.00
	SECE62	Total Secondary Enrollment, 1962	5562.67	6407.83	19504.00
	SPRUCU2	Pct. Change in Secondary Per Capital Enrollment	241.17	478.08	1383.00
	PPCR65	Primary Enrollment Per 1,000 Population, 1966	34.83	16.09	42.00
	PRIM62	Total Primary Enrollment, 1962	85756.17	49830.51	154111.00
	PPCR62	Primary Enrollment Per 1,000 Population, 1962	26.17	13.97	39.00

Table 81 (cont.)

Dimension	Identifier	Variable	Mean	Standard Deviation	Range
4. Literacy					
	LITR65	Pct. Literate, 1965	5.33	1.37	4.00
	LITR50	Pct. Literate, 1950	2.67	0.75	2.00
	LITRIN	Change in Pct. Literate, 1950-67	111.17	49.49	133.00
5. Language					
	NULANG	Number of Languages Spoken, 1967	14.67	8.28	25.00
	NULAPM	No. of Languages Per Million Population, 1967	3.82	1.66	4.70
	PERVER	Pct. Speakers Major Vernacular Language, 197	62.83	12.46	37.00
	PRILAN	Primary Language Standardization	3.33	0.75	2.00
	LINFRA	Lingua Franca	4.17	0.37	1.00
6. Media					
	RADI66	No. of Radio Licenses/Receivers in Use in Thousands, 1966	78.50	82.45	230.00
	RADP65	Radios per 1,000 Population, 1965	24.50	23.04	67.00
	RAPE05	Pct. Change in Radios per 10,000 Population, 1960-65	262.50	335.58	956.00
	CIDAN6	Circulation of Daily Newspapers, 1965, in Hundreds	45.50	69.64	200.00
	NEPC65	Newspaper Circulation per 10,000, 1965	12.67	21.35	60.00
	NEPECA	Pct Change in Newspaper Circulation Per Capita 1960-65	20.83	38.75	108.00
	CINSET	Number of Cinemas, 1966	19.33	26.20	75.00
	TELE67	No. of Telephones in Use, 1967, in Hundreds	68.67	86.27	250.00
	TEPC68	Telephones Per 10,000, 1968	22.17	20.99	61.00
	TECH38	Telephones Per 10,000 -- pct. Change 1963-1968	72.00	68.24	220.00
7. Connectivity					
	NMRT65	No. Miles Railroad Track Per 100,000 sq. Miles Area	213,00	277.61	788.00
	IMPRO7	Miles of Improved Roads Per 1,000 sq. Miles of	13.00	13.42	34.00
	CARS66	Passenger Cars in Use, 1966, in Hundreds	78.38	98.77	282.00
	CARP16	Cars Per 10,000 Population, 1966	21.17	26.32	72.00
	CVIU66	Commercial Vehicles in Use, 1966, in Hundreds	69.83	53.68	161.00
	CUPE16	Commercial Vehicles Per 100,000 Population, 1966	214.50	147.41	423.00
	PUCHCU	Commercial Vehicles Per 100,000 -- Pct. Change 1958-1966	39.50	15.23	50.00

In the summary tables we are more concerned with the mean, or average of all six countries, than with the standard deviation and range. (We will look at between-country variation later.) It will be remembered that these figures from the 1960s are intended to provide a baseline for measuring future trends.

With regard to electoral base, the six countries shift dramatically in breadth of support from the time of independence to the "consolidation" elections just after independence. While these figures may or may not represent electoral decision-making, they do represent organizational capacity on the part of the party systems. Considering the very low levels of communal violence on the whole, the picture in the early 1960s is one of centralized authority systems, with an increasing base of popular involvement. In absolute terms, however, the rapid rates of increase in participation do not obscure the fact that the average participation was still less than 50 percent. We would hypothesize that much of this lack was in the rural areas.

Regarding budget scope, the average expenditure (1968) was $65 million dollars, which represented about 16 percent of the total GNP. These ratios of government to GNP were quite stable over time. The average percent of wage earners in the public sector was 32 percent. In short, the scope of government was restricted by budget limitations, but the national budgets paid for one third of all wage earners, and about one sixth of the entire economy. Thus, within their reference system, governments are an extremely important segment of the total society.

Average expenditures for military structure (1967) were $8.3 million, for average armies of 2,200 men, which means a per soldier expenditure of almost $4,000 per year. In relation to the total population, however, the military establishment is small (68 men per hundred thousand population). Given the dramatic increases in size of militaries (starting from almost nothing), the picture that emerges

is not one of a traditional, established army, but of a newly recruited, select, well-financed organization. Because the military establishments themselves are "new," the possibility of molding them into a tradition of rural service is perhaps higher than if they had a long history of disengagement from political and development problems.

In the educational structure, the average expenditures of 14 percent of the national budget are slightly less than military expenditures (15 percent). More than half of the educational budget was spent for primary education. The percent spent on higher education is extremely low (6 percent) and is reflective of the fact that educational structures were being "built" from the bottom up, during the 1960s. This may mean that there is more contact and mobilization potential at the lower levels, and also that the idea of regional facilities at the higher levels may still be a necessity, if trained manpower is to be achieved. The percentage of change averages, however, are high, indicating that educational growth, like military growth, was a phenomenon of the 1960s, and may indicate a general capacity to establish structures rapidly, if the costs can be met in some way.

Although there was one hundred percent increase in literacy from 1950 to 1965, the average literacy of 5.3% in 1965, is an extremely serious comment on the capacity of the educational system to mobilize in the rural areas.

In the area of indigenous language patterns, there are a large number of distinct languages (not dialects) per country (14.7). Yet the major languages are understood by an average of 62 percent of the population and are relatively standardized (in comparison, for example, with languages in other parts of Africa).

With regard to communications media, the impact of cinemas and newspapers is limited, and is probably confined to the urban areas.

The use of radios is widespread, and is increasing at a high rate. Although telephones are not normally regarded as communications, telecommunications is an essential part of national communications linkage, especially in a structurally centralized system. During the 1960s, telephones were essentially an urban phenomenon, and the levels were low (22 phones per ten thousand population). The rate of change (12 percent increase per year) is also low, considering the starting point. Clearly some form of microwave facilities would be useful in establishing national telecommunications linkage.

With regard to connectivity, the average number of cars in use in 1966 was 7,838 (about the same number as telephones), or 21 cars per ten thousand population. The low number of cars is probably also a reflection of the low development of road systems: 13 miles of road per 1,000 square miles (1967).

In short, communications and connectivity capabilities in the 1960s were virtually non-existent.

With regard to between-country variations on each of the variables mentioned above, there are three types of data that have been presented: absolute magnitudes, per capita magnitudes, and rates of change. In each case, it is possible to present inter-country variation by employing the <u>decile rankings</u> (explained earlier on p. 7). We have presented these decile rankings across the six countries of the Sahel-Sudan region in three tables below, indicating absolute magnitude, per capita score and rate of change score. This will allow us to aggregate within each of these categories for comparative purposes. (see Tables 82, 83 and 84).

With regard to between country variation on <u>absolute magnitudes</u>, Senegal is clearly in a class by itself. It is consistently in the top third of all deciles. All five of the remaining states are virtually in the same class, i.e., the bottom third of deciles. Niger

Table 82

Decision-Making and Implementation: Country Variations
(absolute magnitudes/by decile)

Dimension	Identifier	Variable	Chad	Mali	Maur.	Niger	Senegal	Upper Volta
Electoral Base								
	PEVORV	Pct. Vote Cast for New Ruling Party in Election Prior to Independence	8	7	1	6	5	10
	NOVOTE	No. of Voters in Election Prior to Independence as pct. of Population	8	8	1	10	4	7
	NOVO1R	No. Votes for New Ruling (first election) as pct of Total Vote	2	1	1	3	10	3
	NOVO1E	No. Voters Voting in First Election After Independence as pct. of Population	9	4	6	1	10	5
Representational Base								
	COMUET	Weighted Communal	1	7	9	10	10	10
1. Budget Scope								
	GOEP68	Govt. Expenditures in 1968 in millions of U.S. $	9	10	10	10	1	10
	GOSP68	Govt. Spending in 1968 as pct. of GNP	5	10	7	10	1	10
	WAGRUB	Pct. of Wage and Salary Earning Population Employed in the Public Sector, 1966	9	6	10	9	1	10
2. Military								
	DEFG67	Defense Budget as Pct. of GNP CA 1967	7	1	1	7	3	10
	DEFG65	Defense Budget as Pct. of Go.rt. Expenditures, 1965	8	1	4	10	10	7
	TMAN67	Total Manpower in Armed Forces in Hundreds, 1967	10	5	10	10	1	9
	ISEC67	Police and Internal Security Forces in Hundreds, 1967	4	10	10	6	1	5
	SAPF67	Size of Air Force, 1967	6	1	9	9	3	10
3. Education								
	PTGX65	Educational Expenditure as Pct. of Total Govt. Expenditure, 1965	1	6	5	7	10	3
	PGDP65	Educational Expenditure as Pct. of GDP, 1965	1	10	7	10	7	3
	EXHE65	Pct. of Total Budget that Was Expenditure for Higher Education, 1965	1	4	10	8	8	10
	EXSE65	Pct. of Total Budget that Was Expenditure for Secondary Education, 1965	10	5	10	4	1	5
	EXPR65	Pct. of Total Budget That Was Expended for Primary Education, 1965	10	3	1	4	4	8
	TEPR66	Total no. of Primary Teachers, 1966	8	2	10	9	1	9

Table 82 (cont.)

Dimension	Identifier	Variable	Chad	Mali	Maur.	Niger	Senegal	Upper Volta
4. Literacy								
	LITR65	Percent Literate, 1965	5	5	5	10	1	1
	LITR50	Percent Literate, 1950	3	1	1	10	1	1
5. Language								
	NULANG	Number of Languages spoken, 1967	2	5	10	6	8	1
	PERVER	Pct. Speakers Major Vernacular Language (1967)	9	10	1	5	8	9
	PRILAN	Primary Language Standardization	1	5	1	1	5	10
	LINFRA	Lingua Franca	10	10	10	10	10	1
	PTEA 62	Total No. of Primary Teachers, 1962	9	9	10	10	1	9
	PTEA55	Total No. of Primary Teachers, 1955	9	4	10	10	1	9
	STEA61	Total No. of Secondary Teachers, 1961	10	10	10	10	1	9
	TNHE61	Total Nationals in Higher Education in 1961	10	8	10	10	1	10
	ABHE61	Total Nationals Abroad in 1961	9	3	10	10	1	9
	SECE66	Total Secondary Enrollment, 1966	8	10	10	10	1	9
	SECE62	Total Secondary Enrollment, 1962	9	8	10	9	1	9
	PPCR66	Primary Enrollment Per 1,000 Population, 1966	3	7	10	10	1	10
	PRIM62	Total Primary Enrollment 1962	4	5	10	9	1	7
6. Media								
	RADI66	No. of Radio Licenses/ Receivers in Use in Thousands, 1966	10	10	10	9	1	10
	CIDAN6	Circulation of Daily Newspapers, 1966, in hundreds	10	9	10	10	1	10
	CINSET	Number of Cinemas, 1966	10	8	10	10	1	10
	TELE67	No. of Telephones in Use, 1967 in Hundreds	9	9	10	10	1	10
7. Connectivity								
	NMRT65	No. Miles Railroad Track Per 100,000 sq. Miles Area	10	9	9	10	1	7
	IMPRO7	Miles of Improved Roads per 1,000 sq Miles of Area 1967	10	8	10	10	3	1
	CARS66	Passenger cars in Use, 1966 in Hundreds	10	8	10	10	1	10
		TOTAL	303	301	310	355	138	319
		Average (N=42)	7.2	7.2	7.4	8.5	3.3	7.6

Table 83

Decision-Making and Implementation: Country Variations (per capita/by decile)

Dimension	Identifier	Variable	Chad	Mali	Maur.	Niger	Senegal	Upper Volta
1. Budget Scope	GOEX68	Govt. Spending Per Capita in 1968 US $	8	10	7	9	1	10
2. Military	ARFPPO	Armed Forces Per 100,000 Population, 1967	10	7	5	10	1	10
	INTSEC	Size of Police and Internal Security Forces Per 100,000 Population 1967	5	10	2	9	1	10
3. Education	STEAIN	Pct. Change in Secondary Teachers, 1955	8	10	--	1	6	8
	SPRCU2	Pct. Change in Secondary Per Capita Enrollment	9	10	1	10	10	9
	PPCR62	Primary Enrollment Per 1,000 Population, 1962	5	8	9	10	1	10
4. Language	NULAPM	No. of Langugages Per Million Population, 1967	1	8	10	6	10	3
5. Media	RADP65	Radios Per 1,000 Population, 1965	10	10	7	8	1	10
	NEPC65	Newspaper Circulation Per 10,000, 1965	10	9	10	10	1	10
	TEPC68	Telephones Per 10,000 1968	10	9	7	10	1	10
6. Connectivity	CARP16	Cars Per 10,000 Population 1966	10	10	10	10	1	10
	CUPE16	Commercial Vehicles Per 10,000 Population, 1966	9	10	7	10	1	10
		TOTAL	95	111	75	103	35	110
		Average (N=12)	7.9	9.3	6.8 (N=11)	8.6	2.9	9.2

Table 84

Decision-Making and Implementation: Country Variations (rate of change/by decile)

Dimension	Identifier	Variable	Chad	Mali	Maur.	Niger	Senegal	Upper Volta
1. Budget Scope								
	GOSP38	Ratio of Govt. Spending to GNP, Rate of Growth, 1963-1968	1	9	10	7	7	10
	GREV35	Govt. Revenue -- Rate of Growth 1963-1965	1	4	7	10	10	10
	GOSP35	Govt. Spending -- Rate of Growth 1963-1965	1	4	8	3	3	8
2. Military								
	CHARF7	Pct. Change in Total Armed Forces Manpower, 1963-1966	1	10	3	10	2	7
	CHINSE	Pct. Change in Internal Security Forces Per 100,000 Population 1964-1967	8	6	1	9	10	5
3. Education								
	STEAIN	Pct. Change in Secondary School Teachers, 1955	8	10	--	1	6	8
	SPRCU2	Pct. Change in Secondary Per Capita Enrollment ( )	9	10	1	10	10	9
4. Literacy								
	LITRIN	Change in Percent Literate, 1950-1967	10	10	10	1	6	6
5. Media								
	RAPE05	Pct. Change in Radios Per 10,000 Population, 1960-1965	9	9	10	1	10	10
	NEPECA	Pct. Change in Newspaper Circulation Per Capita 1960-1965	7	10	10	10	10	1
	TECH38	Telephones Per 10,000 -- Pct. Change 1963-1968	8	7	1	7	10	8
6. Connectivity								
	PUCHCU	Commercial Vehicles Per 100,000 -- Pct. Change 1958-1966	6	8	1	5	10	7
		TOTAL	69	97	62	74	94	89
		Average (N=12)	5.8	8.1	5.6 (N=11)	6.2	7.8	7.4

is slightly lower than the others, but for practical purposes they are the same.

With regard to between country variation on a per capita basis, the pattern is much the same, with Senegal in a class by itself. The others are clustered in much the same pattern, but Mauritania is stronger, and Mali and Upper Volta are slightly weaker.

With regard to between country variation on a rate of change basis, Mauritania is changing the fastest, followed by Chad, Niger, Upper Volta, Senegal and Mali. Thus, Senegal, with a higher level baseline, is more stable in its development, while some of the other states, starting from a lower position, are moving more quickly. Significantly, Mali (during the 1960s) had the slowest rate of change.

8.1.2 Relations between dimensions: In chapters three through seven we have tried to explore the relationship between several dimensions of decision-making implementation in largely conceptual terms. It is possible to use correlation coefficients as crude statistical summaries of such relationships. More advanced statistical methods of assessing dimensionality, such as multiple regression or factor analysis, are of limited utility due to the small number of units (6) with which we are working. Thus, we are reluctant to use statistical methods which are common in aggregate data analysis because of the numerous data and unit problems mentioned throughout this report.

