

PN-AAP-793

ISN: 34770

21

SUMMARY REPORT

VOLUME 2

CONFERENCE ON
COOPERATION FOR DEVELOPMENT IN AFRICA

Sponsored by

United States Agency for International Development and
Co-Hosted by the African Development Bank

4-5

1510

Held in

AFRICAN DEVELOPMENT BANK HEADQUARTERS
ABIDJAN, IVORY COAST

on

JUNE 2 - 4, 1982

Prepared by:

Development Assistance Corporation 1670
1415 11th St., N.W.
Washington, D.C. 20001
(202) 234-8842

1

Papers Submitted by Participants

1. USAID Position Paper on Agriculture, Transportation, Energy and Fuelwood and Manpower Development
2. La Conservation et L'Utilisation de L'Energie: Possibilites de Collaboration entre la CDA et L'Afrique
3. Le Developpement des Cultures Irrigues dans le Sahel
4. Forestry and Fuelwood Production Initiatives
5. Lutte Contre les Maladies Infantiles Contagieuses
6. Note Concernant la Recherche Agronomique en Afrique Centrale
7. CDA Chairman's Report Ad Hoc Committee on Energy
8. Resource Mobilization Efforts of the Bank Group
9. Project Group "Railway Programme in Southern and Eastern Africa"

TABLE OF CONTENTS

	Page
CHAPTER 1: INTRODUCTION	1
I. Purpose of CDA Conference	
II. Role of CDA	
III. CDA Program Areas	
IV. Improving Efficiency in Development Projects and Resource Utilization	
A. Priority in Development Strategies	
B. Technology	
C. Institutionalization	
D. Incentives	
E. Recurrent Costs	
F. Technical and Management Manpower	
G. Local Participation	
H. Coordination	
CHAPTER 2: SUMMARY OF ISSUES AND CONCLUSIONS	15
I. Introduction	
II. Major Constraints to Sub-Saharan African Agricultural Production	
A. Price, Cost of Production in Technology	
B. The Drought Syndrome	
C. Institutional Arrangements	
D. Marketing Limitations	
E. Agricultural Research	
III. Energy: Fuelwood and Forestry Development in Africa	
IV. Transportation	
V. Manpower Development in Africa	
VI. Lagos Plan of Action and Regional Cooperation for Development	

111

- CHAPTER 3: MAJOR CONSTRAINTS TO SUB-SAHARAN AFRICAN AGRICULTURAL PRODUCTION 28
- I. Introduction
 - II. Improving Efficiency in Agricultural Research
 - A. Price, Cost of Production and Technology
 - B. The Drought Syndrome
 - C. Institutional Arrangements
 - D. Marketing Limitations
- CHAPTER 4: FUELWOOD AND FORESTRY DEVELOPMENT IN AFRICA 49
- I. Introduction
 - II. Improving Efficiency in Forestry
 - A. Management of Natural Forests
 - B. Promoting Village Level Participation
 - C. Conservation of Fuelwood and Use of Substitutes
 - D. Research in Indigenous Species and African National Program Experience
 - E. Suggestions for an Approach to Support Lagos Plan Goals
 - III. Current CDA Forestry and Fuelwood Initiatives
- CHAPTER 5: TRANSPORTATION 69
- I. Introduction
 - II. Improving the Efficiency of Transport Projects
- CHAPTER 6: MANPOWER DEVELOPMENT IN AFRICA AND THE CDA - 78 HEALTH PROGRAM'S MANPOWER TRAINING PLANS
- I. Introduction
 - II. Improving Efficiency in Manpower Development Efforts
 - A. Manpower Planning
 - B. Manpower Training
 - C. Manpower Utilization
 - III. Training Plans for the CDA Health Program
 - IV. Conclusion
- 14

CHAPTER 7: THE LAGOS PLAN OF ACTION AND REGIONAL COOPERATION FOR DEVELOPMENT 99

- I. Introduction
- II. Improving Efficiency of Regional Institutions
- III. Regional Activities in the Lagos Plan and CDA
 - A. Agriculture
 - B. Industrialization
 - C. Natural Resources
 - D. Science and Technology
 - E. Transport
 - F. Trade and Finance
 - G. Energy

APPENDICES

- Appendix 1 -- CDA Agricultural Research Program A-1
- Appendix 2 -- Description of the Combatting Childhood Communicable Diseases (CCCD) Project A-7

CHAPTER 1

Introduction

I. Purpose of CDA Conference

This conference has been arranged to provide an opportunity for direct exchange with the Sub-Saharan African development community on African development projects and development assistance requirements. It arises from the deep interest of the principal Western bilateral donors in the economic advancement of Sub-Saharan African countries.

The CDA group of donors is sensitive to the economic problems faced by Sub-Saharan African countries. It wishes to be responsive to African development priorities and is mindful of the Laogs Plan of Action (LPA). The CDA group is primarily interested in focusing donor support on development projects which a) require funding beyond the capacity of any one donor and b) are especially appropriate for coordination among donors and African countries and regional organizations. There is equally a special interest in improving the efficiency of joint development projects and in resource utilization.

The objectives of this conference are to:

- Promote a mutual understanding of Sub-Saharan African development priorities to guide the identification of appropriate CDA project activities.

- Review CDA and African program plans in agriculture, energy, transport and human resources and tropical diseases.
- Identify opportunities for improving the efficiency of development projects in the selected areas.

The U.S. Government as CDA chairman, ad interim, is arranging this conference through its Agency for International Development. The African Development Bank is co-host.

II. Role of CDA

Cooperation for Development in Africa (CDA) is an economic assistance coordinating arrangement. Its creation reflects the desire of the principal Western bilateral donors working in Africa to demonstrate their commitment to Sub-Saharan Africa and its development. It grows out of the recognition that there is an urgent need to improve the effectiveness of economic assistance. The current economic difficulties faced by most African countries accentuate this urgency.

The CDA group includes Belgium, Canada, United States, France, Federal Republic of Germany and the United Kingdom. Italy is joining the group this year. This group of bilateral donors provides over half the official development assistance to Sub-Saharan Africa. The CDA is open to cooperation with other OECD

countries and international assistance organizations on specific development activities in Sub-Saharan Africa.

The CDA countries have identified program priorities in agriculture, energy, transportation, human resources and tropical diseases. In the spirit of supporting African regional cooperation, the CDA countries are interested in regional projects. Close cooperation with Africans at continental, regional and national levels is considered essential to ensure that CDA projects are consistent with African priorities.

CDA is not a new aid organization; it has no formal organization or staff of its own and no separate assistance budget. CDA has a permanent liaison group in Paris for day-to-day coordination work; a policy level group meets about once a year. CDA's primary interest is in identifying projects which require the participation of several donors. It is interested in identifying ways to improve the efficiency of development assistance. Administrative and project follow-up work are the responsibility of a designated donor program coordinator. This coordinator works closely with African counterpart governments and organizations in the planning of CDA projects. Technical working groups with African specialists participating are set up to plan and coordinate the program activities. Program implementation is in accordance with procedures established by each bilateral donor directly with the African counterpart organization or government.

III. CDA Program Areas

To date the following program areas have been identified for CDA:

Agriculture:

Agricultural Research

Small Perimeter Irrigation

Energy:

Energy Planning

Forestry/Fuelwood

Transportation:

East and Southern Africa Transport

Tropical Disease:

Combatting Childhood Communicable Disease

Each CDA donor is not necessarily committed to projects in each of these sectors. As a general rule a minimum of three donors is desired to proceed under the CDA arrangement. CDA also actively encourages the participation of other multilateral and bilateral donors.

The details of these programs and their development setting are provided in the accompanying reports by the U.S. Additional reports will be presented by other CDA donors in the course of the conference, e.g., Canada on energy, France on irrigation and Germany on southern and eastern African transport.

IV. Improving Efficiency in Development Projects and Resource Utilization

Recent reports point to serious economic problems for most African countries during the coming decade. The preamble to the Lagos Plan of Action (LPA) states, "The effect of unfulfilled promises of global development strategies has been more sharply felt in Africa than in the other continents of the world. Indeed, rather than resulting in an improvement in the economic situation of the continent, successive strategies have made the continent stagnate and become more susceptible than other regions to the economic and social crises suffered by the industrialized countries. Thus Africa is unable to point to any significant growth rate of satisfactory index of general well-being in the last twenty years." (LPA, p. 3) Similarly, the World Development Report of 1981 projects that "Africa's per capita GNP will rise hardly at all in the 1980's". And in some cases, "average incomes could fall by 1% per year". These trends are becoming evident in food shortages, balance of payments and financial crises, unemployment and generally in the continuing impoverishment of Africa. Yet African countries and regions hold the potential, with their vast resources, for major developments and significant contributions to the world economy. The central question is how to mobilize African human and natural resources to accelerate economic growth and improve the welfare of African people throughout the continent.

One critical dimension of the objective of accelerating economic growth in Sub-Saharan Africa is improving the efficiency of development projects. Apart from the greater economic impact, such improvements can achieve successful programs, attract greater support and increase internal and external resources. Thus in discussing CDA development projects and the sectors of mutual interest, the question of improving project efficiency is important.

There are many points to consider in improving project efficiency. Some of the most important ones which the conference might address fall under the headings of: priority in development strategies, technology, institutionalization, incentives, recurrent costs, technical and management personnel, local participation and coordination. Some brief comments and questions on these items relating to efficiency may help guide conference discussions. (The comments and questions that follow do not represent any considered CDA position or the views of the donors.)

A. Priority in Development Strategies

In any specific development plan, the question of priority is uppermost in the minds of the planners. Project efficiency is closely tied to the degree to which the project addresses critical constraints to economic growth and improved welfare of the African people. The Lagos Plan of Action provides important broad guidelines on priorities in the

various development sectors. Within these sectors conclusions are necessary on the relative importance of projects within both national and regional development plans. For example, in the transport sector there are numerous and ambitious project proposals available for financing. Overall they are well beyond the capacity of internal and external financial resources. What should be the priorities? How should the transport programs be phased? Similar questions arise in the energy sector as in all sectors. It is most critical in those areas requiring large-scale, capital-intensive financing.

B. Technology

Project efficiency is directly related to the technology applied. This is most strikingly evident in agriculture in Africa and particularly in food production. The LPA speaks of the "pivotal role" of science and technology in the development of agriculture (LPA, p. 17). It stresses the importance of agricultural research, placing "more emphasis on the development and spread of new technologies than has occurred in the past." (LPA, p.17) There are comparable requirements in other development sectors. In the energy sector the identification of new and appropriate technologies is vital to the effort to meet energy requirements whether for rural communities or urban and industrial needs. It is also important, though less pronounced, in the education and health areas where low-cost, community supportable systems are

necessary for sustainable programs. What steps should be taken within the CDA project areas to ensure the employment of the most efficient technologies? What measures should be taken to strengthen African capabilities to generate the technologies appropriate to African conditions?

C. Institutionalization

An important part of the efficiency objective is the institutionalization of development projects to carry forward long-term development. Institutionalization means simply the establishment of permanent systems and organizations acceptable to the participating community. New development projects are in large measure ad hoc and often dependent on external financial and manpower resources. Successful institutionalization means the effective transfer of the project to permanent African administration. This administration must have the capacity to evolve and adjust to changing circumstances and the ability to generate the policies, technologies and human and financial resources required to fulfill its purpose in the development process. Institutionalization of agricultural research organizations and research networks and farmer extension programs are vital to efficient food production. Equally important in agriculture is the institutionalization of marketing systems for inputs and produce. Producers and consumers alike must have reliable and predictable market systems with adequate

incentives if food production increases are to be achieved and sustained.

Institution building is a common theme throughout the LPA. Specifically it states: "Institutions and/or institutional arrangements are required at both the national and sectoral levels for the development of technology, the regulations of the transfer and adaptation of technology for educating and training scientific and technological manpower at various levels and for financing science and technological development activities" (LPA, p. 61). The LPA states that the "need for the establishment of institutions which can help African countries collectively to develop the capabilities and infrastructure essential for economic and social development and which individually they are too poor to set up was recognized soon after the establishment of ECA" (LPA, p. 101). It also discusses "support for the operation of regional and subregional intergovernmental technological institutions." (LPA, p. 77) CDA also has as one of its themes "projects of a regional nature." (CDA Joint statement, 1979) What are the steps that can be taken to strengthen the institutionalization of development projects by donors and Africans? What are the priorities among regional institutions and how should they be supported and made more efficient?

D. Incentives

The structure of incentives is an integral part of building efficiency into development projects. The price/cost relationships to the farmer, the generation of income surpluses in public and private enterprises, the financial viability of service programs and the motivation of employees in development activities suggest some of the dimensions of incentives in project efficiency. In the larger context the economic environment for development is critical to successful development projects. High rates of inflation, distortions and fluctuations in foreign exchange values and availabilities, as well as unsustainable and uneconomic subsidies, all work to undermine the prospects for project accomplishments. The IBRD report touches on this point when it states: "Exchange rate and trade policies are especially critical for African economies which are uncommonly 'open'. Exports account for a large share of consumption. Moreover Africa has more frontiers per square kilometer than any other region and they are highly permeable. The framework of incentives created by trade and exchange rate policies is thus especially decisive. With respect to agriculture, for example, overvalued exchange rates discourage local production: farmers obtain less in their local currencies for the export crops, while the price of food imports is reduced. The situation is similar in the industrial sector." (IBRD, p. 5).

While it is not CDA's purpose to review these macroeconomic considerations, the economic environment in which projects are undertaken is a determining factor in their success or failure. In situations where the incentive structure is severely distorted development projects must often be deferred or terminated. In the design of projects, the incentive structure should be carefully reviewed by the participants. In the CDA sectors of interest, what are the key incentive points that should be considered? What should be the respective roles of donors and African agencies in planning and applying these incentives?

E. Recurrent Costs

In many African countries, particularly the least developed, the problem of recurrent costs is becoming crucial. The sustainability of development projects in a number of instances is threatened by the burden of recurrent costs placed on the African governments or on their ability to carry on after the donor resources are withdrawn. Underfunded projects (or those that are terminated due to lack of financing) represent serious inefficiencies and waste of scarce development resources. The recurrent cost question is a complex issue that has been studied in depth in the Sahel, for example. It involves matters of user charges, subsidies, income generation priorities, price structures, taxes, etc. How should the question be addressed in CDA projects? Should

there be greater recurrent costs financing by donors during the investment period or does this undermine developing country commitment to the project? What measures should be taken to insure project sustainability after donor finance is withdrawn?

F. Technical and Management Manpower

The LPA states as one of its primary objectives is to "commit ourselves individually and collectively... to develop indigenous entrepreneurial, technical manpower and technological abilities to enable our peoples to assume greater responsibility for the achievement of our individual and collective development goals" (LPA, p. 5). This is central to the achievement of efficiency in development projects. The competent technical and managerial direction of projects by Africans is fundamental. Although not explicitly stated in the CDA Joint Statement, it is implicit that training programs for African managers and technicians is part of every activity being planned. Are there special measures that donors and Africans should consider in advancing African managerial and technical competence?

G. Local Participation

Development activities accomplish their objective more successfully when there is the full participation of the

African community and project beneficiaries. This may take many forms. Expanding opportunities for private initiative is one of the most important means of increasing the efficiency of development activities. It encourages self-reliance, the mobilization of untapped resources for investment and a demand for improved services and government performance. It also reduces the burdens of development on the often over-extended African governments. The private initiatives of Africa's mass of small independent farmers, livestock owners and entrepreneurs (including cooperatives) are recognized in the LPA as an important part of achieving self-reliance. The issue of the balance between public and private roles is a matter to be considered by each African government, nevertheless, this factor cannot be ignored in the sectors and projects being reviewed under CDA. Are there specific project activities on which donors can cooperate with African counterpart organizations in advancing the participation of African people in the sectors of interest?

H. Coordination

Coordination can be time consuming and costly; yet it is important to efficiency in development programs. At a minimum, it can reduce the waste that occurs in duplication and conflicting development activities; it can limit the costly replication of unsuccessful programs. But more importantly coordination provides the opportunity for donors,

African governments and regional organizations to focus scarce resources on the principal development problems where a combined effort can bring about major development accomplishments that a single donor could not achieve alone. It provides the means to share the latest knowledge in technology thereby advancing the application of development resources significantly. The creation of CDA is based on these views of coordination. Effective coordination lies in African leadership in relating external resources to African development problems. What further steps can be taken to improve coordination in the project areas identified for CDA? How are multinational African development interests coordinated with the donor country? What are proving to be the most useful forums?

The above points on improving development project efficiency are not intended to be comprehensive or complete discussions. They are presented here to suggest areas of discussion during the conference.

CHAPTER 2

Summary of Issues and Conclusions

I. Introduction

Despite significant resources and long term development potential, Sub-Saharan Africa has entered the 1980's with alarming economic problems. Many countries in the region are facing serious balance of payments problems, stagnant or declining growth rates, increasingly large budget deficits, large external debt service obligations, declining per capita food production, environmental erosion and an inadequate manpower base and physical infrastructure. This situation led the heads of African states in the Lagos Plan of Action to question the validity of successive development strategies of the past twenty years and to "...adopt a far reaching approach based primarily on collective self-reliance" (LPA, p.3).

Crucial to achieving the goals set forth in the Lagos Plan of Action and realizing Africa's tremendous long-term development potentials is improved efficiency in the utilization of development resources. Benefits that can be derived from improving efficiency in the application of resources are significant. They include increased economic impact of programs and increased mobilization of domestic and foreign resources for development.

Several topics can be pursued in a discussion on efficiency in use of development resources. To help facilitate and guide Conference deliberations, papers have been prepared on improving efficiency in the key sectors of agriculture, energy, transportation, manpower programs, and in regional cooperation. Based on these papers, it seems that, in general, greater efficiency in resource utilization can be achieved by: 1) improving coordination of programs at the national and regional levels; 2) conducting critical analysis and research required to define appropriate programs; 3) adopting methodologies and techniques which are appropriate to the Sub-Saharan African environment; 4) increasing popular participation in the planning and implementation of programs; 5) improving the management and organization of programs; and 6) supporting appropriate institutional arrangements. Summaries of these papers and their conclusions follow.

II. Major Constraints to Sub-Saharan African Agricultural Production

The poor performance and deterioration of the agriculture sector in Sub-Saharan Africa is well known. It is the first issue addressed in the Lagos Plan of Action. Clearly, during the past two decades, agriculture productivity in Sub-Saharan Africa has not kept pace with population growth.

Several issues are related to the performance of the African agricultural sector over the past two decades. Four which appear to be of major importance are:

A. Price, Cost of Production and Technology

Agriculture prices in Africa seem too high because yields are low, technology to increase yields has not been developed and unit costs increase as attempts are made to expand agricultural production to meet increased demand. This increased demand results, if from nothing else, expanding population and increased urbanization. A dynamic agriculture sector which provides the incentive for farmers to increase output is the basis for accelerated development. Agriculture has not played this role in Africa because research has not made possible the technological change required to reduce per unit cost of production. The failure of research efforts to achieve technological progress may be attributed to: a) inadequate attention to locally consumed agriculture products; b) adaptation of Western models and methodologies which may not be economically viable in Sub-Saharan Africa; c) inadequate organization and management of research systems; d) insufficient number of researchers who really understand Sub-Saharan African agriculture; and e) lack of adequate funding for research.

B. The Drought Syndrome

Drought, causing large variations in output, is common in Sub-Saharan Africa. The consequences include a) a tendency for farmers to become risk adverse; and b) wide swings in prices of agriculture output, which in turn encourage government intervention in an attempt to bring about stability. Although no other single factor has a greater influence on agricultural productivity as the presence or absence of drought, this problem has not been the subject of much study and research.

C. Institutional Arrangements

Appropriately functioning institutional arrangements (and adequate infrastructure) are required to realize the benefits of new technological packages. Institutional arrangements cover a broad spectrum of issues ranging from policy matters (such as exchange rates, and tax systems) to credit systems, and formal institutions (such as university or extension service). Appropriate arrangements facilitate the sale of farm products and procurement of farm inputs. Western models designed to serve a small number of large holders may not be appropriate to increasing productivity in African agriculture which is characterized by a large number of smallholders. Institutional arrangements should not discriminate against smallholder agriculturists in the allocation of productive

resources or in the distribution of agriculture revenue (e.g. through exchange rate policy, tax systems, credit, etc.). The activities of formal agricultural support institutions (e.g. research institutions, appropriate ministries and extension services) must be effectively integrated.

D. Marketing Limitations

There are four interrelated characteristics common to Sub-Saharan African countries which exert important influences on the composition and productivity of agriculture. These are: (1) the internal markets for agricultural products are very thin; (2) a dualistic crop approach (export vs. food crops) causes distortions in perceptions of Sub-Saharan African agriculture and limits full consideration of alternate ways of increasing production; (3) the extremely limited intra-African trade in agricultural products adversely affects production opportunities; and (4) arrangements for marketing agricultural crops that have developed over the past two decades appear not to encourage farmers to adopt practices which increase productivity.

E. Agricultural Research

Technological advances are critical to increasing agricultural productivity in Sub-Saharan Africa. Such

advances must be based on successful research efforts. The impact of agricultural research in Africa can be improved by:

- focusing adequate research resources on locally consumed agricultural products;
- adapting research models and methodologies appropriate to the economic, physical and social environments in Africa;
- improving the organization and management of research systems;
- increasing attention on drought research (as it has a great impact on agricultural productivity in Africa); and
- devising appropriate institutional arrangements required to realize the benefits of new technological packages resulting from research.

CDA believes that the following factors are important to increasing the effectiveness of agricultural research in Africa: are: 1) improved coordination among donors in research efforts; 2) more emphasis in research on farmer responses; and 3) adaptation of research methodologies which are economically viable within Africa. CDA is treating agricultural research in Sub-Saharan Africa on the basis of agro-climatic zones: 1) Sahelian-Sudanic zone (Senegal to northern areas of Sudan, Ethiopia and Somalia); 2) East Africa (southern Sudan and Somalia to Tanzania); 3) Southern Africa Plateau (SADCC countries); 4) the Zaire River Basin; and 5) West African Coastal Zone (Guinea to Gabon). CDA's approach has evolved such that it is agreed that agricultural research should: 1) be

intensified in food production; 2) emphasize upgrading national research systems rather than specific crops; 3) emphasize preferences and problems; and 4) emphasize the linkage between national and international agricultural research centers. Central to the CDA approach is dialogue with African officials and institutions for ideas and proposals on how to improve agricultural research efforts.

III. Energy: Fuelwood and Forestry Development in Africa

African forests are being cut down faster than they are being regenerated. Some nine-tenths of the wood removed from forest areas is used for fuel. Fuelwood accounts for more than three-fourths of the total Sub-Saharan energy consumption -- commercial and non-commercial combined. Thus, as recognized by the Lagos Plan of Action, arresting the process of deforestation and regenerating existing resources at rates fast enough to meet annual recurring fuelwood and other forest product needs deserves priority in development efforts. Efforts designed to promote fuelwood and forestry development may be improved by increasing attention on:

- Management of natural forests and woodlands to harvest fuelwood and other forest produce, including interplanting with selected agriculture crops where desirable. According to a recent FAO study, there are only five Sub-Saharan African countries with intensively managed forests -- Ghana, Uganda, Kenya, Sudan, Zambia -- the total area of which accounts for

only about one percent of the remaining 163 million hectares of productive forests in Africa.

- Encouraging village level interest, participation and capability in reforestation. Popular involvement on a wide scale is recognized as an indispensable component of any successful reforestation effort. In cases in Algeria, China, Korea and Gujirat State in India, popular local level involvement in the planting planning effort appears to have been a primary precondition for success.
- Conservation of fuelwood and use of substitutes. Significant savings in fuelwood use are likely through the introduction of improved wood stoves and more efficient methods of producing charcoal. There are indications that factors hampering the acceptance of improved wood stoves during the 1970's may have included: 1) designs introduced were not relatively more efficient than traditional designs and/or current practices, and 2) the end users (particularly rural women) had not been adequately involved in project development.
- Research on indigenous species and African national program experience. There are quite a few African countries with national research programs underway which test indigenous species. However, there is virtually no research which systematically describes or exchanges results on evolving African national forestry planning and program experience.