However, we have calculated a correlation matrix--to be used as a heuristic device for diagnostic purposes. In Apprendix 8 we present a portion of the matrix composed of Pearson Product Moment Correlations for each variable mentioned in our analysis. This provides a quick way to assess the bivariate relationships between variables. The correlation coefficient (r) can vary from -1.00 to +1.00; the sign indicates the direction of the relationship and the

absolute magnitude indicates the strength of the relationship. Thus, an r = -.95 indicates the two variables are strongly negatively related (i.e., as one increases, the other decreases), while an r = .15 would indicate that the two variables are very weakly positively related. The correlation coefficient squared (r^2) indicates the amount of variation in one variable which is "accounted for" by the other variable.

In the following section, we summarize some of the correlations between key dimensions of decision-making and implementation. We regard any coefficient of .5 or above as indicating a noteworthy relationship. In a subsequent section we will look at the correlational relationship of national variables with demographic, cultural, regional and international patterns. In all cases, due to the small "N" of six, it should be recognized that a single country's deviant score might substantially deflate the coefficient of an otherwise very strong relationship. Thus, our summary measures are likely to be conservatively biased.

Since we computed all possible correlations for 130 variables, we have 16,900 correlations (or 8,450, when duplications are eliminated). We have not had the time to analyze or reduce these in any depth. We are impressed, in overview, with the high degree of inter-correlation between variables from different dimensions. We have selected a few of these important correlations for the decision-making and implementation categories, to illustrate the way in which developments in one sector are strongly associated with developments in another sector.

8.2 Regional Interactions

In this section we will examine selected variables in relationship to the patterns of dyadic regional interaction as discussed in

chapter six. We will also assess, conceptually, some aspects of regional structure and process.

8.2.1 Dyadic regional interaction: We have done a multivariate analysis of the dyads discussed in chapter six. We have also included other African states in a broader sample to serve as a comparison. We will analyze the same correlations over several time points for the period 1962-68. We are interested in four clusters of national level characteristics: 1) resource capabilities (population, GDP, GDP per capita); 2) cultural similarities (religious homogeneity, plus seven dimensions of cultural orientation aggregated from the culture cluster level discussed in chapter two); 3) metropole socialization (i.e., cultural assimilation into former colonial power as measured by educational and media indicators); 4) geographic proximity (contiguity). These four dimensions are analyzed in relation to three dyadic interaction patterns: 1) shared membership in international governmental organizations (IGO's); 2) elite interactions; 3) trade interactions. The analysis was done on time points representing the early, mid, and late 1960's.

Our general conclusions for the all-African sample are that similarity of metropole socialization was the major predictor of dyadic interstate interactions. However, contiguity and resource capabilities were a close second and third in importance. Cultural similarity was least important. Since the colonial heritage seems to be diminishing over time, we are left with the conclusion that contiguity and size/wealth will probably be the major predictors of dyadic interaction at various time points in the future.

We will consider two of the sub-analyses in somewhat greater detail. One is a sample of west African states (see Tables 85, 86 and 87). The other examines the Sahel-Sudan region states. Examining the tables, we note the following patterns for west Africa. The cultural variables

Table 85

ALL AFRICAN SAMPLE (18 States)

(If Zero Order Correlation,
(If R≥.25, Statistically Significant at .001 - If R≥.135, Statistically Significant at .05)

National Characteristics	Dyadic Interactions							
	Shared IGO's		Elite Interactions			Trade		
	1963	1967	1962	1965	1968	1962	1965	1968
I. Resource Capabilities								
1. Population	.14	.08	-.33	.06	-.12	.08	.05	.02
2. GDP	.15	.11	-.31	.10	-.12	.06	.03	.00
3. GDP/PC	.21	.17	.14	.01	-.02	-.09	-.08	-.05
II. Cultural Similarity								
1. Religious Homogeneity	-.01	-.03	-.02	.18	.21	.16	.17	.18
2. Settlement Patterns	-.11	-.07	-.21	-.13	-.21	-.11	-.12	-.13
3. Descent Patterns	.13	.12	.04	-.06	-.03	-.04	-.06	-.07
4. Hierarchy Patterns	.05	-.03	.01	-.16	-.05	-.15	-.17	-.17
5. Organizational Patterns	.04	.04	.01	-.12	-.17	-.12	-.11	-.12
6. Inheritance Patterns	.10	.14	.03	-.01	.03	-.05	-.05	-.04
7. Marriage Patterns	-.07	.07	-.09	.08	.08	.11	.10	.08
8. Authority Patterns	.03	-.03	-.06	-.03	.06	.09	.08	.08
III. Metropole Socialization								
1. Educational Socialization	-.12	-.39	-.82	-.32	-.40	-.04	-.06	-.10
2. Media Socialization	-.11	-.12	-.48	-.09	-.18	.05	.04	.01
IV. Geographic Proximity								
1. Contiguity								

Table 86

WEST AFRICAN SAMPLE

(If Zero Order Correlation, N = 78)
(If R ≥ 22, Statistically Significant at .05)

National Characteristics	Dyadic Interactions							
	Shared IGO's		Elite Interactions			Trade		
	1963	1967	1962	1965	1968	1962	1965	1968
I. Resource Capabilities								
1. Population	.21	.02	-.45	.13	-.22	.31	.13	-.06
2. GDP	.23	.02	-.51	.24	-.19	.38	.21	.00
3. GDP/PC	.23	.13	-.03	.06	-.03	.02	.11	.16
II. Cultural Similarity								
1. Religious Homogeneity	-.14	-.11	-.07	.24	.25	.06	.07	.07
2. Settlement	-.08	-.14	-.20	-.08	-.26	.07	.06	.00
3. Descent	.11	.03	.07	-.17	-.15	-.13	-.23	-.12
4. Hierarchy	.00	.01	-.12	-.13	.05	-.09	-.22	-.15
5. Organization	-.15	-.06	.17	.05	.09	-.13	-.05	-.02
6. Inheritance	.16	.12	.24	.07	.31	-.11	-.06	.05
7. Marriage	-.12	-.01	-.26	-.01	-.04	-.04	-.10	-.17
8. Authority	.01	.00	.03	-.12	.01	-.05	-.10	.03
III. Metropole Socialization								
1. Educational Socialization	.06	-.32	-.90	-.20	-.52	.09	-.12	-.23
2. Media Socialization	.04	-.13	-.50	-.17	-.37	-.02	-.13	-.18
IV. Geographic Proximity	.02	.03	-.15	-.26	-.37	-.42	-.36	-.35

Table 87

WEST AFRICAN SAMPLE (WITHOUT NIGERIAN DYADS)

(If Zero Order Correlation, N= 66)
(If R≥.24, Statistically Significant at .05)

National Characteristics	Dyadic Interactions							
	Shared IGO's		Elite Interactions			Trade		
	1963	1967	1962	1965	1968	1962	1965	1968
I. Resource Capabilities								
1. Population	-.13	-.29	-.27	.17	-.01	.38	.23	.11
2. GDP	.10	-.13	-.38	.22	-.05	.24	.20	.12
3. GDP/PC	.30	.10	-.14	.08	-.10	.04	.11	.15
II. Cultural Similarity								
1. Religious Homogeneity	-.13	-.13	-.13	.23	.25	.03	.04	.07
2. Settlement Patterns	-.10	-.21	-.34	-.16	-.32	.07	.02	-.02
3. Descent Patterns	.15	.07	.06	-.14	-.14	-.12	-.23	-.12
4. Hierarchy Patterns	.07	.08	-.07	-.06	.09	-.04	-.17	-.14
5. Organizational Patterns	-.09	.02	.17	.09	.09	-.12	-.02	-.02
6. Inheritance Patterns	.16	.15	.25	.24	.33	-.02	-.01	.01
7. Marriage Patterns	-.16	-.02	-.28	-.03	-.01	-.10	-.14	-.17
8. Authority Patterns	.05	-.00	-.06	-.12	-.04	-.03	-.10	.01
III. Metropole Socialization								
1. Educational Socialization	-.08	-.37	-.90	-.27	-.50	.01	-.15	-.22
2. Media Socialization	.02	-.11	-.52	-.22	-.35	-.06	-.15	-.18
IV. Geographic Proximity								
1. Contiguity	-.01	-.04	-.22	-.32	-.49	-.46	-.40	-.39

seem to be uniformly not associated with respect to the three types of interactive measures over all time points. This is what we would expect since the culture measures are reflective of traditional sector patterns while the interaction variables are measures of modern sector types of activities. Also, it is worthwhile to note that the absolute magnitude of most of the correlation is low for all the time points, thus indicating the need for further research aimed toward more comprehensive specification of independent variables associated with west African interstate interaction.

Considering each type of dependent variable separately, we note the following for the west African sample.

Trade: Resource capabilities (in the form of population and gross domestic product) were intially moderately associated with dyadic trade in 1962 but exhibit no association by 1968. Metropole socialization exhibited no association initially but is weakly associated by 1968. Geographic proximity steadily retains a moderately strong relationship with trade from 1962 to 1968.

Elite Interactions: Resource capabilities declined in relative importance between 1962-1968, although they retain a weak moderate association in 1968. Metropole socialization is very strongly related in 1962 and moderately related in 1968. The geographic proximity relationship increases during the same time period, perhaps indicating a shift of elite interaction activity from the former colonial power to African neighbors.

Inter-Governmental Organizations: The relationships of the independent variables with IGO memberships are uniformly weak.

Overall, the nature of interstate interaction within west Africa changed a great deal during the time period 1962-1968. Some factors which were strongly associated with the interaction measures in the

"independence" era were very weak or non-existent 6 years later while other factors had emerged as more strongly related. Geographic proximity seems to remain constant as a moderately strong correlate of the interaction variables.

Turning to the Sahel/Sahel-Coastal sub-analysis we note the following patterns (see Table 88):

Trade: The association with resource capabilities as measured by Population and Gross Domestic Product declines in much the same manner as in the west African sample. However, the correlation of the interactive component "GDP/capita" remains uniformly high over the time period. The relationship with metropole socialization decreases from strong/moderately strong to being almost non-existent. Geographic proximity remains moderately related.

Elite Interactions: Population and Gross Domestic Product remain strongly related to Elite Interaction from 1962-1968. The strength of the relationship with metropole socialization declines while geographic proximity becomes moderately associated by 1968.

Inter-Governmental Organizations: IGO's once again exhibit a low-level mixed pattern.

In summary, the magnitude of the relationship of some of the independent factors to the interaction variables seems to be a little more stable over time in the Sahel-Sudan region than in west Africa as a whole. In trade and elite interactions, the magnitude of association with both components of metropole socialization substantially declines for the Sahel countries. This may indicate the declining centrality of France (or "diversification" of relations) as the Sahel-Sudan countries moved into the independence era. As in the west African analysis, geographic proximity remained moderately strong.

Table 88

SAHEL, SAHEL-COASTAL SAMPLE

(If Zero Order Correlation, N = (?)
(If R≥.55, Statistically Significant at .05)

National Characteristics	Dyadic Interactions							
	Shared IGO's		Elite Interactions			Trade		
	1963	1967	1962	1965	1968	1962	1965	1968
I. Resource Capabilities								
1. Population	.23	-.35	-.64	.12	-.55	.31	.18	-.09
2. GDP	.18	-.39	-.70	.16	-.46	.66	.40	.10
3. GDP/PC	.11	.07	.06	.06	.18	.59	.67	.59
II. Cultural Similarities								
1. Religious Homogeneity	.12	.08	-.08	.11	.17	-.18	.16	.28
2. Settlement Patterns	-.38	-.38	-.48	.29	.06	.76	.34	.29
3. Descent Patterns	.31	.06	-.48	.21	-.40	.01	-.19	-.18
4. Hierarchy Patterns	.18	.20	.09	.23	.28	.09	-.08	-.05
5. Organizational Patterns	.06	.18	-.11	-.13	-.23	-.29	-.27	-.32
6. Inheritance Patterns	.22	.31	.33	.40	.49	.02	.29	.38
7. Marriage Patterns	.02	.13	-.37	-.06	-.03	.19	-.04	-.33
8. Authority Patterns	-.11	.11	-.02	.43	.66	.31	.09	.31
III. Metropole Socialization								
1. Educational Socialization	.09	-.46	-.84	.18	-.45	.68	.18	-.10
2. Media Socialization	.45	.13	-.28	.12	-.16	.19	.03	-.14
IV. Geographic Proximity								
1. Contiguity	.16	.30	.16	-.17	-.36	-.38	-.53	-.36

8.2.2 Conceptual aspects: Several issues emerge from our preliminary analysis of regionalism in west Africa. First, the question of English-speaking/French-speaking relations has changed over the past decade, and is one of the important emerging issues of the future. Second, with regard to types of regional linkage, there are clearly different types of salient patterns, ranging from functionally specific, to multi-purpose, to comprehensive. In each of these categories, there are dyadic, triadic, and multilateral institutions. Thus, OCAM or WAEC might be multilateral/comprehensive, while a joint commission might be dyadic/functionally specific. (Obviously the problem is to link the appropriate institution to the appropriate problem.) Third, although cultural variables do not seem to predict to regional interaction, traditional cultural patterns of interaction are probably as important as modern sector interactions. Thus, there are religious connections, migration patterns, and traditional trade patterns which are not reflected in our "modern sector" analysis. Traditional patterns, rather than being a hindrance to interaction, are strongly supportive of regional interaction. Fourth, as new institutions emerge, and old institutions are transformed, the degree of bureaucratic flexibility will clearly play a determining role. New mechanisms must be sought, e.g., perhaps, in-service retraining , to accommodate changing demands. Some of the new requirements (such as bilingual and multilingual civil servants in some areas) may be readily identified and subsequent steps to deal with the situation in its attitudinal, social structural and technical complexity must be considered. Fifth, there is a need for regional linkage on the infrastructural level, including communications, transportation facilities, water resource development, and livestock management. It is more common for planners to focus on trade and monetary policy, but we have tried to suggest and promote

a broader view of regional interaction. Sixth, with regard to planning, decision-making, and implementation, there should be increased attention given to analysis of the benefits which accrue to inter-level cooperation. Much of the implementation capability at present, even though typically not great, is located at the national level. The administrative relationship between regional planning and national implementation needs much exploration from a management point of view, i.e., how to produce the most efficient orientation toward problem solving. Seventh, the question of disproportionality of units in an interactive dyad, should be considered in detail, not just from the political point of view (e.g., the role of Nigeria in relation to the smaller states), but from cost-benefit and social justice perspectives.

8.3 The Problem of Inter-Level Linkage

In this section we will try to draw together some of the problems and prospects which characterize the relationship of decision-making and implementation institutions across the levels described in Chapters 3-7. If ecological survival and reconstruction involves programs, information and behaviors at the grassroots level, a major question remains: how can analysis, knowledge, and assistance be carried out most effectively across and between levels? In this section we will review the problem of vertical linkage, look at national-local linkage in particular, and also at national-regional-international linkage.

8.3.1 The problem of vertical linkage: The problem of vertical linkage, in brief, is how to get from top to bottom, or bottom to top, in terms of relations across social institutions of unequal status and power. Institutional structures inevitably involve human linkages, and hence what is often considered an "organizational" or "management" problem, is essentially a human problem, particularly

in the new states, where the modern sector and the traditional sectors may have increasingly weak cultural linkages between them. The creation of more institutional channels does not in itself provide more linkage. The question becomes what kind of institutional channels, rather than how many or how much. While the growth of bureaucratic structures in most new states is an essential part of nation building, some sort of mechanism of checks and balances to insure the on-going functionality and efficiency of these emerging structures would seem to be essential to safeguard against ineffective top-heavy infrastructures. This issue is particularly urgent in considering contact with farmers and herders.

In the case of vertical linkage with farmers and herders, it should be recognized that many of the existing structures were not designed to achieve this end. It is unlikely that any national projects will succeed (in the long run) at the local level without restructuring vertical linkages so as to increase local input and provide for continuing national cooperation. In fact, much of the theoretical writing on the subject of national integration would suggest that the two major types of linkages that are necessary in a state are vertical linkages (between leaders and the citizenry), and horizontal linkages (between different segments of the citizenry).