The CDA approach to supporting expanded national programs in fuelwood supply and reforestation is: 1) to encourage African countries to quantify reforestation and fuelwood supply needs, including the implied land requirements; and 2) to inventory current combined African and donor efforts in terms of their effectiveness in providing the main components needed for successful national programs. Efforts are to begin in five countries: Senegal, Malawi, Somalia, Burundi and Upper Volta. Somalia, Malawi and Senegal are already engaged in the desired in-country reviews. Important initiatives have also been reported in Burundi and Upper Volta. CDA is interested in hearing views on fuelwood and forestry programs in Africa.

IV. Transportation

African transport facilities lag far behind other developing regions. The impact on development of inadequate facilities is profound. The Lagos Plan of Action recognizes this and makes note of the UN sponsored Decade for Transport and Communications in Africa, 1978-1988.

Factors which appear crucial to increasing effectiveness of resources in transportation and communication include:

- prioritization of requirements based on analysis of economic and social returns, benefit incidence and relative costs;

- development of comprehensive plans to attract and coordinate resources for projects; and
- strong support and commitment by African countries in their development programs for transportation and communication projects.

It certainly appears that CDA would be in a position to effectively promote activities in this area, and is open to ideas on how such might be accomplished.

V. Manpower Development in Africa

Shortages of skilled manpower are a major constraint to effective implementation of development programs in Africa. The Lagos Plan of Action calls for increasing measures of self-reliance in manpower development programs and voices strong concern regarding shortages of trained manpower and the lack of coordinated policies and programs for manpower training in Africa.

Efforts to alleviate Africa's shortages of trained manpower have often lacked coordination and long-range planning. Manpower development in Africa has been constrained by lack of clearly defined and established relations between: 1) training abroad and the development of training institutions in Africa; 2) management training and the reform of management systems; 3) training of higher level professional staff and middle-level support staff; and 4) development needs and the numbers of students enrolled in

priority development fields, such as science and agriculture. Donors have contributed to some of these imbalances by an emphasis on project-related training. The CDA health program attempts a more balanced and comprehensive approach to manpower requirements on a sectoral rather than project basis.

The effectiveness of manpower planning, training and utilization in African economies may be improved by:

- conducting manpower planning and training at the sector and national levels to help identify training programs, and improve the utilization of skilled manpower;
- examining, and where necessary, revising policies and regulations that affect the utilization of skilled manpower;
- assuring that adequate balance is maintained between trained personnel and middle and lower-level technicians, and that necessary support is provided;
- analyzing manpower training to identify duplications or gaps and examining the costs and benefits of alternative training programs to meet specific manpower needs;
- increasing regional cooperation in training and in development criteria and standards for manpower profiles and compiling of data on regional manpower needs;
- providing management training combined with systems analysis and appropriate institutional reform in order to improve an organization's performance, cost effectiveness and productivity.

The training component of the CDA program, Combatting Childhood Communicable Diseases (CCCD) illustrates a collaborative approach to meeting manpower needs in health (see Appendix 2). The program coordinates regional and national programs and emphasizes training that is task oriented and designed to improve performance and management.

New manpower policies and programs need to be examined for their potential value in helping to meet Africa's manpower needs.

VI. Lagos Plan of Action and Regional Cooperation for Development

The Lagos Plan of Action underlines the need for regional cooperation. This need is also well recognized by CDA members. However, despite establishment of numerous institutions and agencies, regional organizations have yet to realize their full potential.

Efficiency and effectiveness in regional organizations, at least in part, appear to be predicated on:

- effective follow-up in implementation of political decisions by members;
- a sense of community in regional activities which is based on mutual respect for national sovereignty; and
- close coordination among donors and recipient countries at all levels in planning and implementing programs.

Although CDA's original mandate recognizes the need for regional cooperation, there appears to be scope for greater support in this area. A joint exploration of means to strengthen regional cooperation in CDA activities is welcomed.

In sum, significant benefits are likely to be derived from increased efficiency in development resources application. One cannot overstate the importance of diligent and continuous efforts on the part of both African countries and donors in identifying and implementing measures which influence greater efficiency in resource utilization.

CHAPTER 3

Major Constraints to Sub-Saharan Africa

Agricultural Production

I. Introduction

The poor performance of the agricultural sector in Sub-Saharan Africa is well known. It is the first issue addressed in the Lagos Plan of Action for the Economic Development of Africa. The first sentence in Chapter 1 sums up the situation. "Over the past two decades, and at a time the African continent was facing rapid growth in population and urbanization, the food and agriculture situation in Africa has undergone a drastic deterioration; the food production and consumption per person has fallen below nutritional requirements." 1/ The dimensions of this decline in the effectiveness of agricultural production is illustrated by the following trends. During the period from 1969-71 to 1977-79 the average annual growth rate of agricultural production exceeded population growth in only eight countries, was equal to population growth in one country and was less than the rate of population increase in thirty countries. 2/ It is worth noting that five (or over one-half) of the nine countries where the growth rate in agricultural production equaled or exceeded the population growth rate had population growth rates of 2.2 percent or less while only three (or one-tenth) of the countries with negative per capita

agriculture growth rates had population growth rates of 2.2 percent or less.

During the period 1970 to 1978 total imports of grain tripled, with two-thirds of the increase in grain imports occurring between 1970 and 1975. The cost of grain imports in 1979 was twelve times the cost in 1960 with consequent adverse effects on foreign exchange availabilities and development investment resources. Data on production and yields of food crops indicate where a large part of the problem lies. Total production of cereals, roots and tubers and pulses increased throughout Sub-Saharan Africa during the period 1962-64 to 1972-74 except for cereals and root and tuber production in the Sahel, which declined. However, yields for these food crops declined in most of Sub-Saharan Africa. Except for cereals in Central Africa and East and Southern Africa and roots and tubers in East and Southern Africa, yields of cereals, roots and tubers and pulses declined in all regions with average annual declines in yields ranging from two-tenths of one percent to over three percent.^{3/} Yields for nearly all agricultural crops in Sub-Saharan Africa lag behind yields for worldwide agriculture production and for production in other developing countries. Of fourteen major crops grown in Sub-Saharan Africa, only two, tea and sugar, show higher yields during the 1970-79 period in Sub-Saharan Africa than in the rest of the world or in other developing countries. For the remaining crops, cocoa, coffee, maize, millet, rice, sorghum, wheat, groundnuts, pulses, roots and tubers, cotton and tobacco, not only are yields significantly lower, but for all

except roots and tubers, yields during the 1961-1963 to 1977-79 period have declined relative to yields in the rest of the world and in other developing countries. For all fourteen crops, yields during the 1977-79 period were twelve percent greater than in the 1961-63 period, while in the rest of the developing world yields had increased by twenty-five percent.^{4/} Clearly during the past two decades agricultural productivity in Sub-Saharan Africa has neither kept pace with increases in the rest of the world nor kept pace with population growth.

II. Improving Efficiency in Agricultural Research

In a paper of this length, it is clearly not possible to address all of the issues associated with the disappointing performance of the agricultural sector over the past two decades, and, particularly, the decade of the seventies. Rather, four issues will be discussed which appear to have been of major importance in determining the direction and rate of changes in agriculture productivity in Sub-Saharan Africa. These issues are: (a) price, cost of production and technology, (b) the drought syndrome, (c) insitutional arrangements, and (d) market limitations.

A. Price, Cost of Production and Technology

From the development perspective agricultural prices in Sub-Saharan Africa are too high. Agricultural prices are too

high because yields are low, technology to increase yields has not been developed and costs of production increases as attempts are made to expand agricultural production to meet increased demand. These cost increases result, if from nothing else, from expanding population and increased urbanization.^{5/} John Mellor has made the following comment on the critical role of agricultural production, particularly food production, in the development process:

-- because food grains make up the bulk of marginal expenditure among the poorer classes, agriculture provides the physical goods to support increased employment and higher wage earnings. In other words, the agriculture sector is a crucial source of wage goods--the goods purchased with wages. And it provides much of the increase in employment - directly through raising agriculture production, indirectly through the stimulus of increased income to the the cultivator class and the demand effects of the consequent expenditure. Because of the conditions of agriculture production, these functions can be effectively filled only if agrotechnical innovations are developed and applied.

Increased agricultural production, based on cost-decreasing technological change, can make large net additions to national income and place that income in the hands of the cultivator class. Agriculture may provide a demand drive for development similar to that often depicted for foreign markets in export led growth.^{6/}

Thus, a dynamic agriculture sector (one in which decreasing per unit costs of production provide the incentive for farmers to increase output) becomes the basis for accelerated development by reducing the price of wage goods and increasing the demand for consumer goods. However, for the most part, in Sub-Saharan Africa, agriculture has not been able to play this role. With a rapidly decreasing supply of arable land, expansion of output, if it occurs, can only be obtained at increased costs with consequent

increases in the wage bill and a failure to stimulate growth in other sectors, particularly industrial development. The basic reason for this is that there has not been forthcoming the essential technological change to reduce per unit costs of production. This kind of advance is produced by research, and neither research within Sub-Saharan Africa or research elsewhere in the world has made possible the technological advances required in Sub-Saharan Africa.7/ The failure of agricultural science to make possible significant progress in Sub-Saharan African agricultural production as it has in most of the rest of the world is demonstrable. Nowhere in Sub-Saharan Africa has there occurred sharp increases in production that can be related to the adoption of a new technological package.8/

Technology is the product of research. The question that needs to be addressed is why research has not produced new usable technological packages for the Sub-Saharan African farmer. There is no simple answer to this question, but it is possible to identify some of the constraints.

First, it is necessary to recognize that progress in plant breeding research has been achieved or appears to be in sight for grain and root crops. Maize is one crop where new technology has certainly made some impact. Some progress has also been made with new rice varieties, though the blast disease problem still remains a formidable barrier. Additionally, the International Institute of Tropical

Agriculture appears to be making real progress in developing a cassava which is resistant to mosaic disease. However, in his review of agricultural research in the developing countries, Cummings rated research on various grain crops in Africa as ranging from inadequate to critically inadequate.9/

Part of the reason for the absence of technological development for the wide range of crops grown and consumed in Sub-Saharan Africa is rooted in history. During the colonial period, except in places where there were a significant number of white settler farmers, research was for the most part limited to the so-called "export" crops which directly benefitted the colonial power. There was simply no return seen for expenditures on research to increase yields of locally consumed agricultural products. This pattern of allocation of research activities tended to be carried over for a period of time after independence. Thus, research on much of Sub-Saharan farming has been underway only for a relatively short period of time, probably less time than required to produce needed new technological packages.

It also appears that Western models and methodologies may not be entirely appropriate in the Sub-Saharan Africa context. For example, crop production in the developed economies is characterized by simple, often monocropping patterns and very complex farm input systems. However, in Sub-Saharan Africa the reverse case exists. Crop production is characterized by

highly complex cropping patterns and simple farm input systems. As a result, appropriate technological packages for Sub-Saharan Africa may be very different from those which have been effective in the developed countries. Another characteristic of Western technology is the heavy reliance on high energy and chemical solutions to technological problems in agriculture. These kinds of solutions may not have been economically feasible in Sub-Saharan Africa. Certainly changed price relations in the international markets since 1974 make it unlikely that this kind of technology will be appropriate for Sub-Saharan Africa farmers in the future.

Other important constraints to technological progress include the organization and management of research systems, the insufficient number of trained African researchers who really understand Sub-Saharan African agriculture and a lack of adequate funding for research. The way in which CDA views at least some of the problems of agricultural technology in Sub-Saharan Africa and how it proposes to address these problems is provided in Appendix 2 to this paper.

B. The Drought Syndrome

The most important variable affecting agricultural production in Sub-Saharan Africa is rainfall. Yet, for most of the continent (excluding a one hundred to one hundred and fifty mile strip along the West Africa coast roughly from the

Gambia River to the Zaire River) and certain highland areas, rainfall is often inadequate to produce a crop. This applies from both a spacial and time perspective. Drought is by no means an uncommon occurrence in much of Sub-Saharan Africa and is thought by some to be occurring with increasing frequency. However, there is no reliable data over a long enough period of time to support this view and it may well be that expansion of crop agriculture into drier areas magnifies the effects of drought. Certainly deforestation and soil degradation have contributed to crop failures during periods of inadequate rainfall.

The drought syndrome has an important effect on both individual farmer decisions and government policies and practices. For the individual farmer, the consequence of the threat of periodic drought is to make the cultivator risk adverse. Thus, farmers are apt to make defensive decisions on such matters as kinds of crops planted, the allocation of acreage to various crops, the kinds and amounts of agricultural inputs used and the way in which labor is allocated to various crops. The farmer knows full well that there will be large variations in output from year to year as the weather pattern changes.

The consequences of these large variations in output over time in the thin markets which are characteristic of Sub-Saharan African economies is that, in the absence of some

stabilizing force, prices of basic agricultural products will also be subject to wide swings over time. If government intervenes in an attempt to stabilize prices, then it makes a great deal of difference whether government policy is one of controlling distribution and keeping urban food prices down during periods of scarcity or of assuring minimum prices to farmers during periods of bountiful production. Just as a farmer must have as his first priority assuring sufficient production to provide for family food needs, so must government's first priority be that the nation is able to obtain enough food to secure the population against hunger. To do otherwise would be to court disaster. Yet the ramifications of decisions government must make to attempt to assure adequate food supplies spread to all segments of the economy, affect the pace and direction of development and have a profound impact on the amount and composition of agricultural production.

While, perforce, government must grapple with the problems of widespread fluctuations in output due to drought, a search of the literature does not indicate that this problem has been the subject of much study and research. However, given the current state of technology and infrastructure development in Sub-Saharan Africa, no other factor has nearly as great an influence on agricultural productivity as the presence or absence of drought. This ought to be an area of

major concern not only to Sub-Saharan African countries but to the entire international community.

C. Institutional Arrangements

In discussing institutional arrangements, we are concerned not only with formal institutions such as agricultural colleges and extension services, but also the structure and function of various components of the economic system affecting agriculture. More specifically, in looking at institutional arrangements in the Sub-Saharan Africa context, it is necessary to question whether Western models are appropriate to the problems of farm production prevalent in Sub-Saharan Africa. African farming is overwhelmingly carried out by smallholders, most of whom do not cultivate more than one to three hectares. As noted above, these farms are generally characterized by complex cropping systems and simplified farm input systems. From the development viewpoint, the basic institutional issues, therefore, appear to be the kinds of arrangements which will best serve to increase the productivity of the basic agricultural institution, the smallholder agriculturist. However, it needs to be explicitly recognized that the government has to deal with a broad range of issues, one of which is development; and institutions will need to be structured to serve a wide spectrum of interests, not just development interests. Here we shall focus on institutional arrangements as development

instruments and, in so doing, recognize we are oversimplifying institutional issues faced by governments.

Leaving aside certain marketing issues which will be discussed in the next section, what is needed are institutional arrangements that cater to the smallholders as commercial farmers. These institutional arrangements cover a broad spectrum of issues ranging from policy matters (such as exchange rates and tax systems) through credit systems to formal institutions (such as a university or an extension service).

In dealing with macroeconomic issues such as exchange rates and the tax system, the major focus should be on institutional arrangements which do not discriminate against smallholder agriculturalists either in the allocation of productive resources or in the distribution of agricultural revenues. For example, institutional arrangements which undervalue imports of capital goods and reduce returns to producers through the imposition of explicit or implicit taxes have a negative effect on the incentive to increase production and may increase production, costs and the price of wage goods through the misallocation of resources. Whatever allocation process is institutionalized within the economy, it is supportive of development to the extent that it fosters increased production, employment and income.

The development of appropriate institutional arrangements which facilitate the sale of farm products and the procurement of farm inputs by smallholders is critical for the expansion of agricultural production. Within the Sub-Saharan African context, the issues are complex and require continuous modification to meet changing conditions. Internal marketing systems must be structured so that they can provide satisfactory outlets for the wide variety of agricultural commodities typically produced on African farms. As urbanization increases, marketing systems need to be adjusted to serve increasing and changing demand. This includes modifications in the composition of agricultural products marketed, as well as developing different arrangements for processing farm products and assuring effective distribution. The major characteristics of this process are an ever widening separation between producer and ultimate consumer which places a premium on simplified management systems and minimizing costs. Similar issues will need to be addressed on the production side. As smallholder operations become increasingly commercialized, the development of import delivery systems which are capable of delivering the right selection of appropriate supplies and equipment to farmers becomes increasingly important. It is also essential that domestic systems capable of producing needed agricultural inputs be established and that suitable arrangements for the maintenance and repair of farm equipment and tools be in place. As production systems change, the institutional

arrangements for providing farm credit may need to be modified. At the one stage of production, relatively short-term credit supplied by local money lenders or "duka" operators may adequately cater to smallholder credit needs. However, as farm operations change and requirements for farm credit expand both in terms of amount and time necessary to finance additional capital investment, greater involvement of the banking system and other agricultural institutions such as cooperatives may be necessary. Likewise, as irrigation systems develop, institutional structures will be required which provide for distribution, maintenance and financing.

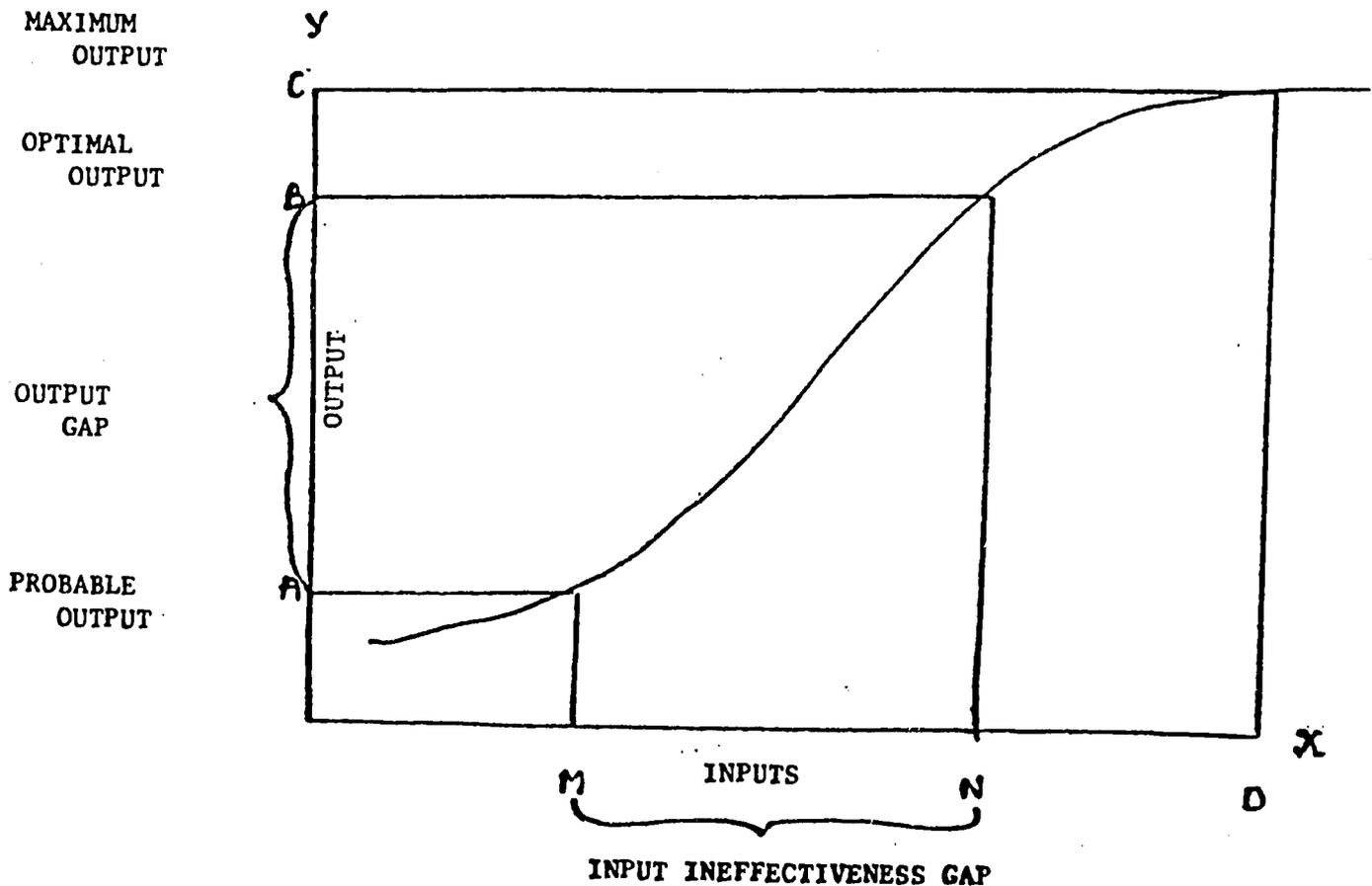
Generally, the more formal agricultural support institutions, also perform essential functions which influence the growth of agricultural productivity. The issues here are familiar ones. Are government structures, which divide responsibilities between ministries, and generally reflect the absence of an integrated crop/livestock approach, appropriate institutional arrangements for providing support for the increased commercialization of smallholders agriculture? Problems encountered by African extension services in reaching the broad spectrum of smallholders raise real questions about the suitability of Western extension models which are designed to service larger and fewer farm units. Alternative institutional systems, e.g. those which place greater emphasis on bringing groups of farmers together, using informal village agents as communication channels or other variants, all need

to be examined. The role of the educational system as an agent of change supporting increased agricultural production remains an important issue. These issues include consideration of where and how agricultural subjects fit into curricula and at what levels (primary, secondary and university). The ways in which agricultural facilities and other specialized agricultural educational institutions can integrate their activities with those of the ministries and extension services is still evolving within Sub-Saharan Africa.

Finally, the whole question of the institutional structure of research directed towards providing technological and operational advances merits intensive consideration. The research institutions will, of necessity, evolve towards dealing effectively with the complex cropping patterns of Sub-Saharan African farming systems and the economic realities of the international economy.

Without appropriately functioning institutional arrangements and adequate infrastructure, it would be impossible for countries to realize the benefits of new technological packages. The diagram on the next page illustrates this point. 10/ It shows that if the necessary input support system is not in place, an input gap, M-N on the X axis, causes output at A rather than B on the Y axis, an

output which is substantially below the optimum production which could be achieved given existing technology.



D. Marketing Limitations

There are at least four interrelated characteristics of marketing structures common to Sub-Saharan Africa which have important influences on the composition and productivity of agriculture. First, the internal markets for agricultural products are very thin. For the most part, agricultural products consumed within a country are sold at retail with

little or no processing. Additionally, it is usual for the product to be sold and consumed in only one form. For example, maize in East Africa is nearly all sold either as whole grain or milled to be eaten as "posho" in Kenya or "sembe" in Tanzania. If the quantity of the basic food grain, root, tuber or plantain exceeds the amount demanded for the common single use of the crop, the effect on the open market price or the subsidy paid to producers is great indeed. This situation contrasts sharply with the situation in developed countries where a grain product such as maize may have as many as three or four hundred or more uses. What this lack of alternate uses of farm products means to Sub-Saharan African countries is that as many problems may be created for farmers and governments by a bountiful crop as by a shortfall in production. The effect on farmer production plans and on national budgets can only be extremely adverse.

Secondly, stemming from the colonial period, agricultural products and production are considered separately on the basis of market destination. This takes the form of the familiar categorization of crops as "export" and "food" crops or, alternatively, "cash" and "subsistence" crops. This dualistic approach to agricultural crops causes distortions in one's perception of Sub-Saharan African agriculture and limits full consideration of alternate ways of increasing farm productivity. Some examples of this are as follows:

- It has led to a tendency to identify "food" crops with the major grain, root, tuber or plantain crop and to overlook the wide variety of crops which contribute to the Sub-Saharan African diet. The result is that investments in production, research and marketing of these crops has tended to be neglected. Similarly, because, it was principally the "export" crops rather than the "food" crops which generated revenue during the colonial period and provided foreign exchange following independence, expenditures to increase productivity were largely focused on the "export" crops and not on crops for which there was substantial domestic demand;
- Agricultural support systems, education, infrastructure, credit, markets, etc., were primarily structured to service the "export" crops;
- Focusing on the two categories, "export" and "food" crops, tends to obscure other characteristics of crops which are important to productivity. These other characteristics include whether a crop is annual or perennial, drought prone or drought tolerant, as well as the competitiveness or complementarity of various crops.

Third, and certainly strongly related to the first two points, the extremely limited intra-African trade in agricultural products adversely affects production

opportunities. Because of the focus on the development of trade between Sub-Saharan Africa and European or other developed countries, the institutional arrangements and infrastructure to facilitate intra-African trade in a wide variety of agricultural commodities has never been developed. One result of this is that a significant share of intra-African trade takes place as "smuggling". Also, Sub-Saharan African countries tend to look first to European, American or other non-African countries to meet agriculture import needs. All of this contributes to the thinness of markets discussed earlier with similar negative effects on the composition and quantity of crop production.

Fourth, arrangements for marketing agricultural crops that have developed over the past two decades appear not to encourage farmers to adopt output and productivity raising practices. This is particularly true with respect to crops sold mostly on the international markets, but is by no means limited to them. The evidence indicates the systems and organizations established to assure sovereignty over marketing operations which were largely in the hands of non-nationals, have, in some respects, operated below desirable levels of efficiency. These organizations have achieved certain beneficial results with respect to government policies. However, they have not, in many instances, tended to operate in a way which would maximize returns to farmers. This is a

very difficult issue to address because of the multiplicity of policy objectives with which a government must concern itself.

Outflow of resources from agriculture to other sectors in the economy is an essential component of high employment growth. The amount of outflow will vary depending, among other things, on the productivity of agriculture. However, it does appear, for some Sub-Saharan African countries, that the high costs of processing and marketing agricultural commodities is having a depressing effect on agricultural output.

III. Conclusion

This brief paper has made no pretense at covering the wide variety of factors limiting agricultural productivity in Sub-Saharan Africa. For example, highly important topics such as infrastructure development and management practices have not been discussed. What has been attempted is to demonstrate the complexity of the issues involved and the necessity of finding African solutions to agricultural production problems. It emphasizes the critical role of technological advances based on agricultural research in providing the basis for economic development. Evidence simply does not exist which would lead one to expect that increased yields of agricultural crops, or livestock for that matter, could be obtained at reasonable costs in the balance of new technological packages in the agricultural sector.

The paper also attempts to demonstrate that when such technological advances occur, there are a multitude of other issues which must be addressed if returns from the new technologies are to be maximized. Obtaining meaningful increases in agricultural yields is a complicated and difficult task. It is also a rewarding one. Unfortunately, there appears to be no simple shortcut to accomplishing this end.

Footnotes

1. Lagos Plan of Action for the Economic Development of Africa, OAU.
2. Accelerated Development in Sub-Saharan Africa, The World Bank, Washington, D.C., 1981, Table 24, p. 167.
3. Cheryl Christensen, et al., Food Problems and Prospects in Sub-Saharan Africa, U.S. Department of Agriculture, Washington, D.C., August 1981, Table 5, p. 13.
4. Accelerated Development in Sub-Saharan Africa, The World Bank, Washington, D.C., 1981, Table 27, p. 169.
5. In another sense, agricultural prices are too low. This is true mostly for agricultural products sold on international markets but may also apply to products sold largely for domestic consumption. If foreign exchange is undervalued, tax systems discriminate against agriculture, official prices are low, marketing and processing costs are excessive or international markets are depressed, and farm gate prices may be forced below costs of production. Additionally, even if net revenue from a crop remains positive due to one or more of the above factors, production may be adversely affected if net returns from producing other crops are higher.
6. John W. Mellor, The New Economics of Growth, Cornell University Press, Ithaca, New York, 1976, pp. 13-14.
7. New technologies by themselves are, of course, not sufficient to bring about substantial and sustainable increases in agricultural productivity. The new technologies really become effective only when they are supported by adequate physical and institutional infrastructure, properly functioning markets and supportive policies.
8. Cheryl Christensen, et al., Food Problems and Prospects in Sub-Saharan Africa, U.S. Department of Agriculture, Washington, D.C., August, 1981, p. 105.
9. Ralph W. Cummings, Jr., Food Crops in the Low Income Countries: The State of Present and Expected Agricultural Research and Technology, New York, Rockefeller Foundation.

CHAPTER 4

Fuelwood and Forestry Development in Africa

I. Introduction

Despite the uncertainty in many forestry statistics, some facts about this sector are quite certain: African forests are being cut down faster than they are being regenerated, at a rate of about 1.3 million hectares a year. In 1980, 180 million people in 34 African countries were living in areas already experiencing severe fuelwood deficits. ^{1/} Remaining forests and woodlands play an important role in watershed and ground water protection and in nitrogen fixation and shade for food crops. Forest products also provide important sources of medicine, food, fodder, lumber and other construction materials. In terms of overall consumption, fuelwood represents the dominant demand factor; some nine-tenths of the wood removed from forest areas is used for fuel. It accounts for more than three-fourths of total Sub-Saharan energy consumption--commercial and non-commercial combined. Consequently, arresting the process of deforestation and regenerating existing resources at rates fast enough to meet annual

Note: The facts and ideas included in this chapter have been drawn primarily from several recent studies and papers which describe and document the problem in the much greater depth. Particular acknowledgement is due to Messrs. J. P. Lanly, E. M. Mnzava, M. R. de Montalbert, G. F. Taylor, II, and R. T. Winterbottom. References are supplied at the end of this paper.

recurring fuelwood and other forest product needs is a goal which ought to command high national African and donor priority.

The Lagos Plan of Action identifies several specific activities and quantitative goals to carry out its three-fold objective for forest production: "To integrate forestry more closely with agriculture, to ensure adequate supplies of fuelwood, and to increase the contribution of forest resources in industrialization." Quantitatively, the Plan calls for expansion of areas under forestry regeneration programs by ten percent per year up to 1985 with special attention to community woodlots and agro-forestry. Also included is an expansion of forest reserves by ten percent over the next five years. 2/

Given the size of the reforestation task, if adequate supplies of fuelwood are to be produced, these goals are modest. They can serve to test, demonstrate and more widely replicate production increases which are possible in Sub-Saharan Africa.

II. Improving Efficiency in Forestry and Fuelwood Efforts

There are a number of approaches which have important potential for increased overall production as well as increased productivity per hectare, but these are not currently represented on any significant scale in African national forestry programs. They include the following:

- management of natural forests and woodlands to harvest fuelwood and other forest products, including interplanting with selected agricultural crops where desirable;
- generating village-level reforestation interest, participation and capability;
- conservation of fuelwood use and substitution by other fuels;
- forestry research on indigenous species and program experience, including experience with exotics, coupled with systematic exchange of results.

There are social and institutional problems which hamper the development of national programs pursuing these approaches. However, there do not appear to be any major technological barriers.

A. Management of Natural Forests

High per hectare costs and lower than expected yields from large scale plantations, particularly those using fast-growing exotics, have stimulated interest in deliberate management of existing natural forests and woodlands. Estimated current fuelwood productivities from natural forests are low, ranging from around 0.8 m³/ha/year to as much as 5 m³/ha/year in unmanaged forests. 3/ However, many foresters believe that with a comparatively modest deployment of additional manpower and other resources to support management plans tailored to each site, these yields could be doubled or even, at the lower end of the range, tripled.

Ownership and usage rights in natural forests are complicated and vary widely, not only between countries but within countries. Furthermore, with growing populations, increasing demand both for fuelwood and for more agricultural land is preempting customary usage patterns and prevents their enforcement, even in countries which historically had some intensive forest management regulations and regeneration plans.

According to a recent FAO study 4/, there are now only five Sub-Saharan African countries with intensively managed forests--Ghana, Uganda, Kenya, Sudan, Zambia--the total area of which accounts for only about one percent of the remaining 163 million hectares of productive forests in Africa. In fact, according to the study, the whole concept of intensive management was abandoned between 1960 and 1975, especially in the French-speaking countries. A number of FAO pilot management projects were started but not carried out due to obstacles common to most of the countries. These obstacles included absence of technical units in the forests with the capability of implementing the projects, lack of positive cooperation by logging companies, and lack of involvement of local populations.

B. Generating Village Level Participation

Popular involvement on a wide scale is by now generally recognized to be an indispensable component of any successful reforestation effort. This is particularly true at the rural level where demand for more agricultural land and for fuelwood are the primary causes of deforestation. More particularly, in the few large scale successes that have been documented--Algeria, China, Korea and Gujerat State in India--popular local level involvement in the planting planning effort appears to have been a primary precondition of success 5/. Land use choices, reconciling competing demands for agricultural land and for trees (whether for fuelwood or for shade, fruit or land conservation uses) were deliberately delegated to the users of the land. The supporting government assistance, whether as seedlings, extension, marketing or other services, was supplied in support of locally determined plans. The incentive of agreements which ensured that adequate local benefits from the forest products produced would be returned to the people who produced them was also important. However, the reliability of agreements on this aspect of the program depended on the reliability of the 2 commitments on delegated authority on overall land use.

A recent review of forestry projects carried out during the 1970's in Upper Volta 6/ describes what appears to be an African agro-forestry pilot project prototype of this approach, the "Bois de Village" program now underway in three regional development

juristictions in Upper Volta. Initiated with FAO/UNDP project funds and extended under Swiss funding, the approach has institutional support from the Government of Upper Volta. It emphasizes, as an essential element in its geographical evolution, the development of village-level capacity to initiate and implement reforestation and other natural resource conservation activities. Illustrating what another expert has described as the importance of the "process" versus the "project" approach 7/, the Voltaic Bois de Village program (including its coordinating policy and program administrative mechanisms within the Ministry of Environment and Tourism) merits additional description and wider discussion to see whether its approach may be replicable elsewhere in Sub-Saharan Africa. There are other African approaches--for example in Tanzania, Ethiopia and Kenya--which could provide insights into recent African exploration of ways in which, in the words of the Lagos Plan, countries might "integrate forestry more closely with agriculture", using the process rather than the approach. 8/

C. Conservation of Fuelwood and Use of Substitutes

Increased attention is being given by African governments and donors to the desirability of introducing improved woodstoves for rural household use and more efficient methods of producing charcoal. Savings of 30 percent to 60 percent in fuelwood use are claimed to be achievable through the adoption of such improvements. Given the size of the deforestation problem and the high cost of

regeneration through new plantings, productivity increases through this approach would appear to have high program priority.

Achieving improved efficiencies in charcoal production and in its end use may be easier than obtaining widespread use of improved cooking stoves in rural areas. To the degree that charcoal producers are organized and their relationships with government licensing and other officials are not adverse, programs to increase the use of better kilns should not be too difficult to launch. Incentives are needed to compensate for the increased costs. African governments can profit by an extensive exchange of experience with fees, enforcement techniques, marketing interventions and diffusion of the results of development of improved production techniques. Urban users of charcoal for cooking may well respond to and accept improved charcoal-using stoves (as well as better wood-using stoves) at a fairly rapid rate, particularly as rising fuel costs provide a price incentive for conservation.

An anomaly not adequately explored, however, is why African rural women, who in general shoulder the greatest responsibility for and burden of wood gathering, have not responded to the many pilot experiments launched during the 1970's to design and extend the use of improved stoves. The most common explanation, so far, has been that of poverty. Even very inexpensive stoves are too expensive for most African rural families. The stoves require constant attendance by adults, most of whom are needed for other

essential home and agricultural tasks, and are not adapted to the length and sizes of wood available through the traditional, still largely "free", collection systems.

However, a number of other, equally fundamental reasons, have recently been suggested. Among them are:

- Improved designs do not in fact save more fuel than the three stone method.
- African women, particularly rural women, have not been systematically involved in pre-project discussions of what kinds of designs might be preferred, or even if improved stoves should be the major source of savings.
- African women already use a much wider variety of fuelwood savings measures than experts (African as well as expatriates) have taken note of e.g. native versions of hot-boxes or slow cookers, use of lids on pots, damping of fires after optimum temperature is reached, and the use of a substantial volume of fuelwood substitutes such as grasses, dung, and husks.
- Per capita fuelwood consumption estimates may be substantially overestimated, not only because of the current use of fuelwood substitutes as listed above, but because inaccuracies in the few consumption surveys (on which national and regional estimates are based) are subject to both responder and survey-taker upward biases.

Examination of the validity of any or all of these possible reasons would seem to be a useful undertaking. There is not much

that can be done quickly or cheaply about alleviation of general poverty. However, each of the other reasons cited above, if proven "true", suggests new practical program approaches which could yield quick results.

Discussion of the development and promotion of fuelwood conservation through the use of substitute fuels other than agricultural wastes is deferred to the energy issues spokesmen. It may be noted that in many African countries, half of current fuelwood used is for non-household tasks: tea and tobacco drying, brewing, brick making, village forges. Indigenous or regional substitutes such as peat, coal, kerosene, hydropower, or, as appropriate, solar drying, could--if widely adopted for these purposes--provide major easements on current fuelwood shortages for household needs. 9/

D. Research on Indigenous Species and African National Program Experience

The productivity issues described and implied by the comments above provide strong support for a much larger and much more broadly conceived program of research and sharing of results in African forestry production projects and programs. Although there are quite a few African countries with national research programs underway testing indigenous species, there is virtually no research underway which systematically describes--much less exchanges results on--evolving African national forestry planning and program

experience. Success in reforestation programs in Africa will depend on programs designed and launched and successfully implemented by relatively newly formed independent African governments. The problem of deforestation is so large, and the efforts to arrest it which are underway are so new that even large-scale "action" projects, whether funded by donors or as part of national development programs, could be characterized as pilot test-and-demonstration research in national African forestry program planning.

A great deal of the donor supported research funding so far has been devoted to narrowly conceived projects and tailored to donor defined research goals and donor designed research projects. There is a danger that the lessons to be learned from these research efforts and from action projects already underway in Africa, whether successful or unsuccessful, will not be distilled or shared in time to be of practical assistance to the African government coping with the formidable task of trying to arrest deforestation with limited resources.

Donors and African countries may wish to consider a rather rough-and-ready research approach which explores African and donor supported experience in selected countries to find out what currently appears to be "successful" in the African milieu and under African auspices. This could take the form of commissioning case studies for each country. These case studies might look at approaches described above as having overall potential for

increasing production and productivity in forestry/fuelwood programs.

It should be noted that the list of countries identified below under each of these four approaches is not meant to be exclusive--nor need they all necessarily be included in any systematic and (it is to be hoped) swift survey and description. They are listed because there are already known activities in each of the countries identified and if the processes by which they are launched were clearly articulated, they might be replicable in other African countries. Exceptions from the list and/or additional examples are invited from African participants.

- Management of natural forests: Experience in Ghana, Uganda, Kenya, Congo, Sudan, Zambia, Senegal, Upper Volta, Cameroon, Niger.
- Promoting village level participation: Experience in Upper Volta, Kenya, Tanzania, Ethiopia, Algeria (African governments might also wish to explore experiences in Korea, China and Gujerat).
- Conservation and use of other fuels: Experience in Senegal, Burundi, Kenya, Mali.
- Research in indigenous and exotic species: Experience in Malawi, Upper Volta, Somalia, Niger, Mali, Senegal, Sudan, Kenya.

It should be noted that the list of priority approaches suffers, however, from the defect common to all previous donor

efforts. Although African views have been taken into account in drawing up the list, African views have not been systematically solicited from the end-users. These end-users are not in the first instance, forestry technicians. Such technicians do not have responsibility for planning overall land use allocations or overall allocation of scarce foreign and local resources from the development budget. Forestry officials will have the advantage of benefitting from the results of such surveys only after development planners are convinced that allocating additional resources to reforestation and fuelwood production will in fact begin to produce the agricultural production improvement, the watershed conservation and the energy production increments which already have priority claims on the development budget. Any agenda for forestry production research priorities should solicit at the African development planner level on priority items for research. This will include, but may not be limited to: Ministers for Internal Affairs (in Korea, land reform success was at least in part due to delegation of authority for a ten-year program to the Minister for Internal Affairs who had charge of land control); Ministers of Rural Development (allocation of assignment of land and extension resources is usually under the control of such ministers in many African countries); Ministers of Agriculture (forestry extension training and/or added staff may well be through expansion and extension of the capabilities of agricultural extension staff in order to encourage, at the farmer level, the integration of forestry and agriculture which is desired by the Lagos Plan). How, and whether, a research agenda can be drawn up in which the views

of such officials can be obtained is a question which CDA officials and African officials may wish to explore.

E. Suggestions for an Approach to Support Lagos Plan Goals

Meanwhile, pending development community efforts underway to launch larger scale forestry research efforts, how can African governments and donors cooperate to support the forestry production goals of the Lagos Plan?

As suggested earlier in these comments, the production goals of the Plan are modest as compared with the replanting efforts estimated to be needed to meet present and foreseeable fuelwood and other forest product needs by the year 2000. The Plan's production goals include expansion of areas under "forestry regeneration" programs by ten percent per year up to 1985, with special attention to community woodlots and agro-forestry; and expansion of "forest reserves" by ten percent over the next five years.

The Plan does not specifically define what is meant by either "forest regeneration" or "forest reserves". For purposes of discussion, "forest regeneration could be equated with "established plantations" -- industrial and non-industrial--which were estimated in a recent FAO study as approximately 1,780,000 hectares for all of Sub-Saharan Africa. ^{10/} The annual rate of planting required across Africa would therefore be in the neighborhood of 178,000 ha/per annum, about twice the currently estimated annual rate. For

any given country the planting task could be reasonably manageable. According to FAO estimates, some countries are already planting in excess of a ten percent increase: Mali, Senegal, Upper Volta, Guinea-Bissau, Liberia, Madagascar. Donors are already assisting in these regeneration projects on a substantial scale. The term "forest reserves" is more difficult to define. It presumably refers to land legally under the control of the African national government, particularly in national parks and forest and wildlife reserves where logging is completely prohibited. The FAO estimates this area at about 51 million hectares of which some 40 million hectares are classified as mixed tree formations, with as little as ten percent under tree cover. 11/ Enlargement of such reserves is primarily a land use and management task to be assumed by the concerned African governments. However, there may be an opportunity for future donor-host government cooperation. Some African governments may wish to consider the establishment of shelter belts, including community woodlots, windbreaks, live fencing, and agro-silviculture as part of the development of new management systems for existing natural forests, and as one of the primary protective measures to be used when new forest reserves are established. Unless provision is made for fuelwood and other non-industrial wood supplies for the rural population farming in the vicinity of reserves, existing and new reserves will be threatened by encroachment and deforestation. Donors could offer to provide financial and technical assistance to an African government which was willing to allot ten percent of existing forest reserves (which is under legal control but not at present

under extensive management plan) for an experimental natural forest management program. This program would finance, a substantial newly planted shelter belt around the closed reserve. Depending on the length of the reserve perimeter, planting for the shelter belt might well amount to the desired ten percent increase in hectares for forestry regeneration. In the planting and planned use of such a shelter belt, the jointly funded effort could include:

- systematic involvement of local or adjacent rural populations in perimeter areas, in their own agro-forestry and fuelwood harvesting planning, including but not limited to their own expressed interests in fuelwood and non-fuelwood species to be planted in the shelter belt;
- to the extent that charcoal harvesting would be involved, enlistment of local charcoal producers in improved methods of charcoal production;
- enlistment of rural women in discussion of fuelwood conservation methods;
- a forest research component, as appropriate to each site, which could include but not be limited to, testing of annual yields on existing indigenous (and, if present, exotic) species; development of nurseries for seedlings of indigenous and exotic species specific to the site, to be decided on by villagers and offered to them in the management program; and enlistment of local participants' ideas and suggestions in consequence of their subsequent experience with these new species;

- solicitation, as requested by the African government willing to engage in this natural forest management activity, of external experience appropriate to each geographical case.

We would be open to suggestions as to what else could be done to meet the Lagos Plan forestry objectives.

III. Current CDA Forestry and Fuelwood Initiatives

At the September 1981 CDA policy meeting in Ottawa, the U.S. and its CDA colleagues reached agreement on the general approach and in-country procedures by which they would collaborate more closely to encourage African governments to undertake expanded national programs in reforestation and fuelwood supply. They agreed to begin in five countries: Senegal, Malawi, Somalia, Burundi and Upper Volta. In each of these countries, current CDA and other donor bilateral projects in this sector already provide a substantial assistance base.

During the course of a year of consultations, the U.S. has emphasized the importance of generating joint in-country reviews to (a) quantify the reforestation and fuelwood supply needs, including the implied land requirements; and (b) inventory current combined African and donor efforts in terms of their effectiveness in providing the main components needed for successful national programs. The U.S., as primary coordinator for this initiative, considers the process by which African governments are encouraged

to review their fuelwood needs as important as any additional projects which may be recommended to donors and considered by them for support.

Preliminary reports have been received from three of the countries indicating that the governments of Somalia, Malawi and Senegal are already engaged in undertaking the desired in-country reviews.

The Government of Somalia has circulated a five-year forestry sector paper and proposed program. With U.S. encouragement, the government has organized an informal in-country donor group to review the sector needs and the proposed projects. Based on these findings, USAID Somalia is preparing project identification documentation and recommendations for U.S. participation in Somalia's longer-term forestry planning and programming.

In Malawi, the Forestry Department is preparing a forestry strategy paper along the lines of the suggested CDA approach which will be submitted to the local CDA group. This is being chaired by the U.K. High Commissioner who will arrange a working meeting with other donors to discuss the Malawi report and recommendations once they have been received.

In Senegal, the Ministry of Water and Forests is completing its review of a long range sector plan developed, with French assistance, during the past two years. France has accepted the

U.S. invitation to serve as principal point of CDA member contact in Senegal and has appointed the Chief of the Forestry Section of the Ministry of Cooperation and Development to serve in that capacity. He and the USAID Mission Director are planning a working session to be held in Dakar in June, under the sponsorship of the CILSS/Club du Sahel. Donors will jointly examine, with Senegalese officials, the conclusions of the sector plan and consider the most effective ways to assist in the progressive execution of the proposed program.

Important African initiatives have also been reported from the other two countries.

In Burundi, the Ministry of Agriculture and Livestock hosted a reportedly very successful five day forestry conference in February 1982, which attracted about 50 participants from Rwanda, Zaire and Burundi, and observers from foreign aid agencies. The Government of Burundi has an established policy for forestry interventions which identifies and differentiates distinct strategies, program concepts and distribution systems for (a) meeting rural energy needs and for (b) meeting urban and commercial fuelwood and other energy needs. Burundi planning strategy may be of use to other African governments.

In Upper Volta, the Government of Upper Volta has already set up three coordinating committees concerned with forestry: one dealing with village level efforts ("Unite de Bois de Village"),

another with the management of natural forests ("Unité d'Aménagement de forêts") and a third with research in agro-forestry (chaired by a national with a Ph.D. in forestry). Each of these committees enlists the participation and exchange of current project problems and experiences from all donor and Voltaic working level participants. This working level coordinating approach, which permits a rapid exchange of information at the country level, may also be of use to other African governments.