The legacy in French West Africa was to strengthen horizontal linkages between elites (and perhaps between broad segments of the citizenry), but to create a "mass-elite" gap in terms of vertical relations. The scope of this gap is probably unparalleled in the rest of independent black Africa. It will be remembered that less than twenty years ago (i.e., until the loi cadre reforms of 1956) the peoples of these states were legally divided into "subject" (sujet) and "citizens" (citoyen). Subjects had few legal rights, were liable to

forced labor, and in general were objects of economic manipulation. Citizens were those individual Africans who had learned French, and participated in certain kinds of modern sector occupations. The administration of "subjects" was often done by "citizens." In order to avoid being caught in the cross-pressures from above and below, these African elite were not sent to their own cultural or family areas.

While the independent governments of all six states have made enormous strides in overcoming this legacy, the basic pattern persists. Perhaps with the impact of the drought disaster a new threshold, comparable to independence itself, will need to be crossed, in terms of mass-elite linkage. Without crossing such a threshold, it is likely that significant portions of the peoples of these states will not survive, except at the suffrance of the international aid community.

At the same time it is probably in the interests of the international aid community, including those countries most intimately involved with the region, to foster some sort of spirit of local self-reliance and mobilization. This could help normalize the external dependency relationships, which are probably in no one's interests in the long run.

It is our perception that there must be a will to deal with these kinds of problems at the highest levels. Where civilian governments have taken a "business as usual" attitude, there is every probability that the military will take power. Yet, in the context of only 68 soldiers per 100,000 population the problem of vertical linkage may ultimately become exacerbated, since soldiers usually have even less experience of local linkage than civilians.

If the question of vertical linkage is recognized by the national and international communities to be important, then the question of structural, infrastructure attitudinal and ideational reorganization and

development may take on the same priority status as some of the more production oriented projects. From the point of view of the international aid community, it is clear that for aid to reach the farmer/herder level, it must often go through an average of seven levels of government: regional, national, sub-national regions, circles, division, cantons, and villages. When it is recognized that the vertical linkages between and across these levels have emerged largely in the past twenty years, and are often not geared to problems of ecological reconstruction, the question of whether effective vertical linkage is a necessary (though not sufficient) condition for rural development is brought to the fore. It is ironic that national-international links are often better developed than national-local.

We are aware that institutional linkage is only one aspect of the mass-elite relationship in the Sahel-Sudan states. The entire economic reward structure is also at issue, as well as governmental "output" patterns. The general approach in this region has been development characterized by a "descending" mode. One consequence of this pattern is that "upward mobility" (e.g., moving from the rural areas to the urban areas) is probably dysfunctional to the efforts at rural development. It may also reinforce the attitude that local "traditional" culture must be destroyed before any real progress is possible. There are very few examples in the world where this has been achieved, or has helped rural development.

At this attitudinal level, how is it possible to lessen the protaganist relationship between masses and elites? Two obvious approaches would be: 1) for elites to be highly selective in those aspects of traditional culture which are deemed necessary for change; 2) for elites to gear more of the national resources to increasing rural well-being. With regard to the first point, for example, is it really necessary to legislate against traditional forms of plural

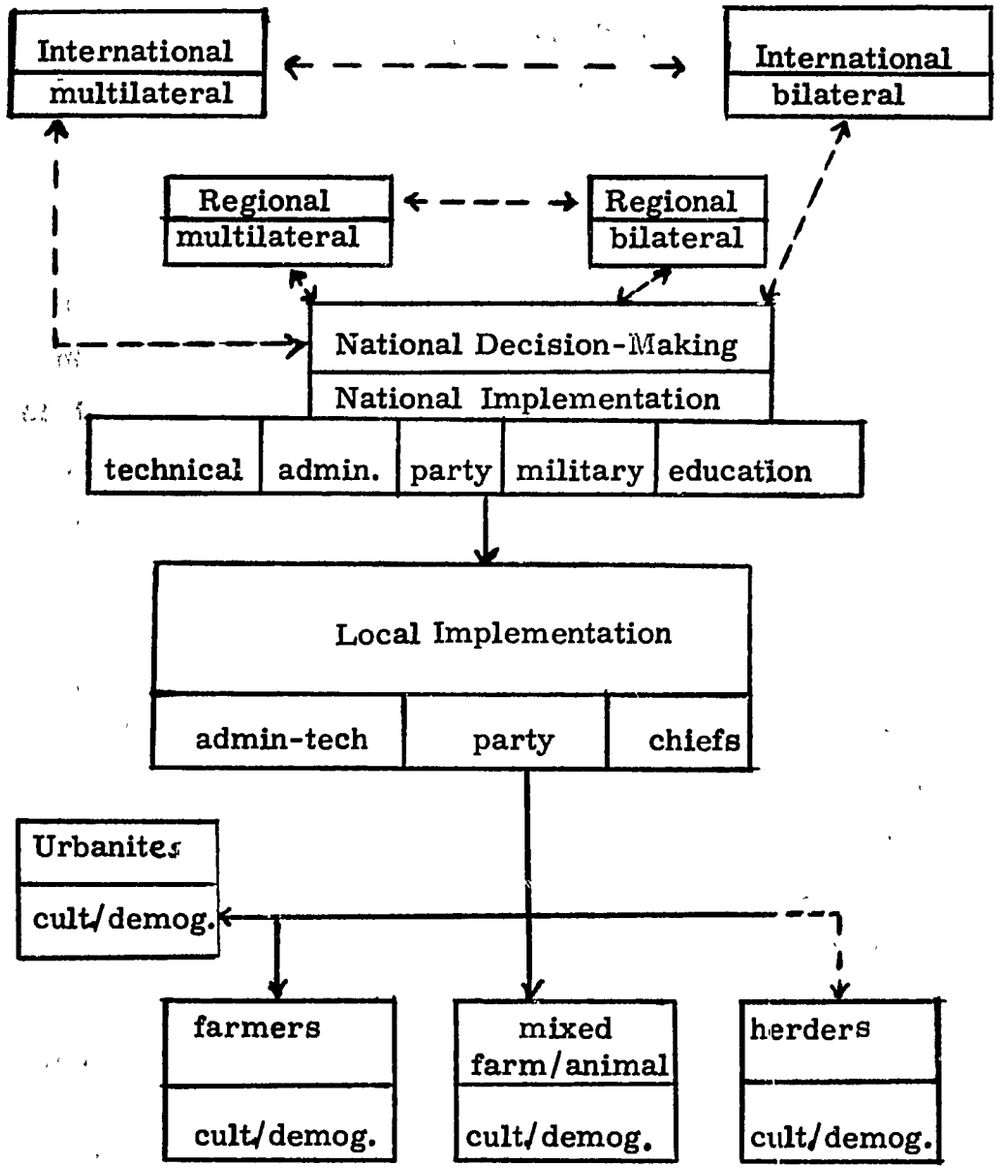
marriage (as at least one major Francophone state has done), against traditional forms of land tenure, against traditional forms of authority and inheritance? We have tried to show that on a matter such as land tenure, a more selective approach might be effective in achieving sustained land yield, without alienating the rural community. With regard to the allocation of national resources, the question is not only where the monies are spent, but the kinds of policies that are supported. This may include such obvious programs as rural animation, farming cooperatives, and livestock care. It might also include building new institutions geared to rural needs, especially in the area of financial savings and loans. But it also includes policies such as indigenous languages standardization, and the development of communications facilities.

The overall pattern of vertical linkages is diagramed in Figure 14. If our diagnostic analysis is reasonably accurate, we would suggest the following tentative hypotheses as characterizing the existing structure of vertical linkages:

H_1 and H_2: International-national linkages (multilateral and bilateral) are adequate and well developed for "normal" situations, but are not adequate to deal with a crisis situation.

H_3 and H_4: The "inherited" regional links (both bilateral and multilateral) have been well developed, but have been transforming into a more broadly regional pattern, in which some linkages (e.g., Francophone/Anglophone) have yet to become adequately developed.

H_5: The relations between national and local level institutions are reasonably well developed, given the resource base. The growth of sub-national regional centers may or may not facilitate linkages between the center and the rural areas. Yet local institutions are part of national



Figure

Existing Structural Linkages: Between and Across Levels

Key: ----- = informal linkages
_____ = structural linkages

Figure 14.

institutions, i.e., they are "descending structures," hence the linkage tends to be unidirectional.

H_6: Relations between the urban centers and local government are close. In fact they are often the same thing. Again, they are often part of the descending national structure and hence also exhibit unidirectionality.

H_7: Relations between the national/local government structures and the rural/grassroots areas are not well developed. In fact, we would suggest this is the weakest link in the chain of vertical cooperation. This is the most critical area for the development of "ascending structures," which would open channels of influence and communication from the rural/grassroots level to the local/national level.

H_8: With specific reference to herders, we cannot identify any formal linkages between governments and herders, other than the often abortive attempts at tax collection and the efforts to encourage meat production, which at the point of final sales is often handled by middlemen and not by herders directly.

We will examine in more detail below, the question of national-grassroots linkage, and the question of national-regional-international linkage.

8.3.2 National-grassroots linkage: The "mass-elite" gap which manifests itself in problems of vertical linkage is partly a "modern" vs. "traditional" gap, and partly an "urban" vs. "rural" gap. The "gap" itself refers to a lack of communications, to patterns of economic interest, interaction and style. If the gap is to be closed, in the interests of constructive problem solving, these issues must be addressed directly in their technical components, their organizational components, their policy components, and their symbolic components.

If a mass-elite gap gets too large, alternative elites (including the military) often try to close it. Elites are defined for our purposes both in the narrow sense of persons influencing decision-making, and in the broader sense of those who share the same culture and style as the decision-making.

Examining the communications issue in terms of its various components we may make a number of observations. In technical terms, the communications gap can be ameliorated by a program which increases the access of rural peoples to the interests, attitudes, priorities, knowledge and information sources at the national level, while at the same time increasing the exposure of national elites to the interests, attitudes, priorities, knowledge and information sources at the local level. Technical facilities exist which might further this end, such as radios, television, telephonic microwave systems, but the essential strategy is that of adapting known technologies to local needs. If this were established as a priority, there is no question but that it could be partially achieved within a relatively short period of time (e.g., 5-10 years).

In organizational terms, we are talking about allowing a credible local set of interests to emerge (an "ascending" linkage mechanism), establishing liaison personnel and strengthening their capabilities to participate in the linkage process. The role of teachers and para-military personnel as intermediaries has been suggested. The role of local personnel, following the rural animation model, might also be considered. The question of whether grassroots organization itself needs to be an extension of national government is one of the key questions. Should "chiefs" (however "chiefs" are defined) be agents of the government, or representatives of the people? How autonomous should mass organization be? (Goussault 1970) discusses the problems of "ascending" and "descending" structures and the necessity in global

rural animation to link them.) Here the strength and stability of national government capabilities becomes a major factor.

In the case of herders, perhaps some analogy to the "rural animation" intermediaries could be explored. If clan leaders of the herders could delegate appropriate "sons" to work with the appropriate national personnel, a minimal linkage would be established.

In the case of those herders who have been left destitute by the drought, and who have sought refuge in camps around the urban centers, an opportunity for direct communication exists. It may be that such nomadic/herder groups should be relocated further south, out of the Sahel zone altogether. Such an effort would clearly require cooperation between national and grassroots authorities. The question of whether such groups would want to remain in livestock-related occupations, or participate in retraining programs in other fields, would clearly emerge from any direct negotiations between national and local groups. (Some regional body would need to be involved, since many of the herders are crossing national boundaries.)

With regard to policy components to communications, the issue of language is central. Are herders and farmers to be expected to learn French before they can participate in development programs? We are strongly suggesting consideration of national and regional language boards (or some equivalent) to explore in detail the possibilities of communicating in indigenous languages--not just the technical possibilities, but also attitudinal and institutional aspects.

Also in the policy category is the question of redistribution of income between urban and rural populations. As shown in the Economics volume of this FINAL REPORT, the rural populations are essentially subsidizing the growth of the modern sector, with very little in return. We will be considering in more detail the types of policies which might affect the reward structure in the rural areas.

With regard to the symbolic component, significant effects might be achieved if the modern elites could modify their exclusiveness of style and attitude.

This has been done in many African states, often with success. It is partly a matter of example at the highest level in government. If modern elites adopt wholesale the style and attitudes of Europeans, in contradistinction to the rural African styles and attitudes, the psychological gap will increase. We are aware that the issue of "assimilation" was theoretically resolved by Francophone West Africans several decades ago (see Paden, 1970). We are also aware that the urban sections in the Sahel-Sudan region are often very European in style, and that the "new elites" are often more European in style than African. This is clearly a matter of degree, but we identify the issue as one of considerable symbolic importance.

In short, a development-from-above approach strengthens the national-international linkage system, and weakens the national-local linkage system. If new states are blessed with a strong modern sector (which is able and willing to help support the rural areas), or with considerable natural resources (e.g., oil) a development-from-above strategy probably has greater chance for success, at least initially. When a new state is predominantly rural, with few natural resources, a development-from-above strategy enlarges the gap between decision-makers and the rural populations to such an extent that rural development is virtually impossible.

As an alternative, the development-from-below approach tries to harness the cultural and occupational energies of rural peoples, and tries to encourage people to mobilize to help themselves. In the Sahel-Sudan region, we feel that the rural peoples are often shrewd and eager to modernize, but have been penalized by the development-from-above approach. The basic ingredient in any development-from-below

strategy is to provide those linkage mechanisms which will allow for infusion of technical and organizational knowledge, while at the same time drawing on the enthusiasm, self-interests, and knowledge of the local people to design and implement projects which meet development goals, and the needs of the land on a long-term basis. It is unrealistic to assume that herders and farmers will be able to learn a European language in order to develop and survive. It is also unrealistic of national and international planners to regard local peoples as "incompetent" in planning and implementation, simply because they cannot function in a European language. If in the end, the herders and farmers decide to learn such languages, it would be a natural development rather than as a result of national or international dictates.

In short, national-local linkage is currently a one way street. There is a need for mechanisms of channeling and expressing local opinion and initiative, and getting a community development spirit going. The question is how to get local initiative in a centralized system. If a consensual approach is followed, the end goal would be national cadres working along with local people as co-equals, not as superiors and subordinates. Very little is likely to happen if centralized elites are not concerned with rural development. This is partly a matter of policy, not structure, although in some cases "decentralization" of functions would be a probable consequence.

8.3.3 National-regional-international linkages: The whole question of national-international linkages is somewhat delicate, and no amount of organizational linkages can effect cooperation if there is suspicion, rivalry, or other disincentives to cooperation. Yet, on the assumption that international communications are important, and are also a matter of national government policy in the Sahel-Sudan region, we have tried to express a

constructive concern as to how this might be achieved.

With regard to regional interstate linkages, the question is less whether to take a regional approach on some matters, but rather which types of regions, and which types of matters. Will the linkages be through the Entente? the OCAM? the WAEC? or through some new institutions yet to be devised? Will the matters of regional concern be monetary policy and remittal, trade and commerce, health and disease eradication, infrastructure and communications? Or will it also involve facilitation of investment opportunities, free flow of persons, livestock planning and control, inter-university cooperation, and regional language boards? How will the matter of water resources be handled? On an interstate commission basis? On a national implementation basis? On a regional planning basis? The answers to these questions will emerge from negotiations between the states themselves. Any questions that might involve matters of "sovereignty" will also be decided by the states in the region. Yet the answers to these questions may affect the survival of the region as a whole. And the policies of the international aid community might be important in influencing the patterns that emerge. We are aware that sovereignty must not be violated, and, at the same time, are aware that the issue may be one of the survival and viability of peoples from small and poor states, whose creation was not entirely of their own making. If opportunities for regional cooperation do emerge, or even opportunities for redefining the nature of national "boundaries" in the area, it is to be hoped that the international community will not lock the Sahel-Sudan states into an inflexible status, which may perpetuate some of the causes of their poverty.