REFERENCES

1. Marc Rene de Montalambert (Senior Forestry Officer, Forestry Department, FAO), "The Forestry/Fuelwood Problem in Africa and its Environmental Consequences", in Proceedings of Workshop on Energy, Forestry and Environment, AID/Africa Bureau, April 1982, Volume II, pp. 87-91. See also "A Global Reconnaissance Survey of the Fuelwood Supply/Requirement Situation", a progress report prepared by the Forestry Department of FAO for the Second Meeting of the Technical Panel on Fuelwood and Charcoal, Rome, December 1980.
2. The Lagos Plan of Action, pp. 16, 17. UN General Assembly, A/S-11/14, 21 August 1980.
3. Tropical Forest Resources Assessment Project, Forest Resources of Tropical Africa: Part I - Regional Synthesis, FAO, Rome, 1981, page 65. J.P. Lanly was the project coordinator.
4. Ibid, p. 51.
5. Erik Eckholm Planting for the Future: Forestry for Human Needs, World Watch Paper 26, February 1979, pp. 39-56, for Korea, China and Gujerat. Detailed descriptions of the Algerian program are currently available only in WFP internal evaluation reports.
6. Robert T. Winterbottom, Reforestation in the Sahel: Problems and Strategies - An Analysis of the Problem of Deforestation and a Review of the Results of Forestry Projects in Upper Volta," a paper prepared for the African Studies Association Annual Meeting, Philadelphia, October 15-18, 1980. Summarized in the Proceedings of Workshop on Energy, Forestry and Environment, AID/Africa Bureau, April 1982, Volume II.
7. George F. Taylor II, "Forest and Forestry in the Sahel: An Issues Paper," in Proceedings of the Workshop on Energy, Forestry and Environment, Volume II, pp. 109-110.
8. E.M. Mnzava (Director, Forest Division, Dar es Salaam, Tanzania), "Afforestation for Energy in Africa: Problems and Possibilities", in Proceedings, op. cit., Volume II, pp. 92-99.
9. Ibid. pp. 96-97.
10. FAO, Tropical Africa: Part I, (Cited in footnote 3), Table 5c, pp. 76-82.
11. Ibid, pp. 49-53.

CHAPTER 5

Transportation

I. Introduction

The development of transport infrastructure in Africa lags behind that of other continents. The nations of Africa suffer from a relative, and often an absolute, lack of transport facilities. The impact on development of these inadequate or non-existent facilities is profound. Country comparisons of road transport facilities are astonishing as indicated in the Table below.

Kms of road per
1000 square kms of area
(Selected Countries)

Sudan	1
Tanzania	36
Ghana	135
USA	674
Germany	1890

In general, present day African transportation facilities owe their existence to colonial requirements and the legacy of colonial transportation patterns continues to have a major effect on African development and politics. Colonial roads and railways were usually

built from the coast inland to a source of raw materials, or to provide colonial and military authorities with quick access to the interior. Few road links then (or now) ran parallel with the coast, or were designed to serve great market centers. This situation was further exacerbated by national and political rivalries among the metropole powers, leading to the creation of arbitrary governmental and military jurisdictions. These jurisdictions have subsequently become African nations whose boundaries often split tribal groups and have little relationship to delineating geographical features. Due largely to inadequate transport facilities, development has been fragmented and compartmentalized into a series of disconnected insular enclaves that are only now starting to have social and commercial intercourse. For example, of the twenty-eight landlocked countries in the world, fourteen are located in Africa. It is no accident that among these are the least developed states on the African continent. The development of the landlocked economies closely parallels the extent to which they have adequate access to the sea. The adequacy of access to the sea, in turn, is usually directly proportional to the extent of their mineral resources. Nigeria, by far the most populous nation on the continent, fifteen years after independence did not have a railway line that reached any of her borders, nor a line across the southern part of the country. In 1982 there are no all-weather roads or railways across Africa connecting with the Atlantic Ocean, the Indian Ocean, or the Mediterranean Sea. Bits and pieces of five major transcontinental routes have been constructed, but they are probably years away from

completion. The fact is that most African road transport systems have substantially deteriorated since the wave of independence in the early 1960's.

Mineral deposits have been the focal points for development in Southern Africa. Repeatedly, one can see that the politics and development of the area were adapted to the choices presented by actual and planned transportation facilities. Cecil Rhodes' Cape to Cairo railroad was conceived as an imperial dream, but carried out in a series of jumps from one mineral find to another: diamonds at Kimberly and gold in the Transvaal pulled the line from the Cape to the interior; coal at Wankie in Southern Rhodesia and copper in North Zambia and Southern Zaire diverted the line north. Today, construction or modification of rail links for evacuation of minerals to seaports on the east and west coasts cannot be separated from Africa's politics and development.

Although their potential as major transport links is enormous, the development of internal waterways such as the Congo (Zaire) and Zambize Rivers has lagged seriously. Of Africa's 49 major international seaports, few have the necessary quays, warehouses, and cargo and ship handling equipment to accommodate current traffic requirements, much less future growth needs. Moreover, maritime freight rates between African and major world ports are among the highest in the world.

African nations, in essence vaulted the railroad era. Transport has evolved almost from headloads to the air age. Although generally rudimentary and sometimes nonexistent, air transport within Africa and to and from the continent are superior to any other mode.

II. The Relationship of Transport System to Economic Development

A question often asked about the transport sector is, "What is the impact of transportation on development?" It might be better formulated as, "What is the impact on development of a lack of transportation?" In either case, the answer depends in part on how transport facilities are perceived and conceptualized. However, formulating the answer is as difficult as determining the worth of education or the cost or morbidity. There are few absolutes in these areas, and many points of view. The following concepts may serve to heighten perception of the transport sector.

A nation's transport facilities are created to provide access, i.e., access in and access out, access to ports and to the interior, to farms and to markets. They comprise a systemic whole which is frequently referred to as a transport system. The term transport system is all-embracing and includes the: a) physical transport links; b) vehicles; and c) related handling and storage facilities, construction and maintenance equipment, personnel, institutions, etc. However, the goods and services which are transported are not defined as part of this transport system.

A nation's transport system is that part of its physical and institutional infrastructure which provides a fundamental capacity to move people and goods. A system is usually composed of several modes which are simultaneously complimentary and competing. For example, a feeder road is of little use without an arterial connection, which, in turn, may depend on a railway which serves a seaport. A restriction anywhere in the system reduces the flow of people and goods. In this respect, a transport system is as strong as its weakest link.

There is no alternative to transport--the only choice is one of mode. The requirement for transport services derives from forces outside of the transport sector. In this sense, transport facilities in themselves can meet, but cannot create demand. A transport system can only exist in response to economic forces which have created and sustained it.

Improvements in transport facilities will not create development. On the other hand, a lack of transport facilities can hamper development. Development of the transport sector is concomitant to growth of the exchange economy. Indeed, without development of the transport sector, there will be little advancement beyond a subsistence economy. In other words, transport is a necessary, but not sufficient, element for economic development.

In a sense, transport facilities are physically, socially, politically and economically neutral. By themselves they have little impact. They are a means, a conduit, a tool for serving man. They can be compared to a hammer which requires a man at one end and a nail at the other to produce a result. Thus the impact of a road is a function of a variety of physical, economic, social and political factors outside of the transport sector. Without the road there may be no impact, but with the road there may also be no impact.

Transport projects have a relationship to a large number of actions or changes which themselves constitute what is commonly referred to as the development process. As noted above, it is perhaps more useful to think of the demand for transport services deriving from, and concomitant to, one or more developmental changes.

III. African Transport and the U.N. Decade for Transport and Communications in Africa

The Lagos Plan of Action recognizes the importance of transportation development and notes the efforts being made in connection with the UN sponsored Decade for Transport and Communications in Africa 1978-1988 (UNTACDA). UN Resolution 32/160 designated the Economic Commission for Africa (ECA) as the lead agency for UNTACDA. The ECA has produced a Global Strategy and Plan of Action, First Phase, 1980-83, Volume I. This document

provides an overview of each mode of transport and communications and a listing of 759 projects and their costs. A pledging conference held in November 1979 addressing this report set forth financing requirements totaling \$8.85 billion (\$8.34 billion for transport and \$.51 billion for communications). Direct pledges amounting to only about \$128,000 were received from 12 countries. However, international organizations and governments stated their intentions to earmark \$6.36 billion for bilateral transport and communications projects during the decade. The First Phase now includes 771 projects with an estimated cost of approximately \$9 billion.

The Second Regular Session of the ECOSOC meeting in Geneva during July 1981 adopted a resolution by consensus expressing disappointment at the level of resources so far made available to UNTACDA, and appealing to donor countries, funding agencies and various financing institutions to increase their support. The resolution urged African countries to accord the highest priority in their development plans to transport and communications projects and called upon the Organization of African Unity (OAU) to intensify efforts in exploring possible sources of financing. It also requested the ECA to maintain coordination between funding agencies and African governments and to begin working with the OAU to prepare a plan of action for the Second Phase (1984-88) of UNTACDA.

In addition, the ECA is in the process of conducting a series of regional technical consultative meetings in a new effort to mobilize financial resources. Separate meetings have been held or are being planned between prospective donors and recipients on regional modal requirements such as road and rail systems, ports, inland waterways, etc. To date the response to the significant ECA efforts has been disappointing.

It appears that the priority and momentum of the UNTACDA is being lost, and that little in the way of concrete results will be achieved by 1988. Some of the reasons for this may include the following.

- Perhaps the most basic difficulty is that the ECA presentation of African transportation requirements represents little more than a list of activities submitted by the various nations. The presentation focuses more on what is desired than what makes good developmental sense. While the list of projects has been broken down and analyzed as to mode and status, no analysis has been made of such key areas as economic and social returns, benefit incidence, and construction costs.
- The criteria used to prioritize projects are derived from more general UN policies/criteria which accord preference to regional and subregional projects, and to least-developed, landlocked, newly-independent or front-line countries. These criteria do not succeed in arraying projects against useful

economic or bankable criteria, and results in a number of questionable priority allocations.

- Without a more thorough developmental analysis and priority ranking of proposed activities, it is very difficult to present a plan of attack for the UNCTACDA. Given the enormous absolute cost of the UNCTACDA and the very substantial costs of individual projects, it is clear that a great deal of donor cooperation will be necessary. However, UNCTACDA does not have a viable plan for facilitating cooperation among donors and recipients.
- In spite of the ECOSOC resolution noted above, the emphasis and priority accorded the UNCTACDA by African countries in their own development programs and by the OAU on the political level has not been particularly noticeable. The burden of implementation seems to be falling on the ECA alone.

In sum, if its goals are to be realized, UNCTACDA needs critical analysis, economic prioritization, a more discrete and viable coordination plan, and strong support.

CHAPTER 6

Manpower Development in Africa and the CDA Health Program's Manpower Training Plans

I. Introduction

Shortages of skilled manpower are a major constraint to effective implementation of development programs in Africa. This paper discusses manpower planning, training and utilization in African countries and examines ways to improve the effectiveness of these activities in order to meet Africa's manpower needs. Attention is given to the need for increased self-reliance on developing skilled manpower and also ways in which external assistance can supplement national and regional manpower development efforts.

Manpower development plans for the CDA program to combat childhood communicable diseases illustrate a coordinated, regional approach to training large numbers of personnel for a sectoral activity. Training plans for the CDA health program are described in this chapter. Appendix 2 provides a description of the CDA Combatting Childhood Communicable Diseases Project.

The Lagos Plan of Action calls for increased measures of self-reliance in manpower development programs and voices strong concern regarding shortages of trained manpower and the lack of coordinated policies and programs for manpower training in Africa.

The Plan discusses manpower needs in the context of closely related human resource development problems. These include the high rate of population growth in Africa, the growing level of unemployment and underemployment among unskilled workers, the high level of adult illiteracy, and deficiencies in primary and secondary school systems. While recognizing the importance of these problems, this paper limits its attention to the concerns stated in the LPA that relate specifically to manpower development. These concerns may be summarized as follows:

1. There is need for immense efforts at the national and regional levels to accelerate training and move towards greater self-reliance in manpower development. Many African countries are over-dependent on external sources for training, and for skilled technicians and managers. Self-reliance is constrained by a lack of training facilities in some fields, scarce financial sources, and other problems.
2. There is need at the national level to coordinate manpower planning, training and utilization programs in a central service, (e.g. a Ministry of Manpower Development). The central service should prepare or coordinate manpower studies and sectoral manpower profiles, identify training needs and priorities, assess the institutional and staff capacity of national training programs, coordinate reforms of training curricula and methods, establish vocational and educational guidance services, coordinate scholarship programs and

administer national training funds. Manpower planning activities should be guided by sectoral manpower committees and a Central Advisory Council which recommends manpower policies and strategies. These policies and strategies should be based on sound appraisals of national resources and should be an integral part of national development plans.

3. There is need for cooperation among African states in developing and utilizing specialized regional and sub-regional training institutions. Regional training programs should be based on existing national institutions and be designed to complement national programs.
4. There is need to emphasize training in certain areas. Although each country will establish its own priorities, there are some recognized general needs. These are training in science and technology, training for production sectors (including marketing and distribution) and for support services (research, transportation, communications, etc.), training of trainers in all fields, training of managers, and training of manpower planners.
5. There is need for training programs that are development-oriented; which are based on task analysis, that utilize indigenous methods and materials, that develop work-related attitudes, that include on-the-job training or

other practical experience, and that adapt to changing patterns of manpower needs.

6. There is a need to coordinate training programs with programs to strengthen African institutions, to monitor and audit management systems and administrative structures in terms of performance, cost effectiveness and productivity and to implement institutional reform as required.

II. Improving Efficiency in Manpower Development Efforts

Efforts to alleviate Africa's shortages of trained manpower have often lacked coordination and long-range planning. An analysis of the concerns stated in the Lagos Plan indicates that relationships have not been well established between training abroad and the development of training institutions in Africa, between management training and the reform of management systems, between training of higher-level professional staff and middle-level support staff, and between development needs and the numbers of students enrolled in priority development fields, such as science and agriculture.

In some instances, external agencies may have contributed to some of these imbalances by an emphasis on project-related training. Although project-related training has many advantages, particularly for defining training needs and assuring the utilization of trainees, it may also distort training priorities and leave unfilled gaps in trained manpower. A more balanced and

comprehensive approach to manpower development has been taken by the CDA health program, which addresses manpower requirements on a sectoral, rather than project basis. The CDA health program's training plan may provide one answer to Africa's need for effective, accelerated manpower training and for making an impact on development needs.

These and other manpower development issues and problems are examined in the following sections concerning manpower planning, manpower training, and manpower utilization.

A. Manpower Planning

An analysis of national manpower needs may begin with the preparation of sectoral and institutional manpower profiles. Even at these levels, the task of analyzing manpower needs is inexact and sometimes difficult. Problems arise from a lack of data, changing needs, and budgetary restrictions. Nevertheless, sectoral and institutional manpower profiles should help analyze present levels of skills and provide estimates of future supply and demand for trained manpower. Priority manpower needs can be established and misdirected training avoided. Sectoral and institutional profiles should lead to task analyses, followed by the development and coordination of training programs to meet identified objectives.

As recommended by the Lagos Plan, sectoral manpower committees should be established to provide guidance on policies and strategies, and to relate manpower development to sectoral objectives. Membership of the sectoral manpower committees should be drawn from public and private organizations, and manpower profiles should cover both public and private activities within the sector.

Ministries of education, health, agriculture and other sectors frequently make projections of their need for teachers, extension workers and other field staff. The numbers in these projections are usually large and the projected costs in salaries are often prohibitive. Projections of this type demonstrate a need for finding new ways to deliver services to the people. An important element in any sectoral manpower profile should be an investigation of alternatives to large increases in manpower requirements, such as making greater use of mass media, the private sector, voluntary agencies, and other innovations.

Once completed, sectoral and institutional manpower profiles need to be synthesized at the national level and reconciled with the country's financial resources, the programs and capacities of its school system, and other factors relevant to the country's needs, resources, and development policies. The Lagos Plan recommends the establishment of a Ministry of Manpower Development to

coordinate national manpower planning and to perform functions related to manpower training and utilization. In addition, the Plan suggests the establishment of a Central Advisory Council for Manpower Development, which would have a role at the national level similar to that of the manpower committees suggested for each sector.

In order to do sectoral profiles and coordinate manpower studies, African countries will require increased numbers of personnel with expertise in this area. Each sector should have a unit capable of doing manpower planning and related manpower development functions. Additional personnel will be required by the central Ministry of Manpower Development. Given these needs, one of the priority manpower concerns for Africa would appear to be the establishment of short and long-term programs for training personnel in manpower planning and related manpower development skills. Such training programs might well be planned at the regional level and offered through regional and sub-regional centers.

Other areas where regional coordination could be useful are the development of criteria and standards for sectoral manpower profiles and compilation of data on regional manpower needs. Financial and technical assistance from external sources could usefully be provided for the development of training centers for manpower planners at the regional level

and for producing sectoral manpower profiles at the national level.

B. Manpower Training

There has been remarkable progress in human resource development over the past twenty years in African countries. However, there are still manpower shortages in some areas, and requirements for new specialized skills and knowledge become evident as development progresses.

Higher-level trained manpower is being produced by some fifty-five national universities and an assortment of institutes, schools and centers in Sub-Saharan Africa. Middle and lower-level skills are developed in an array of technical schools, ministerial training courses, and public and private vocational programs. These national efforts are supplemented to some extent by training in regional centers, and more extensively by training abroad.

Middle and lower-level skills are developed in an array of technical schools, ministerial training courses, and public and private vocational programs. These national efforts are supplemented to some extent by training in regional centers and more extensively by training abroad.

The Lagos Plan calls for better planning and coordination of national, regional and overseas training programs in order to increase the quantity and quality of training, make better use of available development resources, and increase Africa's self-reliance in meeting its manpower needs. The assessment of manpower needs and training requirements sponsored by the Southern African Development Coordination Conference (SADCC) is one important example of an effort to coordinate training activities on a regional basis. The manpower training plans for the CDA health program, as described later in this paper, seek to coordinate training on a sectoral basis.

At the national level, the Lagos Plan recommends that a Ministry of Manpower Development assume responsibility for coordinating manpower training in conjunction with its responsibilities for manpower planning. A Ministry of Manpower Development should inventory existing training programs, identify duplications or gaps in the national program, and analyze the costs and benefits of alternative training programs to meet specific manpower needs. An analysis of training alternatives would seek answers to the following types of questions: Do existing national programs have the capacity to provide the required training or will they require additional staff, revised curricula, or other reforms? What are the comparative costs and benefits of establishing a new national training program, participating in the creation of a regional training program, or sending

students to other African countries or abroad for training? Does the private sector offer suitable alternative solutions to training needs?

- As these questions indicate, African governments may need to become more flexible and innovative in finding answers to their training requirements.

Some countries have made use of programmed learning, correspondence courses, distant teaching, joint degrees with overseas universities, and other innovative training techniques. These kinds of innovations need to be evaluated to determine their appropriateness to present training needs and their potential for more widespread use.

A promising approach to training recommended by the Lagos Plan is for African states to cooperate in developing and utilizing specialized regional and subregional training centers. These centers would be attached to national universities but would provide training and other support services on a regional basis. The regional centers would concentrate on a special development area, such as energy, transportation, forestry or manpower planning. In addition to offering a variety of training programs, the centers could be concerned with policy formulation, technology transfer, and dissemination of information for their respective areas. Such centers appear to have the potential for reinforcing national development efforts while conserving the use of national

resources. The concept deserves further careful consideration by African states and donor agencies.

At present, African states can supplement national training programs by training their personnel in other African countries or by training them overseas. The Lagos Plan expresses concern that external training should be aimed at developing staff for Africa's own training institutions in addition to meeting immediate manpower needs. The Plan recommends that planning and management of scholarship programs for both short and long-term objectives be the responsibility of a Ministry of Manpower Development. Scholarships offered by external agencies should be meshed with priorities established by the Ministry.

Training in other African countries is not being used to the fullest extent, either by external agencies or African states. Calling attention to escalating costs of study overseas and to the relevancy of training provided in African institutions, the Lagos Plan recommends that greater use be made of in-Africa institutions and in-Africa training opportunities. There should be little need to send persons overseas for middle-level training or for studies for a first degree. In addition, many African universities are gradually expanding their offerings at the master's degree level. Ministries of Manpower Development and external agencies need to become more aware of training programs available in Africa

and consider using these programs before opting to send trainees overseas.

C. Manpower Utilization

Insufficient attention is given to policies and practices that could improve the utilization of skilled manpower and capitalize on the investments made in manpower training. As stated in the Lagos Plan, there is a major need to coordinate training programs with improvements in management systems and institutional reforms. Better management and improved organizational structures should enhance the productivity and effectiveness of skilled manpower and, in effect, relieve some of Africa's manpower shortages.

The need for training in management skills has been generally recognized. Such training is largely ineffective if it is not accompanied by institutional development and reform. Management training needs to be applied to the particular role and objectives of an organization, with the purpose of improving that organization's performance, cost effectiveness and productivity. Manpower training combined with systems analysis and reform is needed urgently by many of Africa's public, parastatal and private organizations.

The utilization of trained manpower would also be enhanced by assuring that adequate balance is maintained

between highly trained personnel and middle- and upper-level technicians and that equipment, maintenance and other necessary support is provided. In addition, refresher courses and upgrading of skills will be required to maintain the productivity of trainers manpower at all levels. External agencies may provide useful assistance in this area.

African governments also need to examine, and perhaps revise, policies and regulations that affect the utilization of skilled manpower. These may include attitudes toward employment and training opportunities for women, civil service regulations that affect motivation and career goals, wage structures and other incentives for the public and private sectors and policies and regulations that may restrain private sector productivity. The Lagos Plan recommends that a Ministry of Manpower Development be charged with responsibility for reviewing government policies and proposing revisions that would improve manpower utilization.

The planning and training functions of a central manpower ministry and its role in coordinating external assistance are also vitally important for the future utilization of trained manpower. In the past, external assistance for manpower development has been planned and provided largely on the basis of individual projects. The Lagos Plan recommends that manpower planning and training be raised to sectoral and national levels. Adequate planning at these levels will help

identify training needs, increase the relevancy of training programs, and improve the utilization of skilled manpower. The following description of a training program for the health sector responds to the need for more comprehensive planning, training, and utilization of Africa's manpower resources.

III. Training Plans for the CDA Health Program

In cooperation with governments of Sub-Saharan countries and the African and Eastern Mediterranean Regional Offices of WHO, CDA is developing an initiative for Combatting Childhood Communicable Diseases (CCCD). This eight-year project is focused on the prevention and control of childhood diseases in particular the diseases preventable by immunization, the diarrheal diseases and malaria. A major objective of CCCD is the development of the health manpower required to implement this program effectively.

A work plan for the first two years of CCCD program implementation is currently being reviewed by the agencies cooperating in this initiative. The proposed budget to support the work plan for the two-year period is approximately \$13.2 million, of which \$2.1 million, or sixteen percent, is allocated for the development and implementation of training, including \$0.4 million earmarked for development of training materials and appropriate teaching methods.

The primary focus of the training component of CCCD is to develop indigenous, continuous training of national staff, particularly field workers and first line supervisors. Before proceeding to a description of the objectives, strategy and design of the CCCD training component, there are a few issues associated with training that will provide the context in which the plan for CCCD training was developed.

First among the issues addressed is recognition that a major problem associated with implementing development programs is often a lack of organizational, planning and management skills. The need for these skills extends from the level of front line supervisors through the various categories of mid-level management, to the senior level personnel responsible for managing and coordinating a multi-faceted program. All too frequently, training programs address only the technical aspects of a program, and management and supervisory skills are not considered to the extent they should be.

A second issue is that the training materials and methods used in many developing countries have been adapted from models prepared in developed countries. For senior-level personnel, such materials are usually adequate because of their experience and exposure to such training materials and methods in the past. However, for mid-level and field staff such materials and methods are frequently inappropriate.

Third, training is a continual process, the objective of which is to improve and maintain performance. To maintain high levels of performance, continual monitoring must be an integral component of a training program. Refresher training to provide practice for maintaining infrequently used skills, to introduce new ideas, and to recall forgotten knowledge is often not considered in a plan for training. Too often training courses are organized when in fact a monitoring process and a few minutes of a supervisor's time can maintain performance at the level desired.