It should be clear from this report that we believe a major issue confronting the region as a whole is the form of relationship, or linkage, that will emerge between English-speaking and French-speaking

states in west Africa. We are not in a position to evaluate the draft treaty of the proposed West African Economic Community. Nor are we in a position to evaluate the list of projects proposed by the inter-state drought committee (CILSS) in terms of their regional linkage and impact. Both of these types of analyses should probably be part of any future efforts at creating a framework for evaluating long-term solutions to Sahel-Sudan ecological problems. We are confident, however, that some form of regional linkage which goes beyond the French-speaking zone will be necessary if ecological reconstruction is to occur. The roles of Ghana and Nigeria (and Gambia) are regarded as especially important.

With specific reference to inter-university linkages, we recognize the tendencies toward national universities. Nevertheless we also recognize the need for regional cooperation on fundamental research and experimentation related to ecological reconstruction. The universities located within the Sahel-Sudan ecological zone are in a better position to respond to the needs of that region than some of the existing universities along the coast. In particular, we would identify the universities at Dakar, Zaria, and Ouagadougou (and perhaps Chad), as suitable vehicles for regional cooperation. At present, much of the budget focus within these universities is not geared to promoting research and experimentation in an interdisciplinary way on matters of ecological reconstruction. The international aid community is clearly in a position to strengthen these universities in that regard if the decision is made to do so. We note that at present, the university programs in agriculture, animal husbandry, and administration--often working at the grassroots level, the national level and the international level--are a unique resource in the area in terms of vertical linkage. In addition to a coordination of existing programs, the funding of interdisciplinary task-force

oriented teams to focus on matters of ecological reconstruction could supplement this effort. The training of African students in the techniques of contemporary social science (including techniques of data collection, storage, retrieval, and statistical analysis) might also be included in any such program. Inter-university committees at the highest level (vice chancellors and rectors, and heads of institutes) might begin to draw up proposals for such an effort. The need for training junior and middle level African university staff members in both French and English appears evident.

With regard to international linkage in general, we would conclude that any initiative for changing the balance of relations between states must ultimately come from the African states themselves, and from the respective states in the international aid community. We are not in a position to make specific recommendations regarding any "special" relations the states of the Sahel-Sudan region may have with any particular European state(s). It seems clear that if the international aid community withdrew from the region, the chances of ecological survival and reconstruction would be considerably diminished. Yet relations between Africa and Europe are in a state of flux, and the opportunities for African states to "diversify" their relations, and to redefine their international linkages, is perhaps greater now than ever before. Such diversity, or "normalization," does require a greater diplomatic capacity than several of the Sahel-Sudan states have at present. If the opportunities for diversification are to be harnessed to the cause of ecological reconstruction, the question of how a "technical" component can be introduced into the normal diplomatic structure becomes important. We have suggested consideration of in-service rotation between ministries, and staff retraining across levels. National civil servants might also be rotated across levels, through national, local and international

structures. There is clearly a need for better dissemination of information regarding ecological reconstruction, and civil service intermediaries are one vehicle for achieving such dissemination. Another vehicle might be computerized data storage and retrieval facilities, both in the appropriate national ministries and in the university centers.

Because of its unique language situation, Canada may be in a special position to assist in the bilingual training of civil servants and technicians. Within west Africa, Gambia (if it becomes more integrated into a "Senegambia" system) might eventually play the same role. (At present there is no university in Gambia, and students go to Fourah Bay College in Sierra Leone.) Togo and Cameroon are serving this function at present in the coastal zone.

With regard to levels of support by the international community, we are aware that international public opinion is important in the allocation of aid, and that if the drought does cease, the immediate impetus to donate aid might diminish or dissolve. Thus, there is a clear incentive for the Sahel-Sudan states to obtain whatever assistance they can in the way of short-term commitments in the next year or so. At the same time, it should be quite clear that ecological reconstruction is a long-term process, and the international community, in conjunction with the west African states, might consider projects and programs which are geared to underlying causes of poverty and ecological degradation, and not just to the immediate relief of farmers and herders. Such commitments might require some renegotiation on the basis of international aid especially regarding "no-year" type of aid which is not dependent on annual appropriations.

PART III

The Human Factor in Ecological Reconstruction

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9. Toward an Analysis of Socio-political Considerations in an Agro-ecological Strategy.

10. The Human Factor in Ecological Reconstruction: Concepts and Options

9. TOWARD AN ANALYSIS OF SOCIO-POLITICAL CONSIDERATIONS IN AN AGRO-ECOLOGICAL STRATEGY

In this section we will explore the human factor in ecological reconstruction in broader terms. First, we will examine socio-political considerations as they are raised by the agro-ecological strategy set forth in the Agriculture volume (Volume II) and as they emerge from the analysis set forth in the Economic annex. A review of the conceptual basis of our diagnostic analysis, our judgement as to major options confronting the region, and our suggestions regarding further work will conclude Part III of our annex.

In this chapter, the conceptual model of the vicious circles of poverty characterizing the region are reviewed (they are developed more fully in the Economics annex). We then present a summary of the agro-ecological strategy (ISYALAPS) which was developed in the Agricultural volume. And in the last section we discuss some of the socio-political implications of issues raised in these two sectors.

9.1 Three Vicious Circles of Poverty

The overall socio-political and economic environment of the region has led us to the identification of three interrelated and interacting circles of poverty. They include:

A. The Ecological/Agricultural Circle
B. The Human Opportunity Circle
C. The Modern/Traditional Circle

These circles must be broken if we are to enhance the long term viability of the region. The fact that these circles are interlocking means that to break the human opportunity circle we must first break the ecological/agricultural circle. Likewise, the modern/traditional circle cannot be effectively broken unless the human opportunity circle is broken. These circles are briefly defined.

9.1.1 The ecological/agricultural circle: Climate in the Sahel-Sudan region is a predominant factor in production. Progressive deterioration of the region's ecology is due both to recurrent droughts at varying degrees of frequency and intensity (22 historically recorded over the last 400 years) and the land use pattern in the region. The operation of the weather and climate patterns and the response of the population to these elements over time has resulted in a "tragedy of the commons" situation. (See Picardi annex.)

The northern cattle-raising and southern sedentary farming areas are both caught in a vicious circle. The region's climate has been and will remain subject to extreme variations in annual precipitation, which in turn causes variations in the agricultural output achieved by the farmers. A relatively long period of cattle-grazing (8-10 years as compared to 3-4 years under normal conditions) is being practiced before animals reach markets. Significant increases in cattle population (50 percent increase in 1970 over 1960) in combination with the excessively long grazing periods preceding marketability have caused range depletion, which, in turn, has lowered the carrying capacity of the grazing land; repetition of the process has reduced the land's grazing capacity even further. According to our calculations, the region's 1970 cattle population exceeded its optimal carrying capacity by a factor of two. (See Volume II.) Significantly, however, cattle population could be reduced without reducing the meat "off-take rate" or the production of the supply of meat. In fact, meat production could be increased substantially.

In the sedentary area, a similar phenomenon is observed. Frequent periods of adverse climatic conditions and pressures of increasing population have, over time, reduced soil fertility. In the absence of agricultural technologies and fertilizers, the traditional farming system must rely on fallow periods to restore soil fertility.

Since little new arable land is available, the rate of soil fertility decline (with use time) has been higher than the rate of soil recovery (with fallow time). From 1961 to 1970, the fallow time in Niger declined by 50 percent, while farming technology and application of fertilizers did not change substantially.

Obviously, if more intensive agriculture is to be practiced, technology must be applied to maintain (or to increase beyond natural levels) the soil fertility for field crops, as well as to maintain or increase the natural carrying capacity of rangelands.

In summary, the whole ecological/agricultural vicious circle (depicting the interaction between man and his environment in traditional sector) represents a critical problem in the area. Unless it is broken, necessary conditions for creating fundamental changes in the area will not be met. Because low productive capacity produces low output and low levels of living, a host of other unsatisfactory conditions such as malnutrition, out-migration of younger generation from the traditional sector, low investment, and low level of technology also occur.

9.1.2 The human opportunity circle: Here we are referring to policy parameters which have influenced both the modern and traditional sector's production functions since colonial times. The agricultural/ecological circle has caused low production capacity, low output, and subsistence living conditions in the traditional sector. In these rural areas, a number of factors--the existence of the mass-elite gap; the fact that producer prices, generally low, bear little relation to world market prices; lack of opportunities for saving, credit, and investment; and lack of employment opportunities--have led to secular and seasonal out-migrations of people to the cities, out of the region into the coastal states, and for some, even out of the African continent.

Essentially this means that the traditional sector's human and economic resources have been taxed (the traditional sector provides most

of the foreign exchange reserves) without compensation by either social goods and services or by budgetary allocation. The rural areas suffer inadequacies in health care facilities and infrastructure, in transportation and communication networks, an inadequate educational system unresponsive to social needs, and lack of other social amenities. As a result of these restricted opportunities, the per capita well-being of the region's inhabitants--especially when measured in terms of the potential situation given adequate services--has deteriorated over time.

9.1.3 The traditional/modern sector circle: Factors which have favored the modern at the expense of the traditional sector are: siphoning of resources and seasonal and secular out-migration from the traditional sector; producers' pricing policies; monetary policies; import duties; and taxes. These policies, and the migration of rural labor, rob the traditional sector of its net savings and working force.

However, the rapid rate of out-migration from the traditional sector into the modern sector has created a vicious circle of its own within the modern sector. The rate of in-migration into the modern sector has been much higher than the rate of increase in employment opportunities, thus precipitating a very high unemployment rate in the cities. Moreover, minimum wage laws, overvalued currencies, and a very low level of worker skills have created adverse conditions for international competition. The rapid immigration to the cities has also led to inadequate housing, sanitation, water systems, health care, and nutrition, and thus a generally poor quality of life among the masses.

These policies and conditions fostered certain internal inconsistencies. Since the prices of both imports and the modern sector's products have been held quite high, growth of a market for industrial goods has been inhibited in the traditional sector. That sector's elasticity of income demand has been disregarded in pricing, income, and tax policies. Industrial policies have been geared to

foreign markets, neglecting rural demands and the need for a synergistic system between industry and agriculture.

9.2 The Agro-ecological Strategy

Introduction: A strategy designed to increase productivity while maintaining ecological viability has been developed and is reported fully in the Agricultural Sector of this report. That strategy called ISYALAPS, will be summarized briefly here. The objectives set forth in the Agricultural Strategy involve many socio-cultural-political issues which we will identify in subsequent sections of this analysis, drawing upon the socio-cultural-political data base and analysis presented in foregoing chapters of this report. However, our objective in this section is to summarize the ISYALAPS strategy itself.

9.2.1 Objectives of an agro-ecological strategy: The objective of the agro-ecological strategy is to increase agricultural production within the limits of zero environmental degradation. Based upon the comparative productivity of similar climatic zones in other parts of the world, the productive potential of the region is judged to be higher than its present output. At the same time it is judged that this increased productivity can be achieved without the environmental degradation characteristic of current use patterns in this region.

For analytic purposes the region is divided into five ecological zones, defined in this case by isohytes-effective rainfall received. Intervention, or "change," is conceptualized at four "levels of activity," and these activities are variously specified by ecologic zone, and mode of agriculture production. Land is allocated to various modes of agricultural production, i.e., crops, livestock, etc. in each ecological zone, on the basis of land use in similar ecological zones in the U.S. At this stage of the construction of an agricultural strategy the allocation of land within mode of land use is conditioned primarily by the current use patterns. Future economic analysis, specifically as it identifies

those agricultural crops with the greatest comparative advantage, will probably lead to alterations in types of crops and livestock mixes.

9.2.2 The integrated sustained yield arid lands agricultural production system: The ISYALAPS strategy developed by the agricultural sector involves zonal and regional specialization in activities and is summarized as follows:

a. The more arid zones of the north and other non-arable areas throughout the region are utilized for cow-calf livestock operations.
b. The young and non-productive old animals are systematically removed from breeding-ground ranges and raised to marketable size on more productive range land.
c. Dairy and poultry operations are located near urban centers.
d. Perennial inland waterways and lakes are utilized for fish production.
e. Dryland crop production is concentrated in the zones where rainfall, even during drought periods, tends to be adequate for some productivity.
f. Irrigation projects are initiated in areas where adequate supplies of water and suitable soils are present.
g. Designated parts of all climatic zones are reserved for wood production.
h. Technology is utilized to increase productivity of livestock, food crops and exportable cash crops, and wood.
i. New agricultural areas are exploited wherever possible.
j. Farmers are encouraged to move into more productive areas, and larger scale productive units are encouraged. These policies do not aim at wholesale resettlement and migration, but rather at localized adaptation to production possibilities.

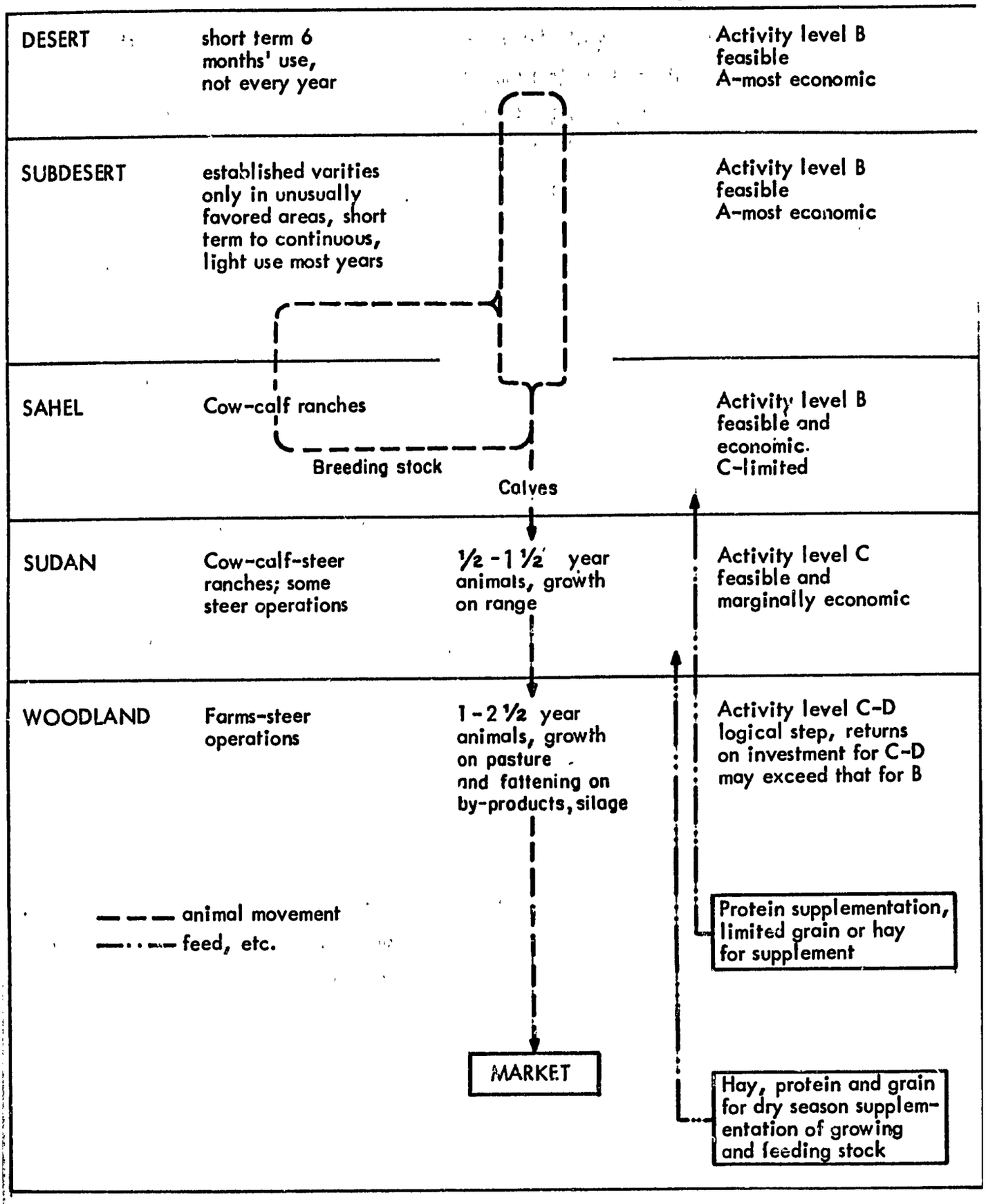

Figure 15. Schematic diagram of a possible livestock production system.

9.2.3 Activity levels of ISYALAPS strategy: The selected activity levels by mode of agricultural production and ecological zone are given below as an illustration:

Table 89

Selected Strategy (Activity Level) for the Sahel-Sudan Region, ISYALAPS

Ecologic Zone/ Mode of Land Use	ACTIVITY LEVEL					
	Desert	Subdesert	Sahel	Sudan	Woodland	Irrigated
Crop Production	-	-	A	B	C	D
Livestock Production	A	B	B	C	C	-
Milk Production	-	-	-	B	C	D
Poultry Production	-	-	-	B	C	D
Fish Production	-	-	A	B	C	D
Wood Production	-	-	-	A	B	-

Although these activity levels are presented in discrete units, activity level A through activity level D, in reality they constitute commulative continua within categories. Any discrete "level" is in fact an ideal type.

The specific activities involved at each "activity level" varies with the mode of land use. We present a general description of "activity level" operations as they function across various agricultural modes.

Level A - Minimum activity with impact.
Halt resource degradation while retaining current technology. Achieve ecological balance by controlling numbers--of animals, farms, population distribution.

Level B - Extensive management activity.
Utilize more area at slightly greater intensity. Limited introduction of technology plus improved water supplies and fencing to permit use of all appropriate land areas.

Level C - Intensive management activity.

Introduction and utilization of modern agricultural technology in crop, wood and livestock production. Improved varieties and breeds, soil and water conservation practices, use of available fertilizers, and animal power.

Level D - Maximum activity.

Widespread introduction and utilization of intensive agricultural systems, similar to those in the United States. Use of all available technology and practices to maximize production of crops, wood and livestock, including irrigation and drainage, mechanization, and chemical fertilizers, herbicides and pesticides.

9.3 Socio-political Implications

The previous section in this chapter has set forth a strategy to reconstruct after the drought, to achieve sustained yields and to prevent further ecological degradation in the future. The process models (the three vicious circles) have described some of the constraints which are inhibiting increased productivity in the Sahel-Sudan region. We will now turn to some of the socio-political implications for breaking the "three circles" of poverty and for evaluating the practical dimensions of the ISYALAPS strategy.

Inasmuch as the agricultural strategy is specified at a high level of generality, any assessment of the socio-political component in regard to both implementation and impact is constrained to operate at a similarly high level. Nevertheless, within these broad limits we will suggest socio-political elements involved in the implementation/impact of the agro-ecological strategy.

The previous sections in this chapter have identified overgrazing as a significant problem contributing to the current drought situation as

well as to the long-term degradation of the Sahel-Sudan region. They have called attention to the reduction in agricultural productivity of the land arising from recent pastoral practices and have suggested that, if this land is to be effectively utilized in a long term sustained-yield agricultural strategy, grazing practices must be developed which are responsive to the capabilities of the ecological-environmental reality. We must pay attention to the carrying capacity of the land because this relationship demarcates the material limitations for public policies.

A major question to be addressed, then, is how herd size can be controlled, i.e., what means can be devised to control herd size in balance with environmental conditions? Rather large scale behavior modification is suggested by the range management proposal considerations for achieving the objective of reducing grazing intensity.

9.3.1 The functions of herd size: meaning and livelihood: In the economies and life styles of the populations currently occupying the Sahel, cattle play a major role. Although some observers of the African scene have emphasized the socio-cultural functions of cattle raising, it seems safe to say that the predominant reason for the holding of increasingly large herds is to "minimize risk," a fight for survival by traditional means. Sometimes a large herd is the only hedge against risk in the marginal environment of the Sahel, even though there is a large cost of environmental deterioration. It is the practice of the nomads to accumulate animals and store them "on the hoof" to hedge against future disasters.

9.3.2 Overstocking as an effect of other factors: The increase of herd size as a hedge against risk in the miserly and fickle environment of the Sahel has played an increasingly significant role in recent years as a result of the progressive removal of, or modification of, alternative strategies. Swift (Jeremy Swift, "Disaster and a Sahelian Nomad Economy" -- in Drought in Africa, ed. David Dalby and R. J. Harrison Church) has identified six main elements in the Kel Adrar

Tuareg strategy against uncertainty: a) herd diversification, b) movement, c) storing food, d) sharing animals, e) fall-back activities (hunting and gathering), and f) recouping losses, including 1. raiding, and 2. increasing caravan trading.

Recent changes have reduced the effectiveness of some of the elements in this strategy. Specifically, freedom of movement has been restricted by several factors, e.g., French restriction on nomad movements which were later reinforced by Post-Independence frontiers. In addition, changes in land use have been taking place. Cash cropping has increased with the result that less pasture is available for grazing, and cattle movement has become more restricted. Traditional Trans-Saharan camel caravan trade must now compete with the lorries which cross on the Gao-Bidon 5-Colomb Bechar track. Further discouragement to camel caravan trade exists in the form of new custom duties resulting from new national boundaries which intersect old trade routes.

9.3.3 Growth vs. development: The increase in herd size in the Sahel resulted from shifts in rates of "natural increase." Growth occurred but without concurrent domestic institutional reforms, especially in land ownership and tenancy, improved education and training. In order to achieve significant change, a socio-cultural-political climate and leadership amenable to, and capable of, substantial change is required. Additional requirements include an outside market with financial and trade policies providing the capital and trade outlets necessary for a fuller exploitation of resources. These conditions must be created by policy decisions. Failing in this, under the conditions of life and work presently found in the Sahel, large and increasing herd size is bound to lead to progressive deterioration of the agricultural ecological resource base. Any reduction in herd size would have to result from policy measures designed to limit growth in herd size. In the absence of such measures on a comprehensive scale, the Sahel will continue to experience increases in herd size to the detriment of the

agro-ecological system.

9.3.4 Reducing herd size: First, we must recognize that reduction in herd size will depend upon a policy decision. Reduction of herd size will not occur spontaneously on an individual-by-individual decision basis, although in the final analysis similar decisions will have to be made at the micro level.

Related to this point is the fact that policy decisions designed to reduce overgrazing must be undertaken by these countries themselves. These governments must first make the decision that overgrazing, and the resulting agro-ecological deterioration which accompanies it, must be eliminated. The socio-economic outcomes of the absence of controls in these areas must be clearly understood by the governments of these countries. This understanding should give the governments strong reasons for instituting policy measures aimed at getting grazing under control. It is necessary for these governments to take a political decision actively to effect the spread of grazing limitations. Without this political decision herd sizes will not be voluntarily reduced. Secondly, following the firm policy decisions made to effect grazing limitations, the governments must have administrative apparatus sufficient to the task. Each of the governments must be examined individually for their capabilities in this area. We have tried to provide basic data for this analysis. Thirdly, related to the requirement of a sufficient and effective administrative apparatus is the need to deploy a large staff of range management personnel. Here, for each country, we need to examine the extent to which indirect controls might be used, i.e., local personnel. Language, culture and ethnicity may become of critical importance.

A point brought out in previous sections of our work and requiring emphasis here, is the fact that herding as essentially practiced in the Sahel is a regional activity. The cultural groups dependent upon herding

as a mode of livelihood transcend national boundaries. Therefore, any attempt to control this activity will require planning ranging from the regional level down to the behavior of the individual herders if it is to be effective. It is unlikely that change by individuals, isolated groups, or even entire nations, will take place, or be effective, unless there is a regionally co-ordinated policy adjusting grazing pressure. We are dealing with a situation wherein, if some individuals, groups, or even nations reduce their herd sizes, whereas others do not, those who change will suffer "innovator loss," an outcome wherein the individuals or groups who change lose, but others do not. At present the lack of a unitary political body or authoritative unit constitutes a significant difference in the set of parameters confronting this region and the set of parameters confronting the similar ecologic zone in the U.S.

In addition, previous analysis has focused on the problems of inter-level linkage of governmental structures. We have noted that there has never been any successful way of relating the administrative structure to the nomads. Nevertheless, control over grazing and herd size will be ineffective unless firm policy decisions are made and adhered to at interlocking local, national and regional levels.

An awareness of the experience of other countries/governments dealing with land use problems may be an effective source of information/persuasion to the policy-making bodies in the Sahel. Development of effective control over land use is an on-going, dynamic process. Nevertheless, awareness by policymaking bodies of current techniques and practices in other nations or regions for regulating land use may allow for threshold change in this area.

Our evidence concerning the direct efficacy of legal or administrative action in the general case leads us to expect that the effects of this type of action will be conditioned by other factors. We have previously pointed out that the function of herd size has both

economic and socio-cultural dimensions. This means that policy decisions and legal statutes must be buttressed by economic and socio-cultural supports if they are to be effective. Failing in this, ways of circumventing the law will undoubtedly emerge. We must address the possibility of economic incentives, particularly through increase in off-take. As regards socio-cultural changes, greater reliance will have to be made on basic educational and communicative methods of influence and persuasion.

9.3.5 Policies affecting modern traditional relations: With regard to the "three circles" of poverty outlined, we are particularly concerned with the third: the relationships between the "traditional" and "modern" sectors. At present, the fiscal and monetary policies of the six states clearly favor the modern sector. If rural development is to occur, some reorganization of financial institutions must take place. Thus, for example, at present there are no savings facilities for herders, other than in the form of animals. This often compounds the problem of regulating the number of animals, because animals are used as wealth as well as food and products (e.g., milk, meat, skins). The savings and credit problems of herders are not the same as farmers (much less urbanites) and creative new approaches should be explored to this problem. Even with farmers, the current credit and savings facilities are inadequate, and are often used for purposes of political control, rather than rural development.

Other types of policies which affect rural development include marketing board structure and process, cooperative arrangements, seed/fertilizer/equipment procurement policies, land allocation and inheritance practices, land use and fallowing restrictions, plus the "balance" of facilities and amenities between the urban and rural areas. We are still in the process of assessing some of these policies, but in general, we are more concerned with the procedure for arriving at such policies (i.e., involving farmers and herders, and not just government people), rather than assessing a particular combination of policies.

(Without going into a country-by-country approach, we cannot even assess the impact of any policy or combination of policies.)

The ecological equation is one that includes land, people, animals, climate and resources. Since "people" are the decision-makers (on those factors within their control), the first step is to assess which factors are within human control, and which are not. The control of animals is certainly within human control, and the problem here is often the conflict of interest between people at the micro level and people at the macro level. Macro level policies may try to control people at the micro level, but without rearranging the micro incentive system, or vastly increasing the macro implementation, coercive capacities, there is little hope of success. We are suggesting coordinating micro and macro interests by joint participation in decision-making, and by reversing the trend to have all incentives in the modern/urban/elite sector, which gives the farmer or herder at the micro level little incentive but to struggle for his survival, whatever the greater good for the land or the total population may be.

Human control of land is also possible, but the same remarks on incentive and knowledge apply here as with animals. Human control over climate and resources is more limited, although both can be affected by technology, and should be explored. Water resources in particular will affect human capacity to control the land and animals. While we are not in a position to explore large scale control of water resources (through dams and pipelines), we follow the Agriculture-Ecology report in suggesting that dry land farming remains a much more important option than is commonly recognized, if it can be done properly. Our main question thus becomes: how can farmers and herders reorganize themselves into more productive production units, while at the same time, undertaking good land management practices over the long run?

9.3.6 Socio-political policies for rural mobilization: In our view, grassroots participation is crucial to ecological reconstruction.

This involves mass mobilization and mass communications, including use of indigenous languages, and non-formal education programs. With herders, there is a need to establish initial contact, probably through their traditional system, and get herder participation in any long-range planning regarding livestock. We suggest consideration of regional solutions, especially "natural" regions (e.g., geographic and economic), thus creating political and administrative linkage across ecological zones. (West Africa is at a crucial threshold regarding regionalism at present.) There is need to establish a post-drought data base on human migration, and an indigenous capacity to link such a data base to planning, and to implementation. Inter-university linkage may provide considerable movement toward this end.

A brief summary of some of the socio-political policies required by an ISYALAPS strategy would include the following, all of which have been dealt with in preceding chapters of this volume. This list is by no means exhaustive but it does indicate some of the more important dimensions in attempting to achieve sustained yields, potential for future growth, and prevention of further ecological degradation.

1. Strengthening communications policy, including full use of major local languages, and development of mass radio linkages.
2. Non-formal education policy, including development of rural animation and possible use of military in non-formal adult education.
3. Establishing post-drought demographic baseline, with human tracking stations to assess migration.
4. Establishing national and regional commission on pastoralism, with participation of herders, to make technical and administrative arrangements for "interstate commerce" and "seasonal mobility." Work through existing authority structures.
5. Resettling (in south) those herders and nomads who have immigrated

to the cities, and are unable or unwilling to continue herding, and who cannot be integrated into urban life.

6. Support "experimental" efforts at infusion of good range management techniques and technology into herding practices.

7. Conducting feasibility study of economics of regional cooperation. Supporting programs to encourage bilingualism (French, English) in key areas of regional linkage (e.g., infrastructural linkage, administrative cooperation, etc.)

8. Considering procedures to provide incentives for farmers to remain in rural areas. Encouraging increase of scale of planning and production units. Examine land tenure issues from indigenous culture point of view.

9. Exploring the indigenous values and beliefs of farmers and herders as they might affect ecological reconstruction. (Probably through university based research.)

10. Establishing a data base for serious planning. This includes social, cultural, and political data, as well as economic and technical data. Retraining civil servants and students in techniques of data management and analysis. Strengthening regional-scope university linkage, including task force oriented ecological teams. Working for direct university linkage between Sahel-Sudan states (e.g., Dakar, Ouagadougou and Zaria).

10. THE HUMAN FACTOR IN ECOLOGICAL RECONSTRUCTION: CONCEPTS AND OPTIONS

In this concluding chapter, we will review the conceptual basis of our diagnostic analysis, our judgment as to the four major options confronting the area, and our suggestions for further work.

10.1 Concepts: Linkage, Mobilization, Scale

We have tried to address the question of how to achieve sustained yields and prevent further ecological degradation in the Sahel-Sudan region. We have examined "implementation capability" of existing institutions in the region, but in a broader sense have raised the question: to what extent are the farmers and herders of the region in a position to help themselves? We recognize that we are dealing with centralized national systems, and that most decisions are being made at the national level, while some embryonic regional planning is also in progress. Within this context, we feel that our three major conceptual approaches are those involving linkage, mobilization, and scale.

10.1.1 Linkage: The basic question of linkage is how can relations be established with farmers and herders so that a cooperative exchange of problem analysis, information and resources (including human resources) can take place. In established states, this linkage process may be taken for granted. In new nations, this is precisely what is being constructed in the first decade or so of independence. When disaster strikes before this linkage has become established, the problem may become exacerbated.

The key to linkage is communications and, given the Sahel-Sudan region, the key to communications is the creation of a cadre of human intermediaries. Such intermediaries must be able to communicate in the languages of the farmers and herders as well as those of the technicians and government decision-makers. At present there has been

little effort to build such a cadre of intermediaries. We are suggesting that such intermediaries be drawn, wherever possible, from the communities they are intended to serve. Whether they are called "rural animators," or "ecological reconstruction corps," or "youth corps," or "national service corps," or whatever, does not matter so much as the function they serve. Such a cadre of intermediaries should be paid, and given career rewards for their service. While young people may seem an ideal group to train as intermediaries, there is no reason to suggest that more experienced persons would not be equally (or more) effective.

Linkage does not refer to increased centralization. In fact, linkage may require less centralization, and more reliance on local initiative (i.e., on decentralized structures). Thus, "implementation" often connotes increased centralized capacity to work its will at the local level. In this case, there may not be time to build a central capacity, although many of the existing national structures might be geared to this new linkage function (e.g., teachers, paramilitary, etc.)