Fourth, training is not a panacea. A problem in performance can be due to obstacles, constraints, and motivational problems that can never be solved by training. It is important that scarce resources not be expended on training if it is not the cause of inadequate performance.

The design of the CCCD training component takes the aforementioned issues into consideration. The most practical effective means of training will be identified and developed for each category of personnel. Several "sets" of training materials will be developed which allow the trainees to "learn by doing".

Regional training courses are scheduled for the following categories of personnel: senior level planners and managers who have national responsibility for implementing CCCD programs in their countries, instructors for intermediate level managers and supervisors and specialists including epidemiologists,

refrigeration repair technicians, and field staff assigned to specific operational research projects.

Regional courses, will be held in African host countries with participants from neighboring countries included. (An exception will be the first senior level course which will be held in the United States). Following the initial course for each category of personnel, subsequent courses will use trainees from previous courses as instructors. This will foster technical cooperation between developing countries and provide an opportunity for the instructors to work with materials that will be continually revised and improved.

The most important component of CCCD training, however, will be the development of in-country training programs that will use materials and training methods developed and tested in the country itself. The strategy for developing these in-country programs is to identify nationals who have experience and knowledge of training technologies applicable in their country. These personnel will attend a regional course for instructors in order to become acquainted with the objectives of CCCD training. Following the course they will develop and test the materials and training methods most suitable for training field supervisors and field staff.

Budget allocations have been made to support implementation of national training in participating countries, including

institutionalization of CCCD elements in the curricula, health training facilities, and support of training at the local level. Training at the local level is envisioned as being done during brief training sessions conducted at routine staff meetings, supervisor visits to health facilities, and other such gatherings of health staff. The materials and methods of training at these sessions will rely more on supervised practice, role playing, and demonstrations than on the more conventional lecture presentations.

The CCCD has the advantage of the experience gained by the Expanded Program on Immunization (EPI) and Control of Diarrheal Disease (CDD) training programs which have been implemented by WHO. The training materials used in those programs are being merged and supplemented with information and exercises for malaria to provide the basic materials for training senior and intermediate level managers in the regional courses previously described.

In cooperation with WHO-AFRO, CCCD will also participate in and support the WHO sponsored EPI and CDD training courses conducted in Sub-Saharan Africa. Much of EPI, CDD, and CCCD training has a common basis. Because of this, it is planned to review the development of the combined materials for CCCD managers to determine if those materials may be used for training senior and intermediate personnel on the basic processes of management for primary health care.

Projecting the numbers of personnel to be trained in CCCD over the life of the project is speculative; however, the expected

numbers of trainees during the first two years of the project, by categories, is given in Table 1 on the following page.

TABLE 1

CCCD Training Objectives in Numbers of Personnel Trained

<u>Category of Training</u>	<u>Numbers of Trainees</u>	
	<u>First two years</u>	<u>Life of project</u>
<u>Regional training programs 1/</u>		
Senior level managers (CCCD-EPI-CDD)	119	239
Instructors for mid-level personnel	120	240
Epidemiologists	30	80
Refrigeration repair technicians	16	94
Operational research specialists	As applicable	
<u>National training programs 2/</u>		
Middle-level managers and supervisors	120	210
First line supervisors and field staff	1,000	(All personnel)

1/ Applies to 47 countries

2/ Applies to 8 countries

It should be noted that the numbers of field staff and first line supervisors to be trained during this period are minimal, as development of national training will be just beginning. By the fifth year of the project the vast majority of funds allocated for training will be for the support of in-country training programs directed particularly at these personnel. Regional training for specialists and senior managers is expected to continue and will probably be institutionalized in training identified and supported under the aegis of the WHO Regional Office.

The CCCD training component is essentially an extension of the EPI and CDD training programs already supported and implemented by

the WHO regional office for senior level personnel. During the life of the CCCD project, it should be possible to train cadres of senior level managers, specialists and instructors from all Sub-Saharan African countries that wish to participate. In countries which engage in bilateral agreements, the intent is to support development of national training for all personnel working in the delivery of the basic health services covered by CCCD.

IV. Conclusion

Manpower development programs in Africa have lacked adequate planning and coordination by African states and external agencies. The Lagos Plan of Action recommends that African countries establish manpower development ministries linked with sectoral manpower units in order to improve national programs for manpower planning, training and utilization. Manpower activities supported by external agencies should be coordinated with national plans in order to make the best use of available resources.

African states, with support from external agencies, need to accelerate their training efforts in priority development fields. However, training programs should be planned to maintain a balance between meeting the immediate manpower requirements of development programs and the long-term need to develop staff for training institutions within Africa.

New manpower policies and programs need to be examined for their potential value in helping to meet Africa's manpower needs. These include the establishment of specialized regional training centers, greater incorporation of private sector activities in development programs, and greater attention to the improvement of management systems and organizational structures.

The training plan for the CDA health program illustrates a collaborative approach to meeting identified manpower needs in one sector. The plan coordinates regional and national training programs and emphasizes training that is task-oriented and designed to improve performance and management. Similar comprehensive training plans may be desirable in other sectors to supplement national and regional manpower programs and to reinforce African efforts to achieve greater self-reliance in manpower development.

CHAPTER 7

The Lagos Plan of Action and Regional Cooperation for Development

I. Introduction

The Lagos Plan of Action demonstrates a dramatic awareness by African Governments of the need for viable regional and sub-regional cooperation. In the preamble of the Plan, the heads of African States said:

We commit ourselves individually and collectively on behalf of our governments and peoples, to establish national, sub-regional and regional institutions which will facilitate the attainment of objectives of self reliance and self sustainment.

The preamble also calls on the Secretary General of the OAU, and in collaboration with the Executive Secretary of the United Nations Economic Commission for Africa, to:

... draw up annually specific programs and measures for economic cooperation on sub-regional, regional and continental basis in Africa.

II. Improving Efficiency of Regional Institutions

Realistically, the Plan recognizes certain deficiencies of a national character in efforts to achieve effective cooperation at the regional and sub-regional levels in Africa. Various regional institutions established by African Governments have "suffered from ill effects for lack of follow-up in the implementation of political decisions." The Plan continues:

This lack of effective follow-up finds expression in various ways, the commonest being that after pressing for establishment of an institution, many African Governments, even after having approved the legal document setting up the institution concerned, either fail to become members of the institution or if they do, they fail to give it adequate financial and material support. The net result is that the growth of such an institution is stifled, disillusion sets in and the collective self-reliance of African countries is undermined. Member states must realize that the success or failure of the institutions which have been established at their request for their collective development, lies in their own hands. (Lagos Plan p. 101)

It is agreed that some problems are more efficiently addressed on a regional or sub-regional basis. The Lagos Plan of Action recognizes such advantages repeatedly in its discussion of sector requirements and calls for more effective and efficient cooperation among the African States. While there appears to be an agreement in principle on the need for regionalism, the diverse national political and economic pressures in each state raise some challenging difficulties in an attempt to apply the principle. There is an understandable hesitancy by African states to divert scarce national resources or yield even the smallest measure of sovereignty.

Regionalism is coupled with the concept of self-reliance and is referred to frequently in the Plan. The Lagos Plan suggests in explicit terms that African economic development objectives require a system of community which is based on mutual respect for national sovereignty.

The Lagos Plan has directed the Secretary General of the OAU to proceed with necessary preparations for the establishment of two institutions designed to promote regional cooperation. These are the African Common Market and the African Economic Community.

Both the CDA and the African governments have a stake in support in regional approaches initiated by the African Heads of State in the Lagos Plan. They are motivated by the compelling need to make more efficient use of scarce resources. Efficiency in this context also requires close coordination among donors and recipients at all levels in planning and implementing regional programs.

III. Regional Activities in the Lagos Plan and CDA

The Plan lists several ongoing regional activities. It recognizes weakness in the existing regional programs and calls for strengthening of regional cooperation. The list below highlights some of the sectors which might benefit from CDA attention as areas for joint CDA donor-recipient collaboration.

A. Agriculture

While the Plan stresses national planning and self-reliance on local resources as a means of strengthening the respective national agriculture sectors, it leaves it up

to the Member States on how the recommendations in the Plan should be implemented. Nevertheless, it does stress the importance of cooperation. 1/

B. Industrialization

The Plan calls for the creation of major industrial complexes whose "cost and production capacity would exceed national financial and absorptive capacities." It calls for establishing an African Regional Centre for Consultancy and Management Services.

It also calls for strengthening existing institutions:

- African Regional Centre for Technology
- African Regional Centre for Engineering Design and Manufacturing
- African Industrial Development Fund

C. Natural Resources

Natural resources touches on a sensitive area for Africans both economically and politically. The Plan decries the lack of national control and exercise of sovereignty but recognizes the mutually beneficial contribution to regional

1/ Note: The area of applied agricultural research offers a good basis for regional cooperation and efficient use of costly technology, technicians, etc., and would bring a greater return on the investment. CDA countries should give some attention to this priority area and ask the African countries to give more attention to the effectiveness of regional approaches.

development through collective actions. In minerals it affirms and encourages regional convocations, such as the Regional Conference on the Development and Utilization of Mineral Resources in Africa held at Kampala, Uganda, October 1980. The Plan acknowledges the seriousness of the water problem and the need for sharing water resources. Regional meetings at the ministerial level have taken place beginning in 1977 (under UN auspices), 1978, and 1979 but no firm, operational regional activities have resulted. The Plan, therefore calls for development of inter-governmental cooperation in shared water resources and directs that institutional arrangements should be completed by 1983. 2/

D. Science and Technology

The Plan urges the ECA and the OAU to coordinate the mobilization and application of science and technology particularly the activities (or lack thereof) of some 12 existing regional institutions:

- African Regional Centre for Technology, Dakar, Senegal
- African Regional Centre for Engineering Design & Manufacture, Ibadan, Nigeria
- African Institute for Higher Technical Training, Nairobi, Kenya
- Industrial Property Organization for English-Speaking Africa, Nairobi, Kenya

2/ Note: This appears to be a promising area for CDA to support regional institutions. Some river basin development schemes are already underway and CDA can assist in strengthening donor coordination.

- Organization Africaine pour Propriete Intellectuelle (OAPI), Yaounde, Cameroon
 - East African Mineral Resources Development Centre, Dodma, Tanzania
 - African Regional Organization for Standardization Center, Accra, Ghana
 - African Remote Sensing Council, Ouagadougou, Kinshasa, Cairo, Ile-Ife, Nairobi
 - Regional Centre for Training in Aerial Surveys, Ile-Ife
 - Regional Centre for Services in Surveying Mapping, Nairobi, Kenya
 - Central African Mineral Resources Development Centre
 - Regional Centre for Solar Energy Research and Development
- E. Transport

The Plan affirms the importance of improved and well-coordinated transportation and communication systems. This concern has been reaffirmed at several ministerial level conferences.

F. Trade and Finance

Suggested mechanisms for promoting more effective and efficient cooperation among African states include:

- establishment of sub-regional associations of African Federation of Chambers of Commerce which would mobilize both state and private trading companies;
- establishment of sub-regional associations under the Association of African Trade Promotion Organization;

- expansion of the African Regional Organization for Standardization (ARSO) which now consists of 19 countries;
- establishment of an African Common Market;
- establishment of sub-regional clearing and payments unions to expedite trade transactions; and
- establishment of an African Monetary Fund under the African Development Bank.

G. Energy

The Plan acknowledges the absence of a suitable framework for regional coordination of energy programs and urges the establishment of an:

- African Energy Commission
- African Nuclear Energy Agency
- Regional Geothermal Energy Centers
- African Energy Development Fund to finance and implement energy projects in Africa.

In summary the need for regional cooperation in Africa is clearly recognized, but to date, despite the establishment of a number of institutes and agencies, regional organizations have not yet achieved their full potential, nor have CDA activities supported them as fully as might be hoped. A joint exploration of cooperative means to strengthen the effectiveness of regional cooperation appears promising.

APPENDIX 1

Highlights of the CDA Agricultural Research Program

I. Background

There is certainly agreement among investigators about the drastic deterioration of agriculture in Africa over the past 20 years. General stagnation of overall production and declining per capita trends in food production are acknowledged by the Food and Agriculture Organization (FAO), by the World Food Council (WFC), by IBRD, and by independent scholars; they were given special attention in the Lagos Plan of Action for the Economic Development of Africa. While agriculture is Africa's most important economic sector, it is also the most depressed. It is no surprise then that agricultural problems would have the highest priority in the deliberations of Cooperation Development for Africa (CDA).

What has occurred in Africa to cause a per capita decrease in food production? Why has the performance of agriculture been so poor? There are perhaps many answers to these questions, and several obvious contributing factors can be mentioned. While overall population growth has been significant, the rate of urbanization has been even more dramatic. These changes have greatly increased demand for agricultural products at a time when production shows no sign of meeting this demand. The creation and transfer of technology to farmers that would be needed to increase production simply has not occurred.

The development and transfer of appropriate technology needed for increased agricultural production is, of course, the business of research and extension. Thus, at the beginning of CDA discussions the question arose, why have these services failed? Is it simply a matter of more resources to support the same kinds of programs as those supported in the past? When Africa is compared with the rest of the world, there is no doubt that agricultural research in Africa should be expanded. The huge size of Africa, the critical importance of agriculture and the complexity of production and marketing problems all attest to the relative shortage of research resources. On the other hand there is already a great deal of activity. Each African country has one or more main agricultural research stations and a series of sub-stations and field trial units. Assistance from donor countries also is considerable. The U.S., for example, is currently supporting four large regional research projects and bilateral research projects in twenty Sub-Saharan African countries. Other CDA members like France, Britain, West Germany, Canada and Belgium are all supporting bilateral agricultural research programs. In addition, research is being supported by international organizations like UNDP and IBRD.

However, the problem confronting everybody, including CDA, is how does one achieve more impact from current and expanded agricultural research? CDA discussed a number of points in this regard. First there is need for more rational coordination among donors as their assistance is put to use in Africa. Within a single African country it is common to find donors working independently on similar research problems and without exchanges of research information. In such cases cooperation

could reduce duplication, stretch resources further by concentrating on highest research priorities, lessen administrative demands on host governments, and improve the quality of research. Secondly, it was felt in CDA discussions that the impact from research would be strengthened if there were more emphasis on farmer responses. Most African producers, and especially food producers, are smallholders who with their families operate 2 or 3 farms. Their farm capital consists mainly of a few hand tools, and their technology is crude. Agricultural research problems which are defined and financed on experiment stations apparently do not give sufficient consideration to the preferences of Africa's small farm operators. This research is specific to crops and disciplines and tends to seek results on the station rather than in the villages and on the farms. It is clear, in any case, that small farm operators are not adopting and applying research recommendations. Why is this? Understanding these small producers is as important as providing additional resources for research.

A final point that CDA has considered is the effect that global changes have had on the economics of research in Africa. As indicated, farming in Africa is largely traditional depending more on the rotation of fields (shifting cultivation) than on the rotation of crops and the use of modern inputs. To move from traditional farming to more modern farming (by western standards) would require imported inputs - chemical fertilizer, petrol, combustion power, and chemicals for sprays and the like. In light of the costs of these imports and the price vulnerability of African crops, total adaptation of western technology may not prove economically feasible. A high proportion of improved

indigeneous inputs must be blended with imported inputs to lower costs and make them attractive to farmers. Also, in view of population growth on the one hand and environmental degradation on the other, research scientists must find a substitute for shifting cultivation. Changes in crop selection such as legumes, green manuring, recycling wastes, use of animal manures, crop spacing, use of viable seeds, the economics of inter-cropping, research on tool repair and improvement, animal traction, and simple irrigation are all challenges for research scientists in Africa. This is the kind of research that small African operators desperately need, if production increases are to be realized and sustained.

A Summary of CDA Ideas for Research in Africa

CDA assistance to agricultural research will be confined to Sub-Saharan Africa. However, the Continent is so huge and the regions so diverse that CDA decided to treat research on the basis of agro-climatic zones. Thus five zones were selected: 1) Sahelian-Sudanic zone stretching from Senegal in West Africa across the continent to the include northern areas of Sudan, Ethiopia and Somalia; 2) East Africa from southern Sudan and Somalia southward to Tanzania; 3) Southern Africa Plateau which includes SADCC countries; 4) the Zaire River Basin including surrounding countries and; 5) West Africa Coastal Zone which includes countries from Guinea to Gabon.

CDA invited African representatives from the African Development Bank and OAU/Scientific Technical Research Commission (STRC) to its most

recent meeting in Paris on February 17-18, 1982. The Executive Secretary fo STRC attended. The idea now is to open a broadly-based dialogue with African officials and institutions for discussions of CDA ideas and proposals. Points reviewed and proposed so far by CDA follow:

1. Agricultural research in Africa should be improved and expanded.
2. Research in food production should particularly be intensified to compensate for past neglect.
3. Support for agricultural research in Africa should be long-term so as to permit valid conclusions and application on farms.
4. Emphasis should not be on specific crops but on upgrading and reorienting complete national research systems - crops, livestock, institution, markets, and on-farm socioeconomic investigations.
5. Preferences and problems of small farm operators should be given special attention using a "bottom-up" approach with forward and backward linkages between farmers, extension and experiment stations.
6. National agricultural research systems should be linked closely with International Agricultural Research Centers (IRAIIs) such as IITA in Ibadan, Nigeria.
7. While there should continue to be crop specific research, lack of response by small operators and falling productivity should prompt researchers to look further and deeper to obtain a working understanding and to recommend solutions to past failures.
8. In order to improve manageability of research and the validation of research findings, CDA proposes to look at Sub-Saharan Africa on the basis of agro-climatic zones.
9. Rather than spreading CDA resources too thinly, it is proposed

that initially CDA teams be posted in a few countries in each zone for intensive research, but that Research Liaison Officers be selected in other countries in each zone. Networks of specialized scientists (e.g. entomologists) would be called to meetings to discuss special problems. Research Directors might meet regularly to discuss common problems. Thus Regional Research Councils would be designated.

10. CDA proposes that one of its member countries be prepared to coordinate CDA assistance in each agro-climatic zone. For example, West Germany may take the lead in Coastal West Africa, Belgium in the Zaire River Basin, the U.S. and U.K. in Southern Africa, Canada in East Africa, and the U.S. and France in the Sahel and U.K. in Sudan.
11. The idea is to open an ongoing dialogue with optimum involvement of African officials and scientists in CDA supported research. There is no intent to form a new organizational structure, but rather to rely on structure already in place.
12. With the involvement of STRC and regional and national institutions concerned with agricultural research, CDA will make contact over the months ahead to hold consultant meetings in each zone, discuss and possibly conduct national research inventories to determine needs, send project design teams to work with National Research Directors in drawing up projects, and then begin project work in the countries selected.

APPENDIX 2
Description of the Combatting Childhood
Communicable Diseases (CCCD) Project

I. Background and Purpose

Up to one-fourth of the children born each year in Africa are now dying before reaching the age of five years. Many of these children can be saved if they are immunized in time and receive simple forms of treatment for the basic and most common childhood diseases. This project is designed to save the lives of these children and contribute to their improved health status by increasing the ability of African governments to:

- control measles, polio, tuberculosis, diphtheria, pertussis, and tetanus through the Expanded Program for Immunization (EPI);
- control diseases of local importance, such as malaria, yaws and yellow fever; and
- provide simple treatment for the Control of Diarrheal Disease (CDD).

Unlike the eradication campaigns that worked so well for smallpox, this program requires building permanent national organizations to immunize all under-one-year-olds, to treat the under-five-year-old population for diarrhea and to control other selected endemic diseases in children on a sustained basis. The goal, though ambitious, is attainable if sufficient resources can be mobilized, people trained and programs managed. Tackling the problem on a region-wide basis appears to be the best way to achieve this goal. This clearly calls for collaboration and coordination among the major donors to work with the individual countries and international organizations in an all-out effort that

should probably span over twenty years. CDA (a group of six nations which banded together in early 1980 in an attempt to enhance the effectiveness of their development support to Africa) seemed to be a likely and appropriate mechanism to activate this program. After several exploratory meetings involving WHO and others the CDA policy group, meeting in Brussels in December 1980, announced its willingness to consider the CCCD program as one of the major CDA initiatives. The U.S., as the principal coordinator, was given the charge to work with the Africans and other CDA members to design the regional elements of the program that will build upon and expand on the existing EPI malaria treatment and CDD activities being undertaken at national and local levels. It is to be a total and massive effort involving the coordination of all the donors and ultimately all the countries of Sub-Saharan Africa.

II. Target Diseases

The communicable infectious diseases which are the focus of this project directly or indirectly contribute to an estimated 75-80% of infant and childhood morbidity and mortality. Many of these diseases can be largely prevented by immunization and other relatively low cost health measures.

A. Vaccine preventable diseases

Estimates are that less than 10% of children or pregnant women in Sub-Saharan Africa are now being immunized. As a

result, hundreds of thousands of preventable deaths and a similar number of needlessly crippled or mentally retarded children occur each year. To alleviate this situation, which is representative of many less developed areas, the World Health Assembly established the EPI. Its goal is to reduce morbidity and mortality from diphtheria, pertussis (whooping cough), tetanus, measles, poliomyelitis, and tuberculosis by making immunization available to every child in the world by 1990. Other EPI goals are to promote countries' self-reliance in the delivery of immunization services and to establish regional self-reliance in vaccine quality control and production. The immunization aspect of the CCCD project follows the WHO EPI guidelines.

B. Diarrheal Disease

About one of every 10 children born in developing countries dies of diarrhea before reaching the age of 5 years. In Sub-Saharan Africa diarrhea causes millions of deaths each year and fills more than one-third of children's beds in hospitals. It causes malnutrition because children with diarrhea are often starved or have diminished appetites, and the food lost in the stools is not adequately replaced. Malnutrition also makes children more susceptible to diarrhea and other communicable diseases.

b. Oral rehydration therapy (ORT)

ORT is usually given by mothers in the home. It is also used in health centers and hospitals and reduces the need for costly intravenous fluids.

Several studies have demonstrated that when information on proper dietary practices (e.g., uninterrupted breast feedings, feeding of usual foods during diarrhea, as tolerated, and providing increased amounts of food in convalescence) is given along with oral rehydration, there is a significant weight gain over time. This contributes to interruption of the diarrhea-malnutrition cycle.

Antibiotics and other medication have proven to be of little value in the treatment of diarrhea, except for severe cholera and shigella and their use is not advised since it diverts health workers from the more important tasks of rehydration and dietary management.

2. Maternal and child care practices.

Diarrhea related morbidity and mortality can be reduced by:

- Breast feeding, uninterrupted during the first two years of life.

- Proper weaning practices, starting from the fourth to sixth month, locally available weaning foods should be added to breast milk,
- Care for pregnant and lactating mothers,
- Good personal and food hygiene.

C. Other Important Childhood Communicable Diseases

Control of malaria, by far the greatest single cause of childhood morbidity and mortality in Africa is addressed in the CCCD project by the presumptive treatment of fevers with chloroquine. The effectiveness of this approach will differ from country to country and even between regions within a single country. If, however, it is determined to be an appropriate and affordable means of treatment within the existing or expanding community-based system, it could also be closely coordinated with or integrated into CCCD since one strategy of CCCD will utilize village health workers for dispensing materials for oral rehydration. These same workers, where available, could also dispense anti-malarial drugs. Should a vaccine to prevent malaria become available and cost effective, it is anticipated that it will be incorporated into the CCCD program.

In addition to the above mentioned childhood communicable diseases, other illnesses such as yaws are of increasing concern in certain African countries. Yaws is a chronic, nonvenereal spirochetal infection which is predominantly a

disease of children under 15 years, transmitted by discharges from skin lesions via body contact, clothing or insects. During the past decade, there has been a marked resurgence of this disease in Ghana, Togo and the Ivory Coast. Yaws can be effectively controlled by prompt detection and treatment with antibiotics such as penicillin. Such a program can be integrated with developing PHC systems.