10.1.2 Mobilization: Linkage may provide the necessary condition for rural reconstruction, but mobilization provides the sufficient condition. Thus, a flow of communications and a set of intermediaries may be established, yet unless people are mobilized to deal with their problems, the same old patterns of land abuse and maldistribution of incentives may continue, but with new energy.

Mobilization refers to the dedication of energies and resources toward specific goals. In this case, we are talking about agricultural productivity and long-term good management of the land. Mobilization of farmers and herders probably involves their participation in the long-term management issues related to ecological reconstruction, and hence, a considerable amount of re-education is necessary. Much of this education would probably take place in a non-formal mode.

It would probably have to be in the appropriate indigenous language. Some of the linkage intermediaries mentioned above might be used also in mobilization/education. The existing cadres of soldiers and teachers might be retrained in elementary ecological matters and serve as an immediate vehicle for mobilization. The possibilities for curriculum packages geared to non-formal education, the increased use of demonstration techniques, mobile cinemas, radios, etc., have been mentioned in this report. We are convinced that the question of adapting technologies and knowledge to local needs could be done in a relatively short period (e.g., three years), during which period the cadres of intermediaries and mobilizers could also be organized. This would take a serious commitment on the part of the international aid community, however, over and above the immediate relief effort. It would also require immediate consideration of the organizational vehicles for implementation.

The mobilization of herders is especially difficult. The legacy of distrust, and resistance to the modern sector has a long history. Unless there is a fundamental increase and redistribution of economic incentives and political influence, this pattern is not likely to change. Perhaps the drought has provided an opportunity, born of necessity, for governments (and the modern sector, at large) and herders to establish contact (linkage), and for negotiations to begin on the organizational requirements for long-term mobilization. The technologies of good livestock management are known (see Agricultural Report), and the most serious obstacles are social, political and economic. The committee on the drought (CILLS) may be a vehicle for initial consideration of this matter, but in any long-range planning, the coastal states must be involved. In the Agricultural Report, the importance of livestock cycles which cut across ecological zones (and, by implication, political boundaries) is clearly established. Thus, negotiation on a regional basis should be regarded as an immediate priority.

10.1.3 Scale: Our concern with linkage and mobilization leads us to a consideration of the scale of the system we are evaluating. Scale refers to the size, or complexity of human systems. Scale is also a relative matter. Yet by African standards, a state such as Gambia (with half a million people) is very small scale, and Nigeria (with 80 million people) is very large scale. The average size of the six Sahel-Sudan states is about 4 million, which even by African standards is a small scale.

While there have been published analyses of the economic and political consequences of the size of nations in other parts of the world, there have been none, to our knowledge, as yet in Africa. (Perhaps because of the newness of the states.) Certain types of economic development clearly require economies of scale (e.g., the establishment of a petrochemical industry in Nigeria). Other types of development (e.g., certain types of cash crops) may not. It is clear that a small state with few natural resources may not have the resource base to support its recurrent budget, much less its development budget. This seems to be the pattern in the Sahel-Sudan states (with the possible exception of Senegal and Mauritania). Hence, the economic viability of a small state is amenable to empirical investigation. Political viability tends to follow economic viability.

In short, there might be prima facie reasons to consider the economic and political consequences of the scale of the Sahel-Sudan states, and to explore scale as a variable rather than as a constant. To undertake this analysis systematically would require a research design (and time schedule) beyond the scope of this report. In a sense, the Montreal report on the relations between Niger and Nigeria was a study of scale, and the political/economic options associated with options of scale.

Yet apart from the economic and political consequences of scale, the agro-ecological strategy outlined in other volumes of this FINAL

REPORT, also has implications of scale. The agricultural products of land-locked states need to be transported to the coastal ports, and hence, are part of a larger economic system. The livestock cycle, which crosses ecological zones, also is part of a system which is larger in scale than any one of the Sahel-Sudan states by itself, (or even the Sahel-Sudan states together).

In the following section, we will outline options which stem from our considerations of linkage/mobilization and scale.

10.2 Options: Deterioration, Gradualism, Mobilization, Scale

There is no statistical way of projecting existing combinations of variables at the local, national and regional levels into "alternative futures" for the Sahel-Sudan states. If a time-series base of data were established (and we have tried to contribute toward that end), it would be technically possible to use system dynamics models for forward projections. But the reality basis of such projections would still be in question because the structure of parameters cannot be expected to hold constant over time. Instead, we have tried to project interrelationships in a conceptual way, the major categories of alternative futures which are associated with clear options or choice-points stemming from the current situation in the Sahel-Sudan states. We have projected four such scenarios, each of which has face validity, depending on the policies undertaken by the respective decision-makers in the near future. We are not in a position to conduct feasibility analyses of the options, but are able to identify those options which are based on policy changes rather than financial commitments. We will use qualitative judgments on the economic basis of our projections, ranging from "low" to "high." If future work were done on this report, perhaps those economists with skills in cost-estimating could supplement our projections with cost-benefit analyses. In each of our projections, we have considered the problem to be ecological

reconstruction, and not immediate drought relief.

The four options we have projected are: a deteriorating model in which the drought has left a permanent scar on the land, and international resources are not available to deal with reconstruction; a gradual improvement model, in which pre-drought levels of development are resumed; a mobilization model, in which mass-elite linkage is established, and a commitment is made to better management and development; a mobilization/scale increase model, in which mobilization occurs, and also the coastal states cooperate with the Sahel-Sudan states in dealing with the problems of ecological reconstruction.

10.2.1 Deterioration Model: In this model, several variables change so drastically during the drought that they start a cumulative deterioration effect which cannot be stopped (by normal means). Thus, out-migration occurs from the six states, including both herders and farmers (comparable perhaps to the out-migration of farmers from the Oklahoma "dustbowl" to California during the 1930s). While this might ease the immediate situation, in the long run it drains off much of the necessary manpower for reconstruction and leaves the weaker farmers and herders in the area.

In addition, the land itself is destroyed, and cannot be reclaimed without massive infusion of technology, which is not forthcoming. Trees are not replanted and cattle are not controlled. The farm land is overworked.

"National" solutions are sought, and national self-interest precludes regional cooperation and interstate exchange of resources. The central infrastructures of each state are expanded, which means that the modern/urban sector grows but with no rural base. Soon, the urban situation deteriorates, political and economic instability occurs, and the military takes over. The military cannot restore the economic and political health of the country, and things get worse. There is a flight of private capital. International political competition intrudes

and political factionalism further exacerbates the situation, especially because ecological reconstruction has a low political priority.

10.2.2 A gradual improvement model: In this model, a considerable effort is made by national, regional, and international communities, and the level of development is restored to the pre-drought situation. Emigrants return to their villages, and resume "life as usual." Ecological reconstruction is not undertaken, but efforts are made to develop farm and animal productivity. National infrastructures are strengthened and "development-from-above" continues as before.

If droughts are cyclical, as the evidence presented in the climate report seems to indicate, the next drought will probably wipe out these "gradual" gains, and the situation will be the same as it is now.

10.2.3 A mobilization model: In this model, an effort is made by national, regional and international communities, but in addition, the local communities of farmers and herders are drawn into the process of planning and implementation. Mobilization structures and processes are designed so that a steady flow of information, financial encouragement, and technology reaches the grassroots level. Communications and language policy receive high priority, and the entire range of national government structures is dedicated to working with farmers and herders on short-term productivity, long-term land management, and ecological reconstruction. A policy of development is undertaken whereby efforts are made to close the mass-elite gap and create a more equitable distribution of influence and financial rewards.

10.2.4 A mobilization/scale increase model: In this model, mobilization is undertaken, but, in addition, close economic and administrative links are established with the coastal states. The region as a whole becomes a planning unit. This increases comparative advantage in all sub-units, and allows for free factor flow (of capital,

resources, and manpower) which stimulates all sub-units in the system. In particular, the resources of Nigeria and Ivory Coast (including trained manpower) are brought to bear on the problem of ecological reconstruction of the Sahel-Sudan region. In turn, the coastal areas receive the meat and foodstuffs they need, which further stimulates their economies. Rational regional approaches to connectivity, communications, water resources, and livestock alleviate some of the current problems in those areas. Ecological balance is maintained, and productivity increases partly by building on the comparative advantages of different ecological zones.

10.3 Further Work in Assessing Socio-Political Factors

In this final section, we will suggest some immediate steps which could be followed to carry through the preliminary analysis suggested in this socio-political report. These steps are not meant to be exhaustive. Rather, they are suggestive of the kind of research that would be necessary to more fully assess socio-political aspects of ecological reconstruction.

10.3.1 Data base and analysis: The data base for most of the analysis in this report is taken from sources produced in the 1960s. While we regard this as a base line for future work, it would be possible within a relatively short period (e.g., one year) to update these variables, and to undertake more refined analysis. In fact, a long term solution to problems of ecological reconstruction probably requires that a continuing data base be generated. The units of observation of most importance are: the individual (e.g., demographic data associated with census enumeration, but also psychological, attitudinal and ideological data); cultural units, national units, and regional units. In addition, the possibility of systematically coding local government units or "planning units" should be explored.

The kinds of variables on which units would be coded have been

indicated in this report, but in addition, more refined variables on ecological reconstruction should be designed. Thus, research design is the crucial next step. An interdisciplinary "think tank" approach might be useful, now that the preliminary reports are in hand, so that variables related to the ecological equation (i.e., man, land, animals, climate, resources) could be constructed.

At this stage, the necessity for African participation becomes ever more apparent. Many of the universities in the United States and in west Africa have a capacity to engage in research design, data gathering and analysis, and in-service or university training in these matters. Some inter-university consortium arrangement would probably be most appropriate. In the longer run, such training facilities probably should be transferred to west Africa.

10.3.2 Follow-through research: Having identified the conceptual categories of linkage, mobilization and scale as important to long run ecological solutions, a number of micro-level research projects could be designed to assess current patterns, and to study experimental remedial efforts. The process of evaluation is even more necessary in a broad integrated approach, than in a project oriented approach. The technical capacity of social scientists for such program evaluation is increasing, and depends largely on data availability.

In particular, questions of priority significance might include: the role of traditional cultural units in mobilization; the impact of transportation linkage on social mobility and social interaction; the impact of communication levels on mobilization; urban-rural social interactions; the impact of the drought on herder social structure and mobility; religious belief systems in relationship to "innovation" and "future-time orientation;" organizational aspects of vertical linkage; town planning experiments; patterns of multilingualism in relation to attitudes and social communications; land tenure and land reform; plus questions of nation-building and regional integration.

The "sociology of knowledge" is perhaps more important than the knowledge itself. An "outside" research approach, no matter how good the intentions, can only reinforce a "development-from-above" approach. Future research might involve getting African students involved at an early stage of their careers in the processes of empirical research on issues of local, national and regional concern. Whatever "outside" research may be necessary at present we regard as a short-term heuristic approach, which should eventually be reinforced by locally-based research capabilities.

10.3.3 Cost estimates: Since specific approaches have been considered in this report, a serious evaluation of these proposals would require some cost-estimates which we are not in a position to undertake.

We would recommend that such cost estimating be done by teams of technical personnel, economists, and social scientists. A simple economic cost-benefit analysis of proposals in the Sahel-Sudan region would obviously overlook the important "social" or "political" costs, quite apart from "environmental impact" costs. The usual approach to estimating either costs "benefits" in monetary terms only is short sighted, and without doubt doomed to failure. For a simple, but fundamental example, in our cursory discussions with economists on the "costs and benefits" of a cow in the Sahel-Sudan, we f[illegible] widely varying estimates. Any effective long term planning must try to come to grips with the problems of units and criteria of value employed in the projections. While this may appear to raise philosophical questions, our intention is to argue for a more pragmatic, area-centered, realistic, approach to planning.

In the models we suggested in Section 10.2, the economic cost estimates are not dramatically different. In the "levels of activity" outlined in the Agricultural Report, finances were a key determinant of the degree to which technology is infused. In our models, the differences

are largely of policy not budget. This assumes that the immediate crisis is dealt with on some kind of emergency budget basis, and that a reasonable level of international aid is maintained in the reconstruction era. In fact, we would imagine that a substantial reconstruction budget will be available, and the question is how to allocate such a budget.

In the deterioration and gradual improvement models, the important factor is that long-term planning for ecological reconstruction is not undertaken. Directions of gradual growth (negative or positive) are dependent on such "uncontrollable" variables as human migration, and on such policy variables as production priorities.

In the case of the mobilization model, an initial effort is made to design and establish the communication and mobilization structures, but thereafter, the momentum comes from the redesigned system itself, in terms of increased efficiency and management with greater and more equitable allocation of rewards contributing to the incentive structure. Some of the initial reconstruction costs (e.g., of communications, infrastructure, and education) could probably be covered from the emergency relief budgets, since linkage is an essential ingredient in any immediate effort, as well as in the long-term efforts.

In the case of the regionalist approach, economic costs might even be saved over the long-run, as wasteful duplication of efforts is replaced by integrated regional planning. Yet there would be initial costs in establishing the infrastructural linkages across national boundaries, and in re-training technicians and civil servants in the languages and ecologically oriented skills they would need.

10.3.4 African participation: The question is not whether there should be African participation in socio-political analysis, but which African participation. If our diagnosis is correct, and a serious mass-elite gap is part of the problem in the Sahel-Sudan region, then to leave total planning responsibility to such elites may be a disservice

to the region. We recognize that national elites are of necessity involved in planning and evaluation. We would argue that some effort should also be made to involve alternative elites (e.g., from the universities), and some representatives from the farmers and herders who are most affected. This is, of course, more possible in west Africa than abroad, and is another reason why an indigenous "data processing and analysis" capability should be created in the region.

In all cases, dissemination of information should be encouraged.

SUMMARY

In Part I of this volume (Chapters One and Two) we describe and analyze the human baseline, consisting of demographic and cultural patterns.

In Chapter One (demography) the conclusion which follows from our analysis is that the population picture which emerges of the region as a whole does not at present reflect significant general population pressure. We recognize that the whole question of population pressure must be seen as part of an overall socio-ecological equation. From the information made available by the agricultural analysis of carrying capacity in the MIT study, as well as our information on human resources, social organization, aspirations and values, it is our judgment that the region does not now suffer from general population pressure. The main problem has been the inaccessibility of land of high potential (due to, e.g., disease, lack of infrastructure, etc.) to the Sahelian population. Nevertheless, given present growth rates and predictions concerning population increase, the population factor must be taken into account in planning.

We suggest that the proper arenas for assistance by the U.S. or other "outside" national, or international bodies include:

(1) assisting in compiling and maintaining up-to-date census information;

(2) providing information regarding the importance of the population factor in development planning (e.g., the importance of knowing the distribution of the population by age groups for understanding the manpower potential, dependency load, consumption needs and social requirements);

(3) assisting in the building of an administrative apparatus for spreading family planning information, including a staff of medical and paramedical personnel; and, perhaps more important,

(4) continuing to improve family planning research and technology.

We regard the <u>distribution</u> of population <u>within</u> the region of more

immediate significance. We have examined urbanization, which is occurring at very high rates, and the patterns of urbanization which have emerged. Although we have concentrated on rural development in our analysis, we see the urban-rural nexus as crucial to rural development. Urban planning facilities should be strengthened, not just on a city-by-city basis, but in a way which affects urban systems development. The policy of encouraging a decentralized urban network, rather than a primate system, would be supportive of a development strategy such as envisioned in this report. Also incentives and institutions could be developed which encourage the "best and brightest" of the rural community to channel their energies into agricultural productivity and ecological reconstruction, rather than unrestrained migration to the cities, which offers little prospect for employment or ecological construction.

With regard to the migrations of herders, we note that the optimal patterns cut across ecological zones, and sometimes across political boundaries. Thus, breeding and calving might take place in the Sahel zone, grazing in the Sudan zone, and fattening and slaughter in the woodland zone. This optimal stratification requires a reconceptualization of the political implications of livestock policy, since herders may be required to cross international boundaries in a way which is currently not possible.

Urbanization and migration are obviously key elements in the development process. However, a recurrent theme in our report is that the relationships between the urban and rural areas as they have developed in the recent past have been fragile, exploitative, and reflective of a dual economy. The relatively early development of the coastal region in west Africa during the colonial period led to the integration of the coastal cities into the "modern" economic system. An "urban-rural gap," as well as a "modern-traditional gap," has been

created and must be checked by planning and policy measures if balanced and continued growth is to occur.

If the present urbanization and migration patterns continue, we expect:

(1) a regular increase in the gap between the urban and rural sectors of the national economies;

(2) a regular increase in the gap between the inland countries and the more highly developed coastal areas, and

(3) a regular increase in the gap between the needs of the Sahel-Sudan region and the production capacities of the region as a whole.

Our examination of mobility patterns, including urbanization trends and national and international migration (both seasonal and long-term), suggests both opportunities in and the necessity for urban and regional planning. The patterns of population movement which we describe indicate that this movement has local, national, and regional implications and hence requires collective planning and policy measures which include all three levels. We suggest a number of areas in which policies could be developed to take advantage of the population movements (e.g., dealing with "regroupment centers" or refugee camps in terms of their potential for training and reorientation), or to modify these patterns (e.g., by altering the incentive structure).

Planning and decision-making bodies must respond creatively with development policies to meet the demands, capacities, and aspirations of the total spectrum of society within the region. If the productive potential of the land and people is to be transformed into direct forms of production and development, then existing institutions must prove capable of expanding their functions and adjusting their norms and values to meet the conditions and aspirations of the greater proportion of the society. Or, new institutions must arise which can serve this purpose. (We explore institutions for these functions in later chapters.)

In Chapter Two we identified twenty-four distinct cultural groups, by means of culture cluster analysis, using such planning-relevant criteria

as authority patterns, forms of social organization, mode of livelihood and inheritance patterns. It is our premise that any plans and strategies which do not take into account the cultural patterns of the peoples of the Sahel-Sudan region, and the major variations among groups within the region, stand to lose in several respects:

(1) They will fail to capitalize upon and harness the existing cultural resources, including skills, attitudes, values, forms of social organization, and modes of authority which might contribute to the goal of achieving ecological survival and reconstruction;

(2) The plans and strategies which they develop may compete, or directly conflict, with pre-existing cultural patterns, and

(3) They cannot tailor their plans and strategies either to suit and to reflect, or to modify the full range of cultural diversity in the region.

An important caveat should be introduced here. We do not mean to suggest by our analysis of cultural patterns that these patterns either must or should be maintained. We do not, in any way, intend to suggest a static situation. On the contrary, cultural patterns are always subject to change when conditions change. The adaptability of the Sahelian peoples has been well demonstrated. For example, the relative facility with which the Fulani passed from one type of pastoralism to the other, and became sedentary mixed cultivators, was proof of their ability to adapt to changing conditions. Our cultural analysis is intended merely to provide us with rough estimates of the existing cultural baseline--not to suggest that these patterns are impervious to changing conditions.

Neither do we suggest that the planning of policies and the devising of strategies take into account all of the "ethnic arithmetic" common in many countries, but rather that it must take into account the broad culture groups, which are relatively durable in terms of their behavior patterns and sets of social meaning. We cannot summarize here all of those patterns nor their implications, but we will use the

case of herders as an example, since it is people most dependent upon this particular mode of livelihood who have been most severely affected by the current drought. We have identified four specific cultural groups who are involved primarily in herding: Fulani, Arab, Moors, and Tuareg. These groups constitute about one-fourth of the total population of the Sahel-Sudan region. It is notable to recognize that the position of pastoralists differs both by country and by ethnic (or culture) group. Below we note a few of these differences and suggest implications.

The Fulani are by far the dominant group of herders, and they are spread throughout west Africa. They have important linkages to the coastal areas. The need for meat production in the area and the need for rational management suggests that we explore in more detail the possibilities of building upon the cattle herding skills of the Fulani in the exploration of modern ranching options, as well as transhumance patterns more appropriate to the politics and ecology of the region.

The Tuareg, however, are a much less diversified group with a consequent narrowing of options. Formerly, they found it possible during periods of drought to turn to trans-Saharan trade, utilizing camels, or to expand their patterns of movement. Recent changes have reduced the effectiveness of those strategies. Specifically, their freedom of movement has been restricted by several factors, e.g., French restriction on nomad movements which were later reinforced by post-independence frontiers. In addition, traditional trans-Saharan camel caravan trade must compete now with the lorries which cross on the Gao-Bidon 5-Colomb Bechar track. Further discouragement exists in the form of new custom duties resulting from new national boundaries which intersect old trade routes. Hence, in the case of the Tuareg, retraining and resettlement appear to represent more viable options. Many have already settled in urban refugee camps and detailed surveys should be

conducted to determine their receptivity to alternative life styles and means of livelihood.

The Moors stand out from other pastoralists in that they are not a minority in their country. In fact, they are in control of the country. Unlike most of the pastoralists who are remote from their national government, the Mauritanians may have the machinery in hand for certain types of solutions, including reclustering and retraining.

The situation in Chad is almost the reverse. There the Arab pastoralists have had little contact with the national government. In contrast, they have had historic and cultural ties with Libya and Sudan. Thus, if resettlement is to occur, it might be to the north as well as to the south.

We examined with special care the patterns of traditional authority of the various cultural groups, inasmuch as authority can play a particularly significant role in generating and implementing viable plans of action. Subsequently, we looked at mode of livelihood cross-tabulations and authority pattern cross-tabulations. These cross-tabulations provide planners with some idea of the kinds of variables that bear on the question of planning and implementation. If planning is to continue at the national (and even regional) level, the necessity for focused social research should be clear. However, of even greater importance, it is our continuing suggestion throughout our report that the formulation of plans must be a collective endeavor. The ecological problems of the region cross national boundaries, as do the cultural groups. Realistic planning must involve the participation and collective decision-making of those groups involved, and the basis of this participation must take into consideration the cultural traditions of the particular area.

In Chapter Two we also call attention to the fact that migration and mobility patterns often have an ethnic base, and any future study of migration and mobility should take this into account. Since we argue that any future policy of <u>ecological reconstruction</u> must take post-drought

demographic patterns into account, the question as to how ethnicity is identified and coded becomes important. Usually multiple criteria are employed in coding ethnicity, but the two major social science approaches are: (1) self-anchored perceptions (i.e., how people regard themselves); (2) some set of "objective" criteria, such as language, cultural patterns, geographic proximity, etc. The policy implications of each of these two approaches are quite different. In this report, we have made use of the "cultural patterns" approach because we had ready access to these data, and they do relate directly to the potential of harnessing cultural energies to the task of ecological reconstruction. Awareness of the cultural heritage of peoples suggests areas of strengths and weaknesses which can be useful in the formulation of development programs and their implementation.

We also examined religious structure and culture, focusing on the Islamic areas, because of its importance in establishing specific behavior patterns of concern in this report. In many ways the Islamic heritage is more important than the ethnic heritage in determining cultural attitudes, values, mobility patterns and authority structures. We dealt briefly with five topics: (1) religious distribution patterns, (2) religious structure and organization, (3) religious beliefs, and (4) religious reform and modernization.

We recommended several ways in which we might strengthen the role of religious institutions in socio-economic development:

(1) Support of existing and proposed institutions for the study of Islamic culture, emphasizing the improvement of empirical research capabilities, especially as they constitute problem-focused efforts;

(2) Support for and utilization of the Koranic schools in rural mobilization;

(3) Support for and encouragement of communication and interaction between marabouts (religious brotherhood leaders) and administrators in joint problem-definition and problem-solving efforts; and

(4) Utilization of the existing economic-cum-religious links between the urban centers and rural populations as conduits for the exchange of information and techniques.

It should be noted that the pastoralists do not fit into the same religious networks as the urbanite or settled farmers. Yet the congruence of clan with religious identities among the herders invites a further assessment as to how pastoralists and the modern sector may achieve closer linkage.

Many agricultural economists working in the third world context have developed clear notions as to the kinds of land tenure arrangements they feel are optimal for the "modernization" of agricultural production. These prescriptions generally argue that in order to increase incentives for improvement, investment, and good management, there is a need to "individualize" land tenure. We argue, rather, that matters such as "incentives" are basically culturally specific. In addition, we point out that existing rules regulating land tenure are an integral part of cultural patterns of kinship, authority and social control. We suggest that the social and political costs of undermining these cultural systems may be prohibitive, and we try to examine other options which work within the traditional framework rather than attack the bases of communal organization and culture. It is for these reasons, we have tried to specify those aspects of land tenure which are most vital to agricultural productivity and long-term relationship to development, without destroying the cultural base of rural agriculture. Our analysis suggests that there is no clear-cut relationship between various forms of land tenure and productivity, except as influenced by the variable of scale, which we introduced as an intervening (or control) variable. That is, large-scale units of production can increase productivity whatever the forms of land tenure. Tenure is essentially a cultural matter, and there will probably be variation even within the Sahel-Sudan region in terms of how large-scale units can be constructed and made to function effectively. We

singled out the Senegalese example (religious-based cooperatives) as significant in that large-scale farming units were established, but the incentive system was communal rather than individual. It may be an important alternative to the notion that westernized forms of incentives (in particular, individualism) are necessary for the mobilization of agriculture.

Related to the issue of tenure is the question of transfer of rights. If land could be bought and sold on an unrestricted basis, it is likely that a semi-feudal stratification structure might develop which might initially aid agricultural production (i.e., via increasing economies of scale) but would drive even larger numbers of African peasants off the land and into the cities. This has already happened in certain parts of the Sahel-Sudan region, and a class of "rural dispossessed" has begun to emerge in the urban centers. Likewise, the question as to whether non-nationals should be able to own land (including non-Africans) is a political issue. It is more likely that if a West African Economic Community emerges and modifications are made in inheritance and transference rights, that nationality and trans-national regional restrictions will be placed on land ownership. Since the Islamic patterns in most of the Sahel-Sudan region have already eroded some of the ethnic patterns of community allegiance and identify, a natural base for trans-ethnic land tenure policies already exists. This has emerged <u>naturally</u>, and without the necessity for drastic national land reform. Where this natural process is possible, it is probably preferable, since the social and political costs of land reform, <u>which appears to allow for land alienation</u> (as distinct from reform situations where land is taken from landlords and given to the peasants), are likely to be high.

In Part II (Chapters Three to Eight) we examined different levels of decision-making and different types of resources available for the

implementation of plans of action. Any effort at ecological reconstruction will involve coordinated, complex, collective decision-making regarding plans of action, and intricate channeling of resources for the implementation of plans.

In Chapter Three we examined decision-making structures at the local government level. We are convinced from all available evidence that local structures are extensions of national structures, and have little autonomous decision-making power. The centralized "descending" nature of decision-making structures in the six Sahel-Sudan states is clear in the structure, process, and boundaries of local government. There is very little linkage with or participation by farmers and herders.

There have been sporadic efforts at rural development programs, however. Most relevant to our concern with grassroots mobilization have been the efforts at "rural animation." A cadre of young people were selected from villages to serve as intermediaries between the technical resources at the national level and the production units at the local level. The experiments in "rural animation" have received little systematic evaluation, and frequently the political factors have been omitted in most public discussions of these programs. An important exception is the work by Charlick on "induced participation" in Nigerien modernization (reported more fully in Chapter Three), wherein he suggests that rural development strategies are thwarted by the dilemma posed between the modernization needs of the country and its power situation.

In Chapter Four we discussed national decision-making. The fact that three of the national regimes are "military" and three are "civilian" poses the question as to whether this makes any difference in the nature of decision-making or participation. We concluded that in both types of regimes, there is highly centralized "descending" decision-making, and that such structures are supportive of a "development-from-above" or "outside" approach. With regard to

participation, or upward influence on decision-making, we concluded there is very little rural input into the decision-making process. In addition, the herders of the region have had very little influence or participation in their governments, and the three instances of communal violence in the six states (which is a very low level compared to other parts of Africa, or the world), all involved nomads/herders. In short, there is a serious breach in linkage between centralized governments and rural areas, particularly herders. We have attempted to identify tions and mobilization strategies which might be useful in trying to remedy this situation.

In Chapter Five, we discussed national implementation potential. Partly because the six states in this region were part of larger federations during the period prior to independence in 1960, the decade of the 1960s was largely spent building structures and infrastructures which many of the other African states already possessed to some extent. Senegal is an important exception to this pattern. As capital of the former Federation of French West Africa, it often had a larger infrastructure and implementation potential than the other five states combined.

We examined three dimensions of implementation potential: a) magnitude and scope of national budget, b) military and educational structures, and c) communications/connectivity patterns.

Quite apart from the question of external support for the national budgets in this region, the actual scope of national budgets is so low, on average, that the costs of national administration and structure (including policy/military) account for almost half of the national budgets, with very little left over for rural development. Both magnitudes of budgets and scopes of budgets are good indicators of values, priorities, and potentials. Our national budget analysis underscored the fact that most of these governments are too fragile and infrastructures too little developed to handle even routine processes,

much less the ecological reconstruction which may be necessary for the region. Absolute magnitudes aside, reorganization of distribution patterns by sector and geographical region would seem necessary if any mass-based ecological reconstruction strategies were to be instituted.

In all of the states except Senegal, educational structures were built up quickly in the 1960s, but have not reached the level of university development as yet. Education has followed the formal pattern of French education, with all education in French language, and little focus on ecological problems or mass mobilization. In short, education was elitist, but had barely reached the stage where high schools were coming into existence. With regard to communications, all official communications have been in French, even though rural literacy in French is about 1% and there are several major indigenous languages in the area.

Rather than take these diagnoses of national implementation capabilities as a counsel of despair, we have tried to suggest that without an entrenched formal tradition in the fields of education and military, there is an opportunity to build in new directions, and to shift to a more mass-based development strategy. A major challenge in this regard is to develop institutions which permit and encourage the villagers to share to a larger extent in the influence and reward processes, without challenging or jeopardizing the fragile national structures which have so recently come into existence.

In particular, we analyzed the implication of a change in language policy, whereby farmers and herders would be encouraged to communicate in their own languages, without going through the lengthy and difficult task of learning a European language. This is particularly appropriate with herders since the two major groups, Fulani and Arabs, both have a language which is highly susceptible to standardization and mass communications. (Notably, Mauritania has moved toward an indigenous language policy.) We are not unaware that changes in language policies

may involve difficult socio-political-economic trade-offs. We have referenced the riots occurring in Nouakchott in early 1966 wherein certain ethnic groups felt that administrative and governmental posts had been made less accessible to them as a result of language policy changes. It is fully recognized that the technical aspects of literacy and language training represent only one dimension in a complex situation.

We also examined the implications of strengthening mass communications facilities in the area, notably radio communications. In addition, we suggested that it may be possible to strengthen non-formal educational structures, particularly in the rural areas, and that military or paramilitary structures might be geared to national development ends (including ecological reconstruction). Apart from those situations where the military has taken over control the military consumes about 15% of the national budgets, but the payoffs for development are very low. Again, these are areas which suggest difficult policy decisions, and detailed analysis of structural and attitudinal constraints will be needed before feasibility and costing assessment may be attempted.

In Chapter Six, we examined <u>regional</u> institutions with a view to decision-making patterns, and inter-state interaction patterns. In brief, the administrative and economic legacy was one of regional (not national) interaction and decision-making. Even so, Mauritania and Chad are relatively isolated from the other four states in terms of interactions. The pattern of economic and administrative interaction since independence has been a low level of interstate interaction within the Sahel-Sudan region, and a rapid increase in relations (both economic and administrative) with the coastal states (including such English speaking states as Nigeria and Ghana).

The legacy of the colonial period with regard to infrastructure was one of heavy reliance of inland states on coastal states. The present general low level of trade interactions within the Sahel-Sudan region

is partly due to the competitive nature of the exports and partly due to the weak transportation infrastructure within the region. Decisions regarding infrastructure, including communications, clearly have significant impact for regional interaction.

Inter-elite communications and direct interaction among the Sahel-Sudan states decreased during the 1960's. This pattern may be reversing itself as a result of the drought situation.