AID is presently assisting yaws and yellow fever control in Ghana. This activity will become incorporated into CCCD when that project becomes operational.

III. Target Area and Population

The target area is ultimately all of Sub-Saharan Africa. The target population for vaccine preventable diseases includes all children under one year old and pregnant women (neonatal tetanus). The target population for the programs aimed at controlling diarrheal diseases includes all children under five years of age. (The target populations for programs aimed at controlling locally significant diseases, of course, are to be defined on a case by case basis). It is estimated, that at present, only 5-10% of the target populations are being immunized and/or are receiving effective treatment for diarrheal diseases. This low percentage is a major reason why up to 25% of the children born each year in Africa die before reaching the age of five years. It is hoped and expected that, as a result of efforts generated through

this project, together with efforts by WHO, UNICEF and others, some 45-50% of the target population will be receiving immunizations and/or treatment for diarrheal diseases by the end of this project, and that by the end of this century 80-100% of the target populations will be reached.

IV. Project Strategy

The project will consist of two interrelated sets of activities: regional support activities and country-specific activities. Regional support activities will include: a) the development and implementation of training programs to upgrade the skills of key personnel involved in the various countries' disease control efforts, and b) providing technical assistance to individual countries to enable them to improve their disease surveillance and evaluation systems, their health education and promotion efforts, and their operations research efforts. The country - specific activities will focus on strengthening the capabilities of the ministries of health of African nations to control childhood communicable diseases.

In both aspects of the program there are four major project components;

- training
- data systems for disease surveillance, program management and evaluation
- health education and promotion, and

- operations research

In addition, the country-specific activities will include commodities and support for immunization services, diarrheal treatment services and malaria treatment services.

The regional support project encompasses all four components and applies them to solving management, logistics and operations problems of the four common components. This will usually translate into: a) conducting training courses for senior and mid-level management personnel; b) providing short term experts and other support to strengthen the national disease surveillance and evaluation capability and health education and promotional programs, and finally, c) responding to requests to solve specific operational problems encountered during project implementation. The country-specific activities are expected to take place in essentially all countries, most of which will be assisted by donor support. Bilateral agreements will be entered into between African countries and CDA countries on terms which are mutually acceptable. The training will be at the national and local level and will reach further down into the ranks of the operating personnel. An additional dimension of the country-specific activities will be the provision of direct technical assistance in the form of operational advisors.

LA CONSERVATION ET L'UTILISATION DE L'ÉNERGIE:
POSSIBILITÉS DE COLLABORATION ENTRE LE CDA ET L'AFRIQUE

présenté par

L'AGENCE CANADIENNE DE DÉVELOPPEMENT INTERNATIONAL

au

**DEUXIÈME SOUS-COMITÉ SPÉCIAL DE
COOPÉRATION POUR LE DÉVELOPPEMENT EN AFRIQUE**

Ottawa, les 25 et 26 mai 1982

120

INTRODUCTION

L'énergie est essentielle au développement. En effet, l'histoire nous apprend que le progrès matériel de l'humanité et l'utilisation de l'énergie non-humaine sont inextricablement liés. Au cours de la dernière décennie, le monde a douloureusement pris conscience de ce lien lorsque des perturbations dans la disponibilité et le prix du pétrole ont bouleversé l'économie des pays développés et en voie de développement.

Il est généralement admis que les problèmes énergétiques actuels de l'humanité sont dus en grande partie à une dépendance excessive à l'égard du pétrole et que les solutions à long terme exigent la découverte et l'exploitation de nouvelles sources d'énergie renouvelable. Cependant, les problèmes énergétiques se posent de façon aiguë dans l'immédiat, et la façon la plus efficace de remédier immédiatement à ces problèmes est d'utiliser plus efficacement l'énergie dont nous disposons.

Il est probable que c'est dans les pays industrialisés que l'on pourra réaliser les économies d'énergie les plus importantes, et jusqu'à maintenant, c'est surtout dans ces pays qu'ont été déployés les plus grands efforts dans le domaine de la conservation de l'énergie. Toutefois, le gaspillage de l'énergie sur une

grande échelle est également répandu dans les pays en développement, quoique ce gaspillage se produise souvent sous des formes différentes et pour des causes différentes. Il est particulièrement important d'utiliser plus efficacement l'énergie dans des pays tels les pays en développement de l'Afrique, où la demande d'énergie augmente rapidement et où les réserves traditionnelles de combustibles s'épuisent dangereusement.

Un certain nombre de difficultés font actuellement obstacle à la conservation et à l'utilisation efficace de l'énergie dans la partie de l'Afrique située au sud du Sahara. Ces difficultés résultent en partie d'une situation économique et sociale particulière, mais elles sont souvent aggravées par le manque d'expérience dans l'application de programmes prioritaires de conservation de l'énergie. Coopération pour le Développement en Afrique (CDA) a un rôle considérable à jouer en vue d'aider et d'encourager les initiatives tendant à favoriser les économies d'énergie en Afrique.*

*) A noter que dans le contexte du présent document, le terme "Afrique" désigne la partie de l'Afrique située au sud du Sahara, à l'exclusion de l'Afrique du sud.

On trouvera dans le présent document un bref aperçu des problèmes et des besoins de l'Afrique en matière de conservation et d'utilisation de l'énergie, ainsi qu'une étude des solutions possibles à ces problèmes fondées sur l'expérience des pays développés dans ce domaine. On examinera de façon assez détaillée le programme canadien de conservation de l'énergie à titre d'exemple de l'approche adoptée par un pays industrialisé. Le document conclut en proposant un certain nombre d'initiatives possibles que les pays membres du CDA pourraient prendre en vue d'aider les pays en développement de l'Afrique à utiliser plus efficacement l'énergie.

Remerciement: Ce document a été rédigé avec l'aide de Canadian Energy Development Systems International (CEDSI, Inc.)

1.0 LA SITUATION ÉNERGÉTIQUE EN AFRIQUE: PROBLÈMES ET BESOINS EN MATIÈRE D'UTILISATION ET D'ÉCONOMIE DE L'ÉNERGIE

L'Afrique présente un tableau énergétique diversifié, car la production et la consommation de l'énergie varient considérablement d'un pays à l'autre, selon des facteurs tels le niveau de développement, l'environnement (altitude, climat) et les richesses naturelles. La plupart des pays africains sont importateurs nets de pétrole, mais plusieurs (Nigeria, Angola, Gabon, Zaïre et Congo) sont exportateurs nets. On note dans la plupart des pays une dichotomie marquée, sur le plan de la consommation du combustible, entre les secteurs commercial et non commercial (traditionnel).

On note également des variations entre les divers secteurs d'activité et même au sein d'un même secteur; il sera donc instructif d'étudier le gaspillage de l'énergie dans chacun de ces secteurs d'activité.

1.1 Le secteur de la production de l'énergie (secteur de l'offre)

Le gaspillage de l'énergie commence souvent au stade de la production et de la distribution. Ce gaspillage se produit surtout dans la production et la distribution de l'électricité, du pétrole, du gaz, du bois et du charbon de bois.

1.1.1 Électricité

La production d'électricité est réalisée à partir de diverses sources et sur diverses échelles, mais dans la plupart des pays d'Afrique, les réseaux de production et de distribution d'électricité présentent un rendement considérablement inférieur à leurs possibilités théoriques. Tout réseau de production et de distribution d'électricité subit des pertes inévitables, d'abord au niveau de la centrale de production, et ensuite des pertes dues à la résistance dans le réseau de transmission. Toutefois, ces pertes sont souvent anormalement élevées. Par exemple, la Banque mondiale estime que dans les pays en développement, les pertes dues à la résistance dans les réseaux de transmission représentent actuellement environ 15 % de la production totale. Le niveau optimal de ces pertes est inférieur de moitié.

Ce rendement médiocre s'explique par un certain nombre de facteurs, dont le mauvais entretien, des méthodes d'exploitation médiocres, l'inefficacité des installations et des contrôles, la pénurie de personnel qualifié pour le contrôle du coefficient de charge et la gestion des systèmes, le manque de données sur l'exploitation efficace des centrales et des sous-systèmes, une attention insuffisante accordée au facteur de puissance, etc.

1.1.2 Pétrole et gaz

On constate également d'importantes pertes d'énergie dans la production et le raffinage du pétrole et du gaz naturel. Beaucoup de raffineries de pétrole n'arrivent pas à obtenir un rendement satisfaisant à cause d'une mauvaise conception, d'un matériel mal exploité et entretenu et de la pénurie de personnel qualifié. Dans les pays producteurs de pétrole, on néglige souvent de récupérer le gaz naturel associé, et les réserves de gaz naturel non associé ne sont tout simplement pas exploitées. Le torchage du gaz naturel est une manifestation très visible du gaspillage énergétique qui se poursuit depuis des années. En 1974, l'industrie pétrolière du Nigeria a gaspillé plus de 10 millions de tonnes d'hydrocarbures en brûlant le gaz naturel dans les torchères, soit plus de quatre fois la consommation totale d'hydrocarbures de ce pays.

1.1.3 Bois et charbon de bois

Un point important et auquel on n'accorde souvent pas suffisamment d'importance est que dans la plupart des pays d'Afrique en grande partie ruraux, la majeure partie de l'énergie consommée provient de sources d'énergie non commerciales, par exemple le bois, le charbon de bois et les déchets animaux.

Les problèmes concernant le bois et le charbon de bois ne seront examinés que brièvement dans le présent document, étant donné qu'ils sont traités de façon plus approfondie dans le mémoire soumis par les Britanniques.

Dans la plupart des pays d'Afrique, le taux de consommation du bois est supérieur à celui du renouvellement. Le déboisement qui en résulte provoque non seulement la destruction de l'environnement par l'érosion des sols, mais également un terrible gaspillage d'énergie et de potentiel humain, étant donné que les villageois sont forcés de marcher jusqu'à 20 milles par jour pour faire la cueillette du combustible.

L'utilisation du bois comme combustible donne lieu à un énorme gaspillage, non seulement au niveau de la combustion, mais aussi de la production et de la distribution. Il est urgent d'intervenir afin de lancer des programmes de reboisement, de réduire tous les gaspillages fortuits des ressources forestières provoqués par le déboisement aux fins de la culture, par les inondations créées par les barrages, etc., et de n'utiliser le bois que dans les cas où c'est le combustible qui convient le mieux.

La production de charbon de bois est extrêmement inefficace dans beaucoup de pays. Les méthodes traditionnelles exigent de huit à dix kilos de bois pour la production d'un kilo de charbon de bois, lequel ne produit que 20 % de l'énergie thermique potentielle du bois utilisé. Il existe des fours en métal ou en brique plus efficaces, mais ils sont dispendieux et la plupart des fabricants de charbon de bois ne peuvent se permettre de les acheter.

La nécessité de rationaliser l'industrie du bois et du charbon de bois est l'un des principaux aspects de la situation énergétique en Afrique.

1.2 Le transport

Le secteur des transports représente une part appréciable de la consommation commerciale d'énergie en Afrique. Dans les pays à revenu moyen, cette part peut atteindre 25 ou 30 % de la consommation totale d'énergie, tandis que dans les pays plus pauvres, le chiffre est parfois aussi bas que 10 %. Mais le plus important, c'est que les transports utilisent presque exclusivement le pétrole. Par exemple, les transports terrestres consomment de 30 à 50 % des importations de pétrole du Sahel.

Les transports routiers représentent de 70 à 85 % de l'énergie directement consommée dans le secteur des transports. Du point de vue de l'efficacité énergétique, le transport routier représente souvent le plus mauvais choix. Le cabotage, la navigation fluviale et le train, qui permettent de transporter d'énormes quantités de marchandises en vrac, sont beaucoup plus efficaces que les transports routiers sur le plan du rendement énergétique. On gaspille donc d'énormes quantités d'énergie en accordant la préférence au transport routier et en réduisant le rôle des chemins de fer. Les réseaux ferroviaires sont d'ailleurs fréquemment saturés et mal administrés.

Au sein même du transport routier, un certain nombre de facteurs provoquent d'importants gaspillages d'énergie. Dans la plupart des pays d'Afrique, les véhicules offrent un rendement très inférieur à leurs possibilités à cause d'un mauvais entretien, des mauvaises habitudes de conduite et de la rareté des pièces détachées. La plupart des pays producteurs ou importateurs de véhicules automobiles n'appliquent aucune norme d'efficacité énergétique. On utilise très peu de camions gros porteurs, qui consomment moins d'énergie par tonne-kilomètre.

L'absence de planification dans le domaine des transports et les lacunes de l'infrastructure sont également sources d'importants

gaspillages. Le mauvais état des routes accroît la consommation de carburant des véhicules dans une proportion pouvant atteindre 100 %. L'insuffisance et l'inefficacité des services publics de transport rendent plus attrayant l'emploi d'automobiles privées. A cause de la mauvaise gestion du matériel roulant, les camions et les trains effectuent une proportion déraisonnable de leurs trajets totalement ou partiellement à vide.

La demande de véhicules continue d'augmenter rapidement partout en Afrique, et les gouvernements et organismes d'aide continuent d'encourager le transport routier. A moins que des mesures appropriées ne soient prises, on peut s'attendre à ce que le secteur des transports représente une part croissante de la consommation et du gaspillage de l'énergie en Afrique.

1.3 Le secteur industriel

Selon la Banque mondiale, les plus grands espoirs d'amélioration de l'efficacité énergétique commerciale résident probablement dans le secteur industriel. Dans les pays pour lesquels nous disposons de données, le secteur industriel représente de 20 à 60 % de la consommation commerciale d'énergie. La petite industrie consomme également une quantité appréciable d'énergie non commerciale.

1.3.1 Les grands consommateurs d'énergie

Le terme "industrie" recouvre une grande diversité d'activités dont la consommation d'énergie peut être différenciée par un facteur de 1 à 1000. Le problème de l'inefficacité énergétique se pose de la façon la plus aiguë dans les industries qui sont grandes consommatrices d'énergie, notamment:

- l'industrie minière (par exemple, l'industrie du cuivre au Zaïre et en Zambie, l'industrie de la bauxite en Guinée, et même l'industrie du phosphate au Sénégal. Si cette dernière industrie est peu importante à l'échelle mondiale, elle consomme cependant 20 % de la production totale d'électricité de ce pays, 30 % de son carburant diesel et 34 % de son électricité à haut voltage).
- les cimenteries
- les usines de production d'engrais
- les raffineries
- les filatures
- les papeteries

Le gaspillage énergétique dans le secteur industriel est attribuable à un certain nombre de facteurs, notamment:

- des procédés inefficaces
- une mauvaise conception du matériel et des usines
- de mauvaises méthodes d'exploitation et le manque d'entretien
- l'absence de sensibilisation aux problèmes de l'énergie de la part des cadres intermédiaires et supérieurs
- la pénurie de techniciens compétents dans le domaine de l'énergie
- le manque de données sur la consommation d'énergie des usines
- des erreurs quant à la source d'énergie choisie
- le manque de connaissances sur les techniques de cogénération et de récupération de la chaleur
- le manque d'attention accordée aux facteurs de puissance
- le manque de capitaux ou de devises étrangères pour les investissements dans le secteur de la conservation de l'énergie.

1.3.2 Autres industries

Si les autres industries sont moins énergivores, elles sont tout de même à l'origine d'importants gaspillages d'énergie dans les pays d'Afrique. Dans l'industrie du bois, la sciure et les copeaux représentent de 40 à 50 % du volume des matières

132

premières utilisées, et sont rarement récupérés. L'industrie alimentaire utilise énormément de vapeur et d'électricité, et dans la plupart des cas, on ne récupère pas les résidus. La combustion du bois pour le séchage du tabac est notoirement inefficace, et les raffineries de sucre (qui devraient donner lieu à une production nette d'énergie grâce à la combustion de la bagasse) sont souvent consommatrices nettes d'énergie à cause d'installations désuètes et inefficaces. L'industrie locale, à l'échelle du village et de la chaumière (par exemple, la poterie, la fabrication de briques, les boulangeries) a recours à des méthodes traditionnelles extrêmement inefficaces, et utilise parfois de l'électricité produite par des génératrices diesel à rendement médiocre.

En général, le gaspillage énergétique dans les petites et moyennes industries est souvent aussi important que parmi les grands consommateurs, bien qu'il soit plus difficile à déceler et à corriger. Les principales causes d'inefficacité semblent être le manque de capitaux, l'absence de sensibilisation aux problèmes et aux avantages de l'économie d'énergie, l'inefficacité d'échelle et le recours à des méthodes traditionnelles efficaces.

1.4 Le secteur résidentiel et commercial

1.4.1 Le secteur urbain

La consommation "résidentielle" d'énergie commerciale en Afrique est surtout le fait des élites urbaines, et il, existe dans ce sous-secteur un certain nombre de faiblesses sur le plan de l'efficacité énergétique, à la fois en termes d'utilisation directe et de l'énergie employée à la construction.

La climatisation est une importante source de gaspillage énergétique dans les régions urbaines, et représente de 30 à 60 % de la consommation totale d'électricité à faible voltage dans les grandes villes. Le gaspillage est dû à un certain nombre de facteurs, notamment:

- a) la mauvaise construction des bâtiments, l'absence d'isolation thermique dans les immeubles climatisés
- b) le matériel de climatisation inadapté, conçu pour les conditions américaines (utilisation saisonnière et faible coût de l'énergie) et qui sont inefficaces dans les conditions que l'on rencontre en Afrique

c) les mauvaises habitudes des usagers. Beaucoup d'entre eux laissent la climatisation en marche pendant que les pièces sont inoccupées ou laissent les portes et les fenêtres ouvertes. De plus, les climatiseurs sont mal installés et mal entretenus.

Ces problèmes sont communs à la climatisation résidentielle et commerciale. D'autres sources de gaspillage sont l'éclairage (utilisation de lampes incandescentes inefficaces), et les appareils ménagers (réfrigérateurs, chauffe-eau, etc.).

En général, il n'existe aucune norme régissant l'efficacité énergétique des appareils ménagers ou l'isolation thermique. Le mauvais rendement des climatiseurs n'est pas le seul problème causé par la conception médiocre des immeubles. En effet, la construction d'immeubles de bureau ou résidentiels "modernes" engloutit une quantité énorme d'énergie à cause de l'utilisation de matériaux de construction dont la fabrication exige une forte consommation d'énergie, par exemple, l'acier, le verre et le béton.

1.4.2 Le secteur rural et les milieux urbains pauvres

Les principales sources d'énergie utilisées par les populations rurales et les milieux urbains défavorisés sont les combustibles traditionnels: le bois, le charbon de bois, la bouse et les déchets agricoles. Ces combustibles servent principalement à la cuisson des aliments. La consommation désordonnée de ces combustibles est l'une des principales causes de la désertification croissante de l'Afrique. Les fours traditionnels brûlant du charbon de bois ou du bois ont un rendement de l'ordre de seulement 5 à 20 %.* Non seulement la combustion de la bouse et autres déchets animaux est inefficace, mais elle gaspille de précieux éléments nutritifs.

1.5 Le secteur public

Dans beaucoup de pays d'Afrique, le secteur public est responsable d'un énorme gaspillage d'énergie commerciale. La mauvaise construction des immeubles à bureau, le comportement de gaspillage et les parcs de véhicules inefficaces dont on a parlé dans les chapitres précédents sont des problèmes énergétiques généralisés

* Cette question est étudiée dans le mémoire britannique, ce qui explique que l'on ne fait qu'effleurer le sujet ici.

dans le secteur public. Non seulement gaspille-t-on l'énergie, mais on donne également un mauvais exemple au secteur privé et à l'ensemble de la population.

Un autre gaspillage public de l'énergie que l'on dénonce rarement est celui de l'eau. Dans beaucoup de pays, on gaspille d'énormes quantités d'eau à cause d'un réseau d'aqueduc public mal en point et du gaspillage de l'eau de puits des régions rurales. De plus, le pompage et la distribution de l'eau exige beaucoup d'énergie, de sorte que le gaspillage de l'eau peut être considéré comme un grave problème énergétique.

1.6 Considérations générales

Les pays d'Afrique présentent certains problèmes de structures qui contribuent directement au gaspillage de l'énergie. Le plus grave de ces problèmes est que peu de pays disposent d'un organisme spécifiquement chargé de la conservation de l'énergie. Souvent, il n'existe même pas de ministère de l'énergie, et les services sont répartis entre divers ministères (forêt, agriculture, mines, etc.). Dans la plupart des pays d'Afrique, il n'existe donc aucun foyer central pouvant servir de catalyseur aux programmes et mesures d'économie d'énergie.

Le peu d'attention que l'on accorde à la conservation de l'énergie reflète le manque d'expérience, la main-d'oeuvre restreinte et le manque de sensibilisation des élites. Le problème est aggravé par le fait que l'on ne dispose que de renseignements très fragmentaires sur la question générale de la consommation d'énergie en Afrique, et donc sur les principales causes de gaspillage, ce qui nuit à l'orchestration des efforts pour y remédier.

1.7 Erreurs dans le choix des combustibles

Dans tous les secteurs, la question du choix du combustible le plus approprié est indissociable des problèmes de conservation et d'utilisation de l'énergie. Le pétrole, l'électricité et le bois sont fréquemment utilisés mal à-propos, avec le résultat que l'on gaspille inutilement de maigres ressources.

Un exemple de l'utilisation inopportune du pétrole et de l'électricité est l'emploi, dans certaines régions, de génératrices diesel pour produire l'électricité servant au chauffage, à la cuisson, etc. Les pertes d'énergie inhérentes à la conversion successive du carburant diesel en électricité et de l'électricité en chaleur résultent en un gaspillage considérable d'un pétrole qui est à la fois coûteux et précieux et qui devrait idéalement

être réservé à des secteurs où il ne peut être remplacé, par exemple les transports et le chauffage industriel où des températures élevées sont nécessaires.

Dans les régions où le bois est rare et où la désertification avance à grands pas, l'emploi du bois comme combustible pour certaines applications industrielles (par exemple le séchage du tabac) peut être jugé inopportun. Dans certains pays tels le Botswana, le Mozambique, le Swaziland et le Zimbabwe, qui possèdent des réserves de charbon connues mais non exploitées, il est peut-être inopportun de brûler le bois, dont les réserves diminuent rapidement, au lieu du charbon.

Ces mauvais choix de combustibles ont peut-être été accentués dans certains cas par la hausse spectaculaire du prix du pétrole. Par exemple, le remplacement du pétrole par le bois dans certaines industries, qui accélère l'épuisement des ressources forestières, constitue un mauvais choix de substitution du combustible.

Conclusion

L'exposé qui précède démontre que même si la consommation d'énergie conventionnelle en Afrique représente moins du cinquième de la moyenne mondiale, et seulement un trentième de la consommation américaine, il est loin d'être irréaliste de parler de conservation de l'énergie à propos de l'Afrique. Des gaspillages importants existent dans tous les principaux secteurs, et le choix du combustible utilisé est souvent loin d'être idéal.

Les pays en développement ont souvent tendance à repousser toute suggestion venant des pays industrialisés et visant à réaliser des économies d'énergie. On accuse fréquemment les riches d'inciter les pauvres à se serrer la ceinture afin de pouvoir poursuivre impunément leur gaspillage.

L'étude des mesures de conservation de l'énergie prises par les pays membres du CDA démontre que ce soupçon est dénué de fondement. Ces pays industrialisés ont réalisé d'énormes progrès dans la réduction de leur propre consommation d'énergie. L'expérience de ces pays industrialisés dans la mise au point et l'application de mesures et de programmes de conservation de l'énergie peut s'avérer très précieuse pour les pays en développement.

Le Canada est l'un des membres du CDA qui a élaboré chez lui un ensemble de programmes et de mesures innovatrices. On trouvera dans le chapitre suivant un aperçu des principales activités canadiennes dans ce domaine.