The importance of regionalism to an ecological solution in west Africa has been stressed throughout this report. The absorption of the Sahel into the French colonial network, and the reorientation of its economies and peoples accompanying that shift culminated at the time of independence in a balkanized continent. Consequently, the issues of national unity, or national integration, and regional grouping or groupings (especially in the area of economic groups) have been areas of primary emphasis for the Sahel-Sudan countries since the time of their independence. In our discussion of problems and prospects of regional interaction we have pointed out the impact and dynamism of the new state structures as well as taking note of the great number of efforts at creating new frameworks of integration and fighting back the consequences of economic and political balkanization.

We have examined the growth of regional institutions ranging from bilateral focused commissions to multi-national all purpose organizations. The drought and the negotiations with the European Economic Community have increased the salience of Francophone/ Anglophone relations in west Africa. We regard west Africa to be at a threshold in terms of relations across language zones. It is clearly evident that the problems of ecological reconstruction in the Sahel-Sudan region can be dealt with in a more productive manner if there is regional coordination of <u>planning</u> in key areas (notably communications, infrastructural connectivity, water resources, and livestock), and in some cases regional coordination of <u>implementation</u> (especially in the

construction of hydroelectric facilities, but also in the area of livestock processing.

While there are trends toward increased institutional linkage many of the social, political, economic and technical problems have yet to be encountered. Agreements which have taken place at the highest political levels will require implementation by administration and technicians who are geared to regional rather than national approaches, many of whom may need bilingual skills. (Specific training centers might be set up to encourage this exchange.) Major political decisions remain ahead in terms of trade policy and monetary policy. The free movement of capital, raw materials and people also remains at issue. Regional organizations have been handicapped because of the lack of an implementation component in their commissions. As regards specific functions covered through regional cooperation, production has been more heavily emphasized than infrastructure and ecological systems.

And, finally, we discussed the question of the role of Nigeria in west African regional relations. Those regional institutions which are based on earlier Francophonic linkages, and which do not take Nigeria into account, are likely to become increasingly outmoded.

Lastly, in Chapter Six, we explored the possibility of inter-university linkage among the Sahel-Sudan states. We recognize the present desires for national facilities of higher education. At the same time, we identify the need for problem-focused interdisciplinary efforts on such issues as ecological reconstruction, which are not being met by present university structures. If such task-force oriented efforts are made, the payoffs from regional cooperation would be high among and between the universities of the Sahel-Sudan region. We feel coastal universities are in a less advantageous position to deal with ecological problems in the Sahel and Sudan regions. The four universities in the Sahel-Sudan region are at Dakar, Ouagadougou, N'Djamena, and Zaria. The largest and best developed in terms of

ecological reconstruction potential is Ahmadu Bello University in Zaria (Nigeria). Since universities have an inherent capability to work across national boundaries, the possibilities for cooperation in research and policy evaluation between the universities may be greater than in other national structures.

The question of international aid for inter-university linkage in the Sahel-Sudan region, considered at the university, national and regional levels, should be raised.

In Chapter Seven, we examined international structures and interactions, as they might affect the process of ecological reconstruction in the Sahel-Sudan region. With the exception of Senegal, the states do not have well developed diplomatic structures, and hence are handicapped in terms of their ability to process international communications (which have increased substantially as a result of the drought), and in terms of their ability to "diversify" their international relations. The question of "effective utilization" of external aid is partly related to the question of internal structure and process within the national ministries.

The legacy of regionalism carries over into a tendency toward multilateral approaches, and the drought itself has served as a further impetus to this process. We suggest that civil servants in the respective ministries of foreign affairs not be isolated from responsibilities and experiences in other ministries, especially those related to rural development and ecological reconstruction (e.g., agriculture and livestock). Whether the regional multilateral structures serve as efficient linkage with the international community, or an additional barrier to linkage with the international community or with the farmers and herders, remains to be seen. We are encouraged that the Interstate Drought Committee (CILLS) is problem focused, is Anglophonic/Francophonic in membership, and is headquatered in an inland state rather than a coastal state.

The question of the special relationship of the Sahel-Sudan region to France and the European Economic Community is also dealt with in Chapter Seven. At the time of independence France signed aid and co-operation agreements with each of the six Sahel-Sudan states, and, although implementation of these agreements has not always been exact they are indicative of the extent to which the Sahel-Sudan states were committed to the French. Numerous agreements ranging from cultural, educational-linguistic affairs to defense agreements have existed between the Sahel-Sudan states and France, and many continue to exist. The monetary system and the trade patterns inherited from the colonial period are ones of economic extroversion, and these patterns carry over into the present. (See the Economic Annex for greater detail.)

We did not make specific suggestions on this matter, except to note that in the past two years, there have been some tendencies to "normalize" international relations, and even in Senegal the French presence is being dramatically reduced. The issue of relations with the EEC are currently under negotiation, and will be quite important in the future of international relations in the area. The fact that Britain is now part of these negotiations, that Anglophone and Francophone African states are negotiating together, and that Nigeria has emerged as a predominant African economic power, all point to a threshold of relations which could broaden the international resource base from which the Sahel-Sudan states could draw.

The drought has increased this tendency toward diversification, and the United States and other states have become actively involved in the region for the first time (except in Senegal) on a significant scale. At the same time, the diplomatic structure (apart from the political and technical structures) has been unable to accommodate the recent acceleration of dyadic relations. The question of effective utilization of aid is not confined to the issue of <u>internal</u> structure and process within the Sahel-Sudan national ministries, but is also significantly

related to the structure and process within the international community. Over time, the states will probably diversify international relations, but if their economic destinies are to be linked to the coastal African states, it is likely that their political destinies will be as well.

In Chapter Eight we summarized patterns of decision-making, implementation, and interaction at all levels, but especially at the national and the regional levels. We cite here a number of these summary national decision-making and implementation patterns: 1) centralized authority systems, with an increasing base of popular involvement, 2) although absolute expenditures are low, governments are an extremely important segment of the total society, 3) both military and educational structures are a phenomenon of the 1960's and suggest a capacity to establish structures rapidly (if costs are met) as well as the possibility of molding these new establishments toward development problems, 4) communications and connectivity capabilities in the 1960's were virtually non-existent, 5) very low average literacy rate (5.3% in 1965), although rate of increase between 1950 and 1965 was one hundred percent, 6) indigenous language patterns suggest good potential for widespread standardization and communication. As regards between-country variation, Senegal has a somewhat unique position in the region regarding absolute and per capita magnitudes, although rates of change were higher in all the other countries, except Mali, in the 1960's.

In all six states, the problem of vertical linkage, exacerbated by the "mass-elite gap," is a central problem in any plans to engage in ecological reconstruction. The development-from-above strategies currently followed do not reach the farmers and herders. In those areas where "participatory development" has been the official strategy the governments have been unable to operationalize their objectives. Relations between the national/local government structures and the rural/grassroots areas are not well developed. This is probably the weakest link in the chain of vertical co-operation and the most crucial

area for the development of "ascending structures," which would open channels of influence and communication from the rural/grassroots level to the local/national level.

The question becomes, "How then can governmental institutions be reorganized so as to better achieve this linkage?" A good deal of thought and research must go into the construction of specific strategies which will be effective in increasing linkage. In setting up programs, consideration must be given to 1) who will support/oppose (and how can this be encouraged/discouraged), and 2) who will provide the financial and other necessary means.

The first step would seem to be to establish contact with farmers and herders. For example, corps of intermediaries drawn from the local communities would seem to be essential. Whether such intermediaries are elected, selected by traditional elites, or selected by the national government, is perhaps less important than that they have legitimacy within their local communities, and can serve as conduits of knowledge and ideas in both directions. On the technical side, the need for broader non-formal education and communication facilities is also clear, and intermediaries could serve to facilitate these processes. If the intermediaries are seen as agents of the national government they will be less likely to serve the task of mobilization than if they are seen as agents of the local community. In addition, some decentralization of national functions to the local areas would probably increase efficiency, particularly if the local areas represented "natural" units, rather than "artificial" units. The resources of the national level would include "knowledge" (as much as hardware of capital) but it would be a local responsibility to adapt such technology to its own needs.

Our statistical analysis concerning regional interactions indicated that in trade and elite interactions, the magnitude of association with metropole socialization declines substantially for the Sahel countries.

This may indicate the declining centrality of France (or "diversification" of relations) as the Sahel-Sudan countries moved into the independence era. Geographic proximity remained moderately strong as a predictor of trade and elite interaction patterns. We also pointed out the need for further research aimed toward more comprehensive specification of independent variables associated with west African interstate interactions, as the absolute magnitude of most of the correlations is low for all the time points. Conceptual issues concerning English-speaking/French-speaking relations, types of regional linkage, cultural variables and traditional interaction patterns, bureaucratic flexibility, regional linkage on the infrastructural level, inter-level cooperation with regard to planning, decision-making, and implementation, and the question of disproportionality of units in an interactive dyad were discussed.

National-regional-international linkages form an important ingredient in the whole development situation. We have tried to point out the necessity for detailed analysis of the form of relationship, or linkage, that will emerge between English-speaking and French-speaking states in west Africa as well as international linkage in general. Again (as we noted above in relation to linkage between national/local government structures and the grassroots areas), in setting up linkage mechanisms consideration must be given to power relations, sovereignties, and attitudinal, structural, economic and technical components.

In Part III (Chapters Nine and Ten) we explored the human factor in ecological reconstruction in broader terms than decision-making and implementation. In Chapter Nine we reviewed the vicious circles of poverty characterizing the region, presented a summary of the agro-ecological strategy (ISYALAPS), and discussed some of the socio-political implications for breaking the "three circles" of poverty and for evaluating the practical dimensions of the ISYALAPS strategy.

We suggested that increase in herd size in the Sahel resulted from shifts in rates of "natural increase." Growth occurred but without concurrent domestic institutional reforms, especially in land use arrangements, and in improved education and training. In order to achieve significant change, a socio-cultural political climate and leadership amendable to, and capable of substantial change is required. Additional requirements include markets with financial and trade policies providing the capital and trade outlets necessary for a fuller exploitation of resources. These conditions must be created by policy decisions. Failing in this, under the conditions of life and work presently found in the Sahel, large and increasing herd size is bound to lead to progressive deterioration of the agricultural ecological resource base.

Firm policy decisions must be accompanied by governmental administration apparatus commensurate with the demands of the task. We have tried to provide basic data for the analysis of individual governmental capabilities. Deployment of a large staff of range management personnel constitutes an additional requirement. Here the necessity for examining the extent to which indirect, or informal, controls might be used becomes of paramount importance.

The <u>regional</u> dimensions of the problems (and solutions) were emphasized, as was the <u>inter-level linkage</u> of governmental structures. We further stressed that policy decisions and legal statutes must be buttressed by economic and socio-cultural supports if they are to be effective.

We noted that at present the fiscal and monetary policies of the six states clearly favor the modern sector. However, if rural development is to take place, some reorganization of financial institutions must take place. Current credit and savings facilities are inadequate for both farmers and herders.

Other types of policies which affect rural development include marketing board structure and process, cooperative arrangements, seed/fertilizer/equipment procurement policies, land allocation and inheritance practices, land use and fallowing restrictions, plus the "balance" of facilities and amenities between the urban and rural areas. We are still in the process of assessing some of these policies, but in general, we are more concerned with the procedure for arriving at such policies (i.e., involving farmers and herders, and not just government people), rather than assessing a particular combination of policies. (Without going into a country-by-country approach, we cannot even assess the impact of any policy or combination of policies.)

The ecological equation is one that includes land, people, animals, climate and resources. Since "people" are the decision-makers (on those factors within their control) the first step is to assess which factors are within human control, and which are not. The control of animals is certainly within human control, and the problem here is often the conflict of interest between people at the micro level and people at the macro level. Macro level policies may <u>try</u> to control people at the micro level, but without rearranging the micro level incentive system, or vastly increasing the macro implementation coercive capacities, there is little hope of success. We are suggesting coordinating micro and macro interests by <u>joint participation</u> in decision-making, and by reversing the trend to have <u>all</u> incentives in the modern/urban/elite sector, which gives the farmer or herder at the micro level little incentive but to struggle for his survival, whatever the greater good for the land or the total population may be.

Human control of land is also possible, but the same remarks on incentive and knowledge apply here as with animals. Human control over climate and resources is more limited, although both can be affected by technology, and should be explored. Water resources in particular will affect human capacity to control the land and animals. While we are not in a position to explore large scale control of water resources (through dams and pipelines), we follow the Agriculture-Ecology report in suggesting that dry land farming remains a much more important option than is commonly recognized, if it can be done properly. Our main question thus becomes how can farmers and herders reorganize themselves into more productive production units, while at the same time, undertaking good land management practices over the long run?

Finally, we summarize our conclusions (by no means exhaustive) regarding socio-political policies required for ecological reconstruction. This involves mass mobilization and mass communications, including use of indigenous languages and non-formal education programs. With herders, there is a need to establish initial contact, probably through their traditional system, and get herder participation in any long-range planning regarding livestock. We suggest consideration of regional solutions, especially "natural" regions (e.g., geographic and economic), thus creating political and administrative linkage across ecological zones. (West Africa is at a crucial threshold regarding regionalism at present.) There is need to establish a post-drought data base on human migration, and an indigenous capacity to link such a data base to planning, and to implementation. Inter-university linkage may provide considerable movement toward this end.

In Chapter Ten, we summarized the major organizing concepts of this report: linkage, mobilization, and scale. We suggested that vertical linkage is at present too weak to allow joint problem definition and analysis, and a cooperative exchange of information and resources to take place between the grassroots level and the modern/urban sector. We suggested

that the key to linkage is communications and joint action and we tried to identify means of improving this linkage. Further, we pointed out that the Sahel-Sudan people must be mobilized to help solve their own problems; i e., they must dedicate their energies and resources toward the specific goals of reconstruction and development. This mobilization may be furthered through participation and re-education. Finally, we suggested that the small scale of the national units involved invites a reassessment of the advantages of regionalism, particularly at the planning stage. The agro-ecological strategy outlined in other annexes of this Final Report certainly has implications of scale, as does examination of the economic and political consequences.

In Chapter Ten we also sketched four alternative futures for the Sahel-Sudan region, partly depending on the kinds of policies which stem from current options. In the first "futures" model, the land and people never recover from the impact of the drought, and the situation deteriorates. In the second model, the international and national communities work together and get the situation back to where it was pre-drought, and there is gradual improvement over the short run. In the third model, a development strategy is followed, whereby people are mobilized (through communications, education, and incentive programs) to start solving some of their own problems. The fourth model is a mobilization model, plus scale expansion. Thus, it is recognized no state can solve its ecological problems on a single country basis, and there is a greater emphasis on a regional approach to problems of ecological reconstruction.

Our "choice" would clearly be for model four, but we regard all four options as equally "probable". The economic cost differences among the four options, ironically, are not great. It is rather the social and political costs which vary. (We are not in a position to assess these social and political costs and benefits from the point of view of each national regime.)

Finally, we summarized our conclusions, and indicated further work which might be necessary if a development strategy for ecological reconstruction as we have envisioned it were to be explored more fully.

In our bibliography, we have included categories of relevant works for further reading. In our appendix, we provide the data base for much of the analysis in this report.

We recognize that this is a rather long report. We have tried to arrange it in "modular" form so that particular segments could be utilized in themselves. We do feel that the overall logic of the analysis comes from a complete reading of the report. People actively working in the Sahel-Sudan region probably know much of what is in the "diagnostic/analytic" sections of this report. Interpretations may vary, however, and we have tried to provide the data base for our interpretations. We are also aware that many of the technical and administrative personnel who are currently considering problems of the Sahel-Sudan region do not have an experiential or academic grounding in the area, and we have tried to provide a background reference service for such persons. We are acutely aware of the problems of getting accurate data on the region, and we have tried to address the question of building a data base, for use by planners, in our discussion of further work.

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9.3 The Drought Situation

10. Concepts and Methodology

10.1 Concepts

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10.1.4 Communications theory

10.1.5 Mobilization theory

10.2 Methodology

10.2.1 Quasi-experimental design

10.2.2 Evaluation design

10.2.3 Other designs

10.3 Data Banking