DEVELOPPEMENT DES CULTURES IRRIGUEES

DANS LE SAHEL

I - SITUATION ACTUELLE

- Superficie
- Production
- Rythme d'aménagement
- Potentialités et objectifs 2000

II - PROBLEMES POSES PAR LE DEVELOPPEMENT DES CULTURES IRRIGUEES

- Problèmes techniques
- Problèmes de gestion et de Formation
- Problèmes de politique générale
- Problèmes de financement.

III- ESQUISSE PROGRAMMATION 1981-85 ET PROPOSITIONS D'ACTIONS

- esquisse programmation 1981-1985
- Propositions d'action

options stratégiques

mise en oeuvre

- conception des programmes
- conditions de réalisation et d'exploitation
- actions d'accompagnement.

I - SITUATION ACTUELLE

Les cultures irriguées sont encore peu développées dans le Sahel. En 1979 on a recensé 75000 ha aménagés en maîtrise totale et 155000 ha irrigués en maîtrise partielle. S'y ajoutent environ 200 000 ha cultivés en irrigations traditionnelles (cultures de décrue, de Mas-fonds etc...).

Comparées aux 13 millions d'hectares consacrés aux cultures pluviales, les cultures irriguées n'occupent qu'une place marginale.

En ce qui concerne les productions, le Sahel a produit en moyenne ces dernières années :

- la 1/2 du riz
 - le 1/3 du sucre
 - 4 % du blé
- } qu'il consomme

Les cultures irriguées modernes fournissent moins de 5% de la production céréalière dont moins de 3% sont mis totalement à l'abri des aléas climatiques.

Pour le riz et le blé, la production est loin de suivre l'augmentation des besoins (8% pour le riz, 11 % pour le blé).

Bien que les surfaces cultivées sous irrigation moderne aient doublé entre 1960 et 1980, les Etats Sahéliens ne sont pas parvenus à atteindre un rythme élevé d'aménagements nouveaux.

Au cours de ces dernière années, le rythme de mise en service d'aménagements nouveaux n'a pas dépassé 5000 ha par an en maîtrise totale de l'eau (dont 4000 pour la culture du riz) alors que les Etats sahéliens s'étaient fixés pour objectif d'aménager 25-30.000 ha par an dans l'ensemble de la région.

Les aménagements existant continuent à se dégrader si bien que malgré les réalisations nouvelles, les surfaces cultivées avec maîtrise de l'eau n'augmentant que très faiblement (26 000 ha à réhabiliter).

Cependant, le Cap Vert excepté, les potentialités des cultures irriguées sont largement supérieures aux réalisations actuelles. Les surfaces aménageables dans les 20-25 ans à venir sont de l'ordre de 2,3 millions d'hectares à condition que les ouvrages de régularisation soient construits.

Compte tenu des objectifs* de production retenus pour l'an 2000 d'une part et des rendements** moyens qui pourront être obtenus d'autre part, les superficies nécessaires pour assurer ces productions sont de l'ordre de 550.000 ha en maîtrise totale et 100.000 ha de casiers rizicoles en submersion contrôlée (Mali, Tchad).

* 2 millions de tonnes en irrigation moderne \rightarrow 400 000 tonnes de céréales traditionnelles (volant de sécurité) \rightarrow 240 000 tonnes de blé - 250 000 tonnes de sucre.
 (+ cultures maraichères, fourragères, plantations forestières).

** Paddy = 8 tonnes/an
 céréales tradit. = 3,5 tonnes/an
 blé = 3 tonnes
 sucre = 10 tonnes

144

II - LES PROBLEMES POSES PAR LE DEVELOPPEMENT DES CULTURES IRRIGUEES

Le développement des cultures irriguées se heurtent à plusieurs problèmes de fond que l'on peut classer de la façon suivante :

- des problèmes techniques

. La conception des aménagements : L'insuffisance des études préalables a amené des surcoûts dans les investissements ou des productivités inférieures à ce qui était attendu.

. L'insuffisance de l'entretien est à l'origine des besoins en réhabilitation recensés (26000ha).

. Les rendements des cultures irriguées sont dans l'ensemble insuffisants pour rentabiliser des investissements très coûteux. La double culture est loin d'être pratiquée partout, les rendements en riz paddy sont de l'ordre de 2 tonnes/ha alors qu'ils devraient atteindre au moins cinq à six tonnes.

- des problèmes de gestion et de formation

Les problèmes de gestion se rencontrent tant au niveau de la réalisation des aménagements qu'au niveau de leur exploitation. Ils conduisent à des coûts d'investissements très élevés et à des pertes d'exploitation qui peuvent être très importantes.

. Ces difficultés de gestion sont évidemment liées à des problèmes de formation des hommes (cadres de gestion des périmètres, encadrement des paysans).

- des problèmes de politiques agricole

Les prix actuellement fixés par les organismes officiels de commercialisation ne sont pas suffisamment incitateurs pour que les exploitants soient motivés à développer les productions en cultures irriguées.

- des problèmes de financement

Le coût élevé des aménagements^{*} et de leurs charges récurrentes constitue un frein sérieux au développement des cultures irriguées.

C'est donc l'ensemble du système cultures irriguées dont le fonctionnement est à améliorer par une politique cohérente qui est à définir dans chaque cas particulier.

Ci-joint : Annexe de 5,5 millions de Francs CFA au Niger

145

III - ESQUISSE D'UNE PROGRAMMATION 1981-85 ET PROPOSITIONS D'ACTIONS

3.1. Esquisse d'une programmation 1981-1985

Les missions de consultants ont permis de rassembler un certain nombre de propositions qui pourraient constituer un programme pour la période 1981-1985.

La mise en oeuvre de ce programme dont le montant s'élève à 1480 millions de dollars.

Réhabilitation	Etudes	Réalisation	Accompagnement	Total
9,5	37,2	1374,7	59,2	1480

permettrait de réaliser :

en aménagement avec Maîtrise totale : 72 500 hectares
 " " " Maîtrise partielle : 70 000 hectares.

Cela suppose un changement important dans le rythme des réalisations (14500 ha/an en Maîtrise totale et 14000 ha/an en Maîtrise partielle). Cela suppose aussi un changement de rythme des financements extérieurs : 270 millions de dollars/an (c'est à dire être multipliés par 2,3 par rapport à 1972).

Ce programme permettrait d'accroître la production de Paddy de 400 000 tonnes et de stabiliser le déficit en riz usine aux environs de 300 000 tonnes.

3.2. Propositions d'actions

A partir du bilan un certain nombre de propositions ont été faites qui concernent les options stratégiques et leur mise en oeuvre.

- Options stratégiques - Elles peuvent se résumer ainsi :
- réhabilité d'urgence les périmètres dégradés
- mieux exploiter les périmètres existants (maintenance des aménagements, intensification des cultures),
- aménager de nouveaux périmètres avec mise en valeur rationnelle des casiers.

12/6

- Mise en oeuvre de cette stratégie

Les principaux thèmes retenus portant sur :

- la conception des programmes
- les conditions de réalisation et d'exploitation
- les actions d'accompagnement.

La conception des programmes.

Programmes régionaux. La maîtrise de l'eau suppose la réalisation d'ouvrages de régularisation (superficie irrigable sans régularisation de l'ordre de 200-225 000 ha).

Il est donc indispensable que les études nécessaires soient entreprises à temps et il est aussi indispensable de veiller à ce que les programmes nationaux soient compatibles avec les programmes régionaux de réalisation des grands ouvrages.

Programmes nationaux

Une meilleure connaissance du milieu naturel et du contexte socio-économique est une condition préalable à la réussite du projet.

Conditions de réalisation et d'exploitation

- Assurer une large décentralisation au niveau des périmètres ;
- associer intimement les producteurs à la conception, réalisation, gestion et maintenance des aménagements.

Mais pour obtenir une bonne motivation des producteurs il faut leur donner des garanties claires, concernant le statut foncier des terres exploitées, l'approvisionnement en intrants, les prix de rente et la commercialisation des produits. D'où la nécessité d'une politique céréalière cohérente -

Actions d'accompagnement

Tout projet de développement doit inclure :

- un volet formation : au niveau des paysans, des encadreurs et des gestionnaires
- un volet recherche et expérimentation : généralisation de la double culture annuelle, problèmes socioculturels et sanitaires soulevés par les cultures irriguées.

147

FORESTRY AND FUELWOOD PRODUCTION INITIATIVES

A Background Briefing Paper

Prepared by
Frances A. Gulick
Consultant, CADA Forestry Initiatives
for
The Bureau for Africa
U.S. Agency for International Development

Updated May 27, 1982

148

TABLE OF CONTENTS

	<u>Page</u>
Preface.....	1
Introduction.....	2
I. Program and Policy Conclusions.....	3
A. Greater priority for increased fuelwood supply programs.....	3
B. The primary objective: to help increase African institutional capacity to under- take much larger forestry and fuelwood supply programs.....	4
C. Essential components for enhanced programs.....	4
D. Concentrate initial efforts in a few countries.....	5
II. Developing new CDA country-specific initiatives....	6
A. The general approach.....	6
B. A task-oriented CDA (initiative develop- ment process.....	8
1. Quantify the forestry development tasks....	9
2. Inventory current combined efforts.....	9
3. Choose the next CDA -sponsored activities..	10
TAB A. Illustrative Draft Matrix for an ad hoc working group review of current combined efforts	

149

Preface

The following background briefing paper and progress report has been prepared for use by USAID, CDA member representatives, and other technicians interested in supporting African efforts to launch and successfully expand forestry and fuelwood production programs in sub-Saharan Africa.

Introduction

Fuelwood is the major source of all energy in virtually all of sub-Saharan Africa, and the forests from which it is now supplied are rapidly disappearing. The volume of replanting needed to meet foreseeable needs is in most countries five to fifteen times the current rate, and will require a commitment of land and resources on a scale well beyond the present capacity of any African government or individual donor.

A group of six countries (Belgium, Canada, France, Germany, United Kingdom and United States) have agreed to include forestry and fuelwood production among the priority development tasks on which they have decided to undertake "Concerted Action for Development in Africa." The acronym "CADA" was adopted for this effort, and subsequently modified to Cooperation for Development in Africa (CDA).

The following section describes policy and program conclusions reached during the first phase of this new initiative, from November 1980 through September 1981.

The next section outlines the general program approach, the tasks to be undertaken and suggests some options that could be used in moving into the second phase: Developing new within-country initiatives.

CDA FORESTRY AND FUELWOOD PRODUCTION INITIATIVES
IN SELECTED AFRICAN COUNTRIES

I. Program and Policy Conclusions

The first phase of a U.S.-led initiative to increase the effectiveness of African and CDA member programs addressing this major economic development task has now been completed.

At a meeting of technical experts from CDA member countries and selected invited participants from other donor groups held in Washington in mid-November of 1980, the policy decision to give greater priority to this sector was recommended, seven essential elements of successful programs were identified, and the strategy to begin with a few countries was endorsed.

At the CADA, now CDA, policy level meeting in Brussels, December 17 to 18, 1980 the forestry/fuelwood initiative was formally accepted. Subsequent consultations in CDA capitals and ensuing cabled and written correspondence took place between March and June 1981.

A brief reconnaissance trip was made by a U.S. team to selected African countries between August 10 and September 6. Findings were reported at a second meeting of the ad hoc technical experts from CDA countries which was held in Paris on September 9, 1981.

These have confirmed the following general policy and program framework within which CDA and other donors could collaborate with African efforts for more effective national programs.

A. Greater Priority for Increased Fuelwood Supply Programs

Forestry and fuelwood supply programs should be given increased priority in donor and African economic and social development programs, as major elements in sub-Saharan agricultural production, natural resource management and energy supply systems.

B. The Primary Objective: To help increase African institutional capacity to undertake much larger forestry and fuelwood supply programs

Despite the acknowledged need for much larger scale fuelwood planting programs, dispersed on farms and in villages or concentrated on plantations, direct donor financing of larger planting projects is not the main objective of the proposed CDA initiative.

The primary goal of any CDA initiative in this sector should be to assist in the creation within each country selected, of a broad African institutional capability to undertake national reforestation and fuelwood production programs on a scale commensurate with the needs. The objective can more precisely be defined as follows:

CDA donors should bilaterally and collectively use their influence and overall assistance resources to help African governments to increase their capacity to undertake, as fast as is technically possible, larger scale forestry and fuelwood production programs as part of their overall land use planning and socio-economic development efforts.

Donor-supported projects, including large planting programs, can be designed generously to support, but not substitute for, this major national institution-building task.

C. Essential Components for Enhanced Programs

To be successful, a nation-wide forestry and fuelwood production effort by any African government would need to include several major prerequisites or program components:

- African government commitment to increased priority for this sector.
- Up-to-date knowledge of existing land use and land use potential, on which to base agricultural, forest and fuelwood, and urban planning decisions, and to provide baseline data for popular education and extension programs.
- Expanded manpower and training, improved in content and institutional capability.

- Improved management of natural forests and woodlands for fuelwood production as well as for other purposes.
- Early planning for larger scale fuelwood plantations, especially to meet growing urban needs.
- Decentralized seedling supply and extension services, to enlist voluntary efforts at the village and household level and to serve individual needs. Additional efforts should be made to enlist and involve women in these activities.
- More effective methods of fuelwood use and development of alternative energy supplies.

D. Concentrate Initial Efforts in a Few Countries

CDA members have agreed that it was preferable at this stage to concentrate member efforts on specific projects in a few African countries, seeking to insure that, in combination with the country's ongoing national program and with other donor efforts, all of the previously identified essential components are brought on line at the earliest possible date.

On the basis of criteria identified by the technical and program planning officials in the six nations, the following countries have been agreed upon for further coordination of efforts in the field and the development and support of new activities. As indicated below, member countries have designated senior resident officials in each country to serve as informal points of contact, to encourage more coordinated programming in this sector by the host country and to serve as a communication channel among CDA members on current and future bilateral assistance activities.

Senegal: France, U. S. alternate

Upper Volta: Germany, Canada

Burundi: Belgium, France

Malawi: United Kingdom, U.S.

Somalia: U.S., United Kingdom

It may be noted that documentation as to how these countries, as selected, conform to the criteria, is available in the "Report on Consultations," dated April 20, 1981, circularized to all CDA members under cover of a letter from

Mr. North. Ensuing correspondence and technical level commitments from all CADA members at the September 9, 1981 Paris meeting confirmed the selection of these countries as an initial focus of action, recognizing that there is no obligation on the part of any CADA member to take part in all five countries.

These policy and program conclusions provide a general framework for more coordinated economic development assistance efforts involving forestry and fuelwood, in each of the five countries which have now been selected.

II. Developing New CDA Country-Specific Initiatives

Now that CDA members have identified five African countries in which more closely to concert their efforts, new initiatives tailored to each country's individual forestry and fuelwood problems, resources and needs can be developed.

Preliminary agreement has already been reached among members on (a) the general approach; and (b) the review and analysis tasks through which such new initiatives would be developed. Actual application of these will depend on the consensus reached among CDA members in each country.

It may be useful to summarize for those interested who have not taken part in the CDA discussions the proposed general approach and the review and analysis tasks as they have been formulated up to this point.

A. The General Approach

As noted above, CDA representatives have agreed that, as a primary objective:

- CDA donors should bilaterally and collectively use their influence and overall assistance resources to help African governments to increase their capacity to undertake, as fast as is technically possible, larger scale forestry and fuelwood production programs as part of their overall land use planning and socio-economic development efforts.

Given this objective, it follows that CDA initiatives undertaken in this sector would be on at least two levels:

155

- At the policy level of overall development assistance strategy and negotiation: Within the forum or periodic reviews of overall development progress and forward pledging, members would, bilaterally and/or collectively, ask for progress reports on the recipient African government's efforts, commend progress made and encourage more, selectively offering additional bilateral aid.
- At the working level of technical forestry and fuelwood production program and project support: Within each country, formally or informally, members would regularly review donor and African project and program experience and progress as measured against the national forestry and fuelwood supply requirements, including the successful program prerequisites identified by technicians at the November 1980 meeting (see page 3 above).

Policy level interventions would appropriately be made at the level of resident Chief of Mission or other senior economic development assistance officer, by the U.S. and other CADA members, as appropriate to the donor's situation within a given country. In addition, when consortium negotiations are conducted, non-resident senior economic aid negotiators should be enlisted in this policy intervention effort.

Working level technical interventions would depend on what kind of formal or informal continuing review groups now exist which already (or could) include forestry and fuelwood production programs as subjects on their agenda.* Land and manpower, competing agricultural production and water use resources requirements must be reconciled with the needs for any effective national African forestry and fuelwood programs. If the technical interventions can be made in working level groups already concerned with these non forestry-specific subjects, it would be preferable to try to accomplish the tasks outlined in the next section through the medium of such groups.

It may be pointed out that the undertaking of policy interventions at the level of overall economic assistance strategy and negotiations does not depend on the existence of an ad hoc within-country CDA technical working group. One or more CDA members may make these interventions through their own bilateral country aid strategies, at any time,

*Reports from the U.S. reconnaissance team on this have been prepared and were sent to the U.S. technical representatives in each of the five selected countries.

without consultation with other members. It is, of course, to be hoped that members will inform each other of their intentions to make such interventions in this sector. It is expected that such exchanges of information are at a minimum what is involved in the CDA concept itself.

On its part, the United States already has sent messages from the Deputy Administrator for Aid to Africa, Mr. North, to the senior aid officers in all five countries, enlisting the good offices of the addressees in exploring ways to increase the priority accorded to expanded fuelwood production and forestry programs as part of each country's long term economic development efforts.

It has been agreed at the technical level that this, now decentralized country-based effort will, as appropriate in each country, encourage the following program and project development process, to the optimum degree possible initiated by the host African country.

3. A Task-Oriented CDA Initiative Development Process

Three tasks need to be undertaken, preferably in sequence, as an essential part of the process of developing new CDA-encouraged and supported country-specific forestry/fuelwood development programs. These are:

- (1) Review and confirm the quantitative dimensions of the forestry, fuelwood and other wood products supply problem, including implied land requirements. This review should be done predominantly with in-country expertise.
- (2) Inventory CDA, host country and other donor assistance in terms of their effectiveness in supplying the main components required for successful national programs, identified in the November 1980 technical meeting.
- (3) Thereafter, identify and support projects required to provide priority assistance, through our bilateral programs, to strengthen those program components which are missing or are the weakest link.

157

1. Quantify the forestry development tasks

The size and nature of additional African efforts commensurate with the need will, naturally, depend on some firm African country consensus on the size and nature of the problem: adequacy of supply of urban and rural fuelwood; other wood products for domestic consumption, pulp and timber; watershed protection and soil conservation; other forest needs including exports.

If there is already reasonably clear in-country agreement on the quantitative dimensions, this need not take much time or effort to consolidate and summarize.

If not, the first CDA exercise should be to sponsor an in-country review. CDA policy level officials could, as agreed, request an ad hoc working group to undertake such a review and report their conclusions. The FAO and the IBRD have already undertaken very intensive reviews of the forestry and fuelwood production problem in each of these countries. These would be available to any working groups which would wish to review them within-country, along with other country data available.

2. Inventory current combined efforts

Once there is a reasonable consensus on the size of the problem, the next task would be to inventory and review, with African and other donors, current and proposed forestry and fuelwood production programs. Their combined existing efforts could then be screened against the essential components for enhanced programs, as identified by CDA technical experts, or other appropriate functional component categories. Attached at Tab A is an illustrative draft matrix for a possible spread sheet descriptive summary, if a working group believes such an approach is useful.

The objective of an inventory is to identify the major missing components in the combined programs, as measured against the needs so that the choice of new CDA (and presumably other donor) activities can be more precisely targetted toward removing barriers in African programs which prevent accelerated efforts.

158

3. Choose the next CDA-sponsored activities

Once initial inventory and screening is completed, CDA members may, singly or jointly, choose one or more new projects or activities, in order to speed up achievement of a given program component for which inadequate resources are currently provided.

How these new projects and/or activities are chosen should be left to the combined ad hoc CDA policy group within any specific country, as advised by the ad hoc technical working group. Projects which are identified and recommended in the field will be reviewed and, when approved, funded through each member's bilateral aid programs and procedures.

The CDA ad hoc technical committee on forestry and fuelwood plans to reconvene in September of this year to hear reports on developments in each of these five countries, as initiated or encouraged by our resident representatives in the field.

159

SUGGESTIONS FOR CADA FORESTRY INITIATIVES IN AN AFRICAN COUNTRY

INITIATIVES MAPS ATTACHED

A4 loc working group review - Phase II

481

Country	(1) National Government Commitment	(2) Land use plan and planning capability	(3) Up-to-date knowledge of existing land use	(4) Adequate personnel and training	(5) Improved management of natural forests	(6) Early planning for large scale planting Urban Rural	(7) Decentralized seedling services	(8) More effective methods of fuelwood use	(9) Development of alternative energy supplies	Observations
---------	---------------------------------------	--	--	--	---	--	--	---	---	--------------

Government
Current Planned Program

Specify CADA member current/planned programs, under each functional heading.

Other donor current/planned programs

Best Available Document

169

Recommandations pour un programme conjoint USAID-
Ministère de la Santé Publique.

Lutte Contre les Maladies Infantiles Contagieuses
(LCMIC)

31 août 1981

I Introduction

Ce rapport marque une transition entre les activités de planification de la santé du Dr. James Sonnemann, affecté au Ministère de la Santé Publique du Togo du mois d'août 1980 au mois d'août 1981*, et le développement d'un nouveau projet d'assistance USAID au Ministère de la Santé Publique du Togo pour la prévention et le traitement de quelques unes des maladies infantiles contagieuses les plus répandues.

Le rapport se propose:

- 1) de faire connaître les priorités des programmes de santé du Ministère de la Santé Publique ainsi que celles de l'USAID/Togo;
- 2) identifier les zones où ces priorités se chevauchent;
- 3) de coordonner les priorités convergentes avec le futur programme LCMIC de l'USAID dans l'Afrique sub-Saharienne;
- 4) d'envisager comment un tel programme pourrait être synchronisé avec les programmes actuels des services du Ministère de la Santé Publique, surtout dans les zones où ces services ne sont pas encore installés; et
- 5) d'identifier les aspects où l'appui de l'USAID sous forme de convention bilatérale serait le plus utile.

Ce rapport a été préparé en français et en anglais en collaboration avec le Directeur Général de la Santé Publique du Togo pour que les intérêts fondamentaux et les priorités du Ministère de la Santé Publique

* Conformément à l'Accord de Subvention No. 698-416.5 signé le 25 septembre 1979, Contract FADSO/WA No. 81-707.

y soient fidèlement inclus. Il a été conçu pour servir comme base de directives à l'USAID et au Ministère de la Santé pour le développement d'un important programme de LCMIC au Togo. Etant donné que les détails des éléments régionaux du programme de LCMIC ne sont pas encore précisés, il ne sera pas utile de spécifier dans ce rapport si l'appui nécessaire devrait provenir de sources bilatérales ou régionales.

II La Santé au Togo

Principaux Problèmes de la Santé

Les principaux problèmes de la Santé au Togo, sont les mêmes que ceux des pays voisins de la côte de l'Afrique Occidentale: le paludisme, les infections parasitaires, les maladies infantiles contagieuses, les diarrhées, la malnutrition infantile et les traumatismes. L'estimation de l'importance de ces problèmes n'est pas possible à cause du manque de données précises dans les zones rurales où vivent 80% de la population.

Néanmoins, il est certain les plus récentes sur la santé au Togo, qui datent d'ailleurs de 1978, démontrent que les maladies infectieuses et les affections parasitaires constituaient 33% des consultations médicales globales pendant la dite année, le paludisme à lui seul représentait 17%.

Une ventilation des statistiques par âge serait incertaine, mais il est probable que sur quatre naissances, survient un décès, avant l'âge de cinq ans dont la cause aurait pu être évitée. Cette terrible perte de vies humaines constitue un lourd fardeau pour la population maternelle et demeure une des causes fondamentales du taux de fertilité qui est près de 50 pour mille. Il n'est donc pas surprenant non plus que la malnutrition devienne aussi un problème au moment de sevrage. Mais le fait que la plupart de ces problèmes peuvent être évités doit retenir notre attention.

Le Système des Soins de la Santé Publique au Togo

Le système des soins de santé publique au Togo est essentiellement celui de tout système public. C'est seulement à Lomé que l'on peut trouver des médecins privés. Les hôpitaux dirigés par des groupements des missionnaires sont coordonnés avec le système public. Le Togo dispose de 350 centres de santé de base pour une population de 2.5 millions. Au niveau secondaire chaque préfecture dispose d'un hôpital, soit au total 21 hôpitaux; et au sommet du système de référence se trouve le Centre Hospitalier Universitaire (CHU) de Lomé. Généralement, il existe un dispensaire pour chaque 6,000 à 8,000 habitants, dont la plupart vivent à une distance de marche à pied d'un centre. Le dispensaire est le point de départ des services de santé en zone rurale. Toutes les activités de santé au niveau périphérique doivent s'intégrer au dispensaire, y compris les soins du malade, la santé maternelle et infantile, la promotion et l'éducation sanitaire, et, plus récemment les services de vaccination. Quelques services organisés verticalement existent encore, surtout ceux qui reçoivent de l'aide de l'extérieur, tels que les programmes de contrôls de la lèpre et l'onchocercose, mais le but du Ministère de la Santé est clairement de co-ordonner tous les services afin de pouvoir opérer économiquement. Tout nouveau programme doit donc entrer dans le cadre de ce système.

Le personnel d'un dispensaire rural consiste normalement en un infirmier, une accoucheuse et un agent itinérant. La fonction de ce dernier est de visiter périodiquement les villages dans la zone du dispensaire, donnant des conseils sur la santé, distribuant des médicaments de base, et dirigeant les cas sérieux sur le dispensaire. Cette conception très simple mais d'un potentiel d'efficacité énorme, est d'une valeur à toute épreuve.

163

Malheureusement, son fonctionnement n'est pas encore au point parfait dans la pratique. La disponibilité des médicaments au dispensaire étant limitée, la distribution est de ce fait restreinte. Les moyens de transport (au moins une bicyclette) pose parfois des problèmes. La supervision, la formation périodique, et l'encouragement de ce personnel restent insuffisants. Ces agents sont simplement trop éloignés du sommet pour recevoir l'attention dont ils ont besoin, et qu'ils méritent. Ils n'en constituent pas moins un véritable atout déjà sur place, là où les besoins de santé sont les plus pressants et la disponibilité des services la plus faible.

Parallèlement à l'expansion du réseau des services de santé au Togo, le système étatique de distribution des produits pharmaceutiques Togopharma s'est développé ces dernières années en établissant des points de vente dans toutes les villes et dans plusieurs des plus grands villages. La prescription de médicaments qui peuvent être achetés chez Togopharma est encouragée afin de réduire les dépenses en distribution de médicaments gratuits. Comme dans plusieurs autres pays de l'Afrique de l'Ouest, il existait aussi jusqu'à ces derniers jours de Juillet 81, beaucoup de médicaments, depuis les produits de vente libre jusqu'aux antibiotiques et même les stupéfiants sur les marchés et dans les petites boutiques à travers tout le pays. Ces ventes sont sujettes actuellement au Togo à un contrôle sévère et personne ne peut plus vendre de médicaments au marché ou dans une boutique sans autorisation préalable du Ministère de la Santé Publique.

Bien que l'importance de l'eau pure et de l'assainissement en santé publique soit reconnue, ce sont d'autres ministères qui sont responsables de leur développement au Togo. Il en est de même en matière de la responsabilité pour la nutrition qui est partagée entre différents ministères, tels que celui de l'Agriculture, des Affaires Sociales, du Développement Rural

164

Priorités de la Santé Publique au Togo

Conformément au concept de Santé pour Tous en l'an 2000 adopté par l'OMS à la conférence internationale d'Alma-Ata en 1978, le Togo donne une importance prioritaire au développement des soins de santé primaires surtout en milieu rural. La promotion de la santé, la prévention des maladies, les soins médicaux, la réhabilitation font tous partie de ces soins de santé primaires.

Les huit priorités suivantes sont considérées comme le minimum à atteindre par les services de santé primaires.

- 1) La promotion d'une bonne nutrition;
- 2) La disponibilité d'une eau potable accessible et d'une hygiène de base;
- 3) La santé maternelle et infantile, y compris la planification familiale;
- 4) La vaccination contre les principales maladies infectieuses;
- 5) L'éducation sanitaire concernant les principaux problèmes de la santé, leur prévention et leur maîtrise;
- 6) La prévention et réduction des endémies locales;
- 7) Les soins appropriés pour les maladies ordinaires et les traumatismes;
- 8) L'établissement de stocks suffisants de médicaments de base y compris les remèdes africains traditionnels.

Dans toutes ces activités, une attention prioritaire devrait être donnée aux zones rurales les plus défavorisées. Et surtout, selon la résolution adoptée par le Congrès du RPT (Rassemblement du Peuple Togolais) sur l'Éducation Sanitaire, la participation des populations dans la solution de leur problèmes de santé est essentielle. Les comités villageois de santé doivent être encouragés tandis que le personnel local de la santé doit être présent pour donner conseil à la communauté. Mais la création

165

de ces comités ne se déroule pas d'une façon organisée.

Cependant on a fait des progrès dans la poursuite des huit priorités ci-dessus mentionnées. L'éducation nutritionnelle se déroule sur plusieurs niveaux, et les plus hautes instances politiques ont récemment mis un accent particulier sur l'importance de produits vivriers dans l'économie agricole. Plusieurs projets, dont un financé par l'USAID, ont été entreprise pour fournir une eau pure et un meilleur assainissement. Les services du Ministère de la Santé sont en voie d'intégration avec d'autres services de santé à tous les niveaux, bien que les services de planification familiale soient disponibles seulement dans les centres les plus importants. Un Programme Elargi d'Immunsation a débuté en 1980 dans les zones rurales du Nord et devrait couvrir tout le territoire d'ici 1984. Plusieurs autres programmes se proposent de contrôler les endémies locales les plus répandues. Le Service National du Paludisme est en voie de reorientation et un programme national de lutte anti-paludique a été mis au point en tenant compte des possibilités proposés du pays. On conçoit l'éducation sanitaire comme étant la responsabilité des agents sanitaires à tous les niveaux. Le Directeur du Service de Protection Maternelle et Infantile est en train de développer un plan pour introduire la rehydratation orale comme méthode préférable de traitement des diarrhées. Il a d'ailleurs contribué à mettre au point un programme national de lutte contre les maladies diarrhéiques. Dans les limites des disponibilités du Ministère, les efforts continuent pour fournir des stocks adéquats de médicaments et d'équipement médical nécessaires dans tout le pays.

III. Les Priorités de l'USAID de la Santé au Togo

L'USAID n'a pas mené beaucoup d'activités ces dernières années au Togo. La construction d'un centre de Santé Familiale, financée en grande partie par un fonds de planification familiale, était envisagée en 1970. Après plusieurs années de retard, cette construction a débuté

164

et le centre deviendra un annexe du Centre Régional de Formation de l'OMS à Lomé. Un deuxième projet qui s'est matérialisé après plusieurs années était une action de planification financée avec des fonds affectés aux zones libérées de l'onchocercose et qui, à l'origine, envisageait la colonisation des régions du Tchiri et du Nord Togo. Ce projet s'est traduit par un contrat d'un an d'un planificateur/epidemiologiste, mais ce contrat est actuellement à son terme. Cependant le résultat direct des activités de ce planificateur/epidemiologiste est cet avant-projet de lutte contre les maladies infantiles contagieuses (LCMIC) au Togo.

L'USAID a aussi contribué à un projet de santé à travers le programme SHDS, centralisé à Abidjan, qui a porté une aide au Centre Régional de Formation de l'OMS en particulier. Répondant à ce besoin, l'USAID a récemment entrepris un programme de forage de 400 puits qui fournira de l'eau potable dans les régions des Plateaux et des Savanes et améliorera également l'hygiène dans les villages.

Au fur et à mesure que la construction du centre de santé familiale (annexe OMS) et le contrat concernant du planificateur en santé s'achèvent, l'USAID au Togo s'intéresse de plus en plus au développement d'un programme qui aiderait l'organisation et la distribution des services de santé de base en milieu rural au Togo. Ce programme serait complémentaire aux priorités du Ministère de la Santé pour le développement des services de santé des populations rurales. En plus, et dans la mesure où il pourrait être coordonné avec les programmes régionaux de LCMIC, le programme apportera au Togo une assistance à la formation et aux évaluations. Ces deux derniers aspects du système de la santé au Togo sont très facilement négligés, car les fonds sont en général insuffisants.

L'accent que l'AID met sur l'aide aux plus nécessiteux parmi les populations les plus défavorisées se traduit au Togo par une aide à la périphérie du système, là exactement où cette aide est la plus indiquée.

Le Programme de LCMIC

Le programme de Lutte Contre les Maladies Infantiles Contagieuses, développé par l'USAID dans le courant de l'année passée, semble en ce moment, particulièrement adapté aux besoins de la santé au Togo. Le volet "Immunisation" sert à renforcer le système élaboré par le Ministère de la Santé, qui à cause des ressources actuelles limitées du Togo, risque d'être sérieusement sous-financé. Au fur et à mesure que ce programme se développe sur tout le pays, l'exiguité des moyens est mise à rude épreuve, et il semble certain, que l'élément d'évaluation sera sacrifié sans une aide opportune de l'extérieur.

La rehydratation orale n'est pas un concept très répandu en Afrique. Cependant, avec l'encouragement de l'OMS elle sera propagée non seulement parce qu'elle est moins chère que l'utilisation des solutions intraveineux, mais aussi parce qu'elle peut se faire partout et par tout le monde. Bien entendu, il sera nécessaire pour diffuser le système aux abords du système de Santé au Togo, d'accorder une importance particulière au volet de formation dans le programme de LCMIC.

IV. Elements d'une proposition pour un Programme de Lutte Contre les Maladies Infantiles Contagieuses (LCMIC)

Tel qu'il est actuellement envisagé au Togo, un programme de LCMIC comprendrait trois aspects de base: Le PEV, la rehydratation orale, et le contrôle du plan. Il pourrait inclure aussi si nécessaire, d'autres programmes liés directement aux maladies infantiles contagieuses.

Par exemple, le programme pourrait servir comme système d'intervention rapide aux épidémies de meningite méningococcique au nord Togo, épidémies qui surviennent en flambées imprévues. En outre, le programme de LCMIC fournirait un appui à d'autres activités communes dans tout le système sanitaire, à travers les fonctions de la formation et des évaluations. Par exemple dans l'avenir, l'élément de formation pourrait être utilisé pour augmenter la capacité des agents de la santé travaillant dans les zones périphériques, leur permettant de fournir des services supplémentaires (nutrition, planification familiale, etc.). Une amélioration dans le système de collecte de données et de leur analyse serait avantageuse pour tout le système.

Le Programme Elargi d'Immunisation (PEI)

Les grandes lignes du PEV au Togo ont été tracées, et le programme commence sa deuxième année d'opération. La stratégie de base est d'établir un programme de vaccination pour chaque centre de santé dans le pays. Puisque les vaccinations anti-diphtériques et anti-poliomyélites se font mensuellement, une séance globale régulière par mois dans chaque dispensaire fournirait une couverture satisfaisante à un coût réduit. Mais étant donné que la plupart des dispensaires manquent de réfrigérateur, les vaccins doivent être livrés pour chaque séance, les quantités inutilisées devant être retournées aux hopitaux des préfectures ou de régions. Ceci pourrait se faire de façon assez économique si les centres

voisins coordonnent leurs séances de vaccination et si les médecins-chef de chaque subdivision sanitaire synchronisaient les livraisons avec leur calendrier de visites mensuelles à chaque dispensaire. Les centres à plus forte population auront sans doute besoin de séances plus fréquentes. Quelques zones dont les habitants ne peuvent, à cause des distances, se rendre aux centres à pied, devront être visitées par des équipes mobiles, mais ce seront les centres de vaccination immobiles qui auront, bien entendu, la priorité.

Un des objectifs du PEV au Togo est d'apprendre aux populations à prendre une plus grande responsabilité vis à vis des problèmes concernant leur santé. Ainsi, au lieu d'utiliser des équipes mobiles pour aller à chaque village et y vacciner tout le monde par périodes régulières, comme dans le passé (ce qui s'avère un système assez coûteux aux prix actuels du carburant), les parents amèneront leurs enfants pour les faire vacciner à des heures convenues au centre de santé le plus proche. Ceci mettrait l'accent sur la continuité du programme d'immunisation ainsi que sur l'importance qu'il y a à maintenir les enregistrements.

Le PEV Togolais s'adresse aux six maladies identifiées par l'OMS (diphtérie, coqueluche, poliomyélite, rougeole, tétanos et tuberculose), ainsi qu'à la fièvre jaune, une maladie qui sévit par endroit. Les enfants sont vaccinés selon le plan suivant:

<u>Vaccin</u>	<u>Série</u>	<u>A partir de l'age:</u>
BCG	dose unique	0-47 mois
DPT	3 doses à 1 mois d'espace	3-47 mois
Polio (oral)	3 doses à 1 mois d'espace	3-47 mois
Rougeole	dose unique	9-47 mois
Fièvre jaune	dose unique	12-47 mois

Des doses de rappel pour le BCG et le DPT pourraient être nécessaires plus tard, mais quant aux autres, ils bénéficieront de l'effet de rappel par des virus sauvages.

Pour prévenir le tétanos des nouveaux-nés, le PEV togolais vaccinera toutes les femmes ayant atteint l'âge de procréer avec l'anatoxine tétanique; en variant le rythme selon le vaccin utilisé, l'historique des vaccinations antérieures de chaque femme, et selon que les femmes sont enceintes ou pas.

Le vaccin contre la méningite à méningocoques A et C est utile dans le Nord Togo où de temps en temps des épidémies sévissent dans la dite "ceinture de la méningite", mais puisque une autre stratégie est préférable, ce type de vaccination sera considérée comme une option séparée.

A l'exception du vaccin anti-rougeoleux (fourni par le SHDS et d'autres donateurs), et les vaccins contre la fièvre jaune et la méningite (achetés par le Ministère de la Santé), les vaccins utilisés par le PEV togolais proviennent des dons de l'UNICEF au Togo. Il se peut que ces vaccins devront être augmentés dans l'avenir au fur et à mesure qu'une plus grande partie du pays est recouverte par le programme. Quant aux vaccinations anti-amarile et anti-méningocoque, elles auront sûrement besoin d'un appui de l'extérieur.

Le plan du PEV a débute dans la région de l'extrémité Nord du pays et descend progressivement vers le Sud, ajoutant une région par an, jusqu'à recouvrir toutes les cinq régions du pays d'ici 1984. Le rythme de progresser sera le suivant:

1980	Région des Savanes	2	hopitaux et	45	centres de santé			
1981	Région de la Kara*	<u>4</u>	"	"	<u>52</u>	"	"	"
	Total	6	"	"	97	"	"	"
1982	Région Centrale*	<u>5</u>	"	"	<u>50</u>	"	"	"
	Total	11	"	"	147	"	"	"
1983	Région des Plateaux	<u>5</u>	"	"	<u>113</u>	"	"	"
	Total	16	"	"	260	"	"	"
1984	Région Maritime	<u>5</u>	"	"	<u>94</u>	"	"	"
	Total	21	"	"	354	"	"	"

C'est ainsi qu'en 1984 le programme devrait inclure tous les centres de santé du pays, coordonnés par ces médecins-chef des 21 subdivisions sanitaires.

Puisque les activités de vaccination doivent être intégrées avec les autres services sanitaires à tous les niveaux, le PEV n'a pas de personnel propre, bien que ce besoin se fasse sentir au niveau central. Le directeur national du programme, et celui qui l'a conçu, est le Dr. Karsa, chef de la Division d'Epidémiologie. Dans chaque subdivision sanitaire le médecin-chef est responsable du programme. Au niveau national le personnel du Service des Grandes Endémies joue un rôle très important dans le développement du programme. Il est responsable pour le stockage des vaccins, et il a aidé à la formation et à la supervision du personnel en milieu rural. Une quantité d'anciens Ped-O-Jets encore utilisables lui appartenant, mais datent d'un programme de vaccination contre la variole dans les années 60, a été très utiles pendant les premières étapes de vaccination, alors que souvent plus de 600 personnes se présentaient en un seul jour pour être vaccinées au dispensaire. Quand ces stocks

* Ce plan se base sur l'ancienne composition des régions et ne tient pas compte du transfert de deux préfectures de la Région Centrale à la

172

seront réduits, le programme pourra passer à l'utilisation des seringues à aiguilles. La chaîne du froid actuelle s'étend à partir du magasin des Grandes Endémies à Lomé, où une quinzaine à une vingtaine de réfrigérateurs et congélateurs de toutes marques et de toutes dimensions sont utilisés pour le stockage des vaccins, jusqu'aux subdivisions sanitaires où des réfrigérateurs et congélateurs électriques ont été installés pour l'usage du PEV. Les pannes d'électricité n'ont pas causé trop de difficultés, tandis que plusieurs réfrigérateurs à pétrole ont fonctionné avec plus ou moins de succès. Au delà des subdivisions sanitaires, les vaccins doivent être conservés dans des glacières. D'habitude celles-ci sont préparées le matin, et remises le même jour. Le seul problème est celui du transport.

L'UNICEF s'est engagé à construire deux chambres froides pour le PEV au Togo, dont l'une à Lomé et l'autre à Lama Kara. La construction devrait commencer en 1982. Le PEV togolais pourrait faire usage de plusieurs formes d'assistance. Des fonds pour l'achat de vaccins supplémentaires sont nécessaires. Les vaccinations contre la fièvre jaune et la méningite cérébro-spinale ont été éliminées cette année à cause du manque de fonds. La chaîne du froid actuelle est à peine suffisante, et manque d'équipement de contrôle des températures. A mesure que le programme s'élargit, on aura encore plus besoin de réfrigérateurs et congélateurs. Le placement de réfrigérateurs à pétrole, et même éventuellement de réfrigérateurs solaires dans les endroits stratégiques faciliterait beaucoup le stockage et la distribution des vaccins. "Des glacières de meilleure qualité seront nécessaires pour le transport des vaccins. Les Ped-O-Jets doivent être remis en état. Mais plus important encore est la constitution d'une aide à la formation, à la recherche opérationnelle et à l'évaluation. Le programme de LCMIC pourrait répondre à tous ces besoins.

173

Un autre problème qui préoccupe constamment le PEV est celui du transport. La fourniture d'un plus grand nombre de véhicules n'est pas la solution (bien qu'il serait fort utile d'avoir des véhicules tous terrains ou même des motocyclettes spécialement adaptées pour le transport des vaccins). Toute activité de la LCMIC comprenant l'élément du transport doit avoir son propre budget pour le carburant. Les besoins opérationnels du Ministère de la Santé en carburant doivent aussi être plus minutieusement étudiés.

Etant donné que le PEV togolais a été conçu pour fonctionner sans la création d'une bureaucratie particulière ou d'un personnel spécialisé, l'assistance technique devrait être périodique et espacée à court terme, plutôt que d'être permanente et plein temps. Des conseillers régionaux de formation et d'évaluation pourraient fort bien satisfaire les besoins relatifs à ces éléments du programme. L'assistance opérationnelle requise pourrait d'autre part être fournie par le personnel d'exécution quant aux autres aspects du programme de LCMIC au Togo.

La Thérapie de Rehydratation Orale (TRO)

Bien que le programme TRO s'adresse à la même population que le PEV (la TRO aux enfants âgés de 0 à 4 ans; le PEV aux enfants âgés de 0 à 3 ans), les deux programmes utilisent des méthodes d'approche entièrement différentes. Dans le programme de vaccination il s'agit d'employer une technique médicale bien connue et acceptée à travers le système sanitaire; les principaux problèmes dans ce cas ont trait surtout à l'approvisionnement et à la supervision. Pour la TRO, il s'agit surtout d'un problème de formation. Le concept doit être d'abord inculqué au personnel médical à tous les niveaux; aussitôt qu'il est connu, et compris au niveau supérieur,

En ce qui concerne la TRO, le concept devrait être compris et utilisé par les mères, même dans les villages le plus éloignés. Contrairement au PEV qui requiert du personnel médical pour les vaccinations et qui demande aussi que les parents comprennent bien que les enfants doivent être vaccinés à certaines périodes, l'avantage de la TRO est qu'elle peut être appliquée par les villageois eux-mêmes sans aucune aide du personnel médical.

De même que pour le PEV, le programme de TRO doit être intégré aux autres programmes sanitaires en vigueur à tous les niveaux. Cependant, à cause de l'effort initial soutenu et l'évaluation continue qui seront nécessaires, un minimum de personnel sera aussi nécessaire pendant les premières années du programme. Une assistance technique étrangère serait utile à ce propos bien que l'élément essentiel soit toujours la participation togolaise.

L'élément TRO de la LCMIC comprendrait les activités suivantes:

- 1) Le développement d'une stratégie de la TRO pour le Togo. Ceci devrait prendre place aux plus hauts niveaux du Ministère de la Santé, qui devra décider de la composition des équipes; du type des sels à utiliser (probablement, mais pas nécessairement les sachets de sel de l'UNICEF) et le choix des stratégies les plus aptes pour l'introduction de la rehydratation orale chez les médecins, ensuite chez les infirmières, les autres agents para-médicaux, et finalement parmi les populations.
- 2) La préparation et la distribution du matériel pédagogique sur la RO.
- 3) L'intégration de la TRO dans les programmes de formation au Togo.

175

- 4) Le développement et la gestion d'un système de distribution des sels de rehydratation.
- 5) Le développement d'un système de supervision, d'évaluation et de revision des méthodes de la TRO au fur et à mesure que ces méthodes sont introduites.
- 6) Le développement d'instruments d'évaluation pour mesurer les effets de la TRO.

Ce qui est clair, c'est qu'un programme de TRO ne peut debiter au Togo sur un modèle établi dans tous ses détails, mais devra faire appel à beaucoup d'imagination et de souplesse pour amener la communauté médicale togolaise à promouvoir le concept, et à l'intégrer finalement dans les programmes sanitaires des populations. Le choix d'un personnel qualifié pour mener à bien ces tâches est donc d'une importance capitale. Des missions périodiques de conseillers techniques seront utiles, mais l'appui opérationnel suivi sera aussi nécessaire.

Le Pian

Le Pian continue à être une maladie assez importante dans plusieurs zones du Togo, surtout parce que sa transmission n'a jamais pu être effectivement interrompue par le traitement systématique des contacts. Son incidence varie considérablement d'une communauté à l'autre, ce qui ne permet pas une estimation globale précise et utilisable. Néanmoins, un effort accru devrait conduire à éradiquer cette maladie dans plusieurs communautés.

Comme pour la TRO, l'élément de formation de la campagne de lutte contre le Pian sera un facteur clé. L'efficacité de la pénicilline dans le traitement et la guérison du pian est admise, mais l'importance du traitement des contacts et du suivi des malades par contre, n'est pas encore reconnu, tout au moins dans la pratique. Donc dès son départ, la

176

stratégie dans la lutte contre le pian serait de démontrer les avantages du traitement des masses sur le plan épidémiologique.

Un programme efficace de contrôle du pian d'autre part, devrait être organisé d'une façon différente. Puisque dans ce cas le dépistage et le suivi sont nécessaires, des équipes spéciales devront être formées. Ces équipes pourraient n'être que temporaires si l'on arrive à contrôler le pian dans chaque zone, et pourraient par la suite être dissoutes. Mais tout au moins, chaque agent itinérant aura fait partie de l'équipe ayant opéré dans sa zone, et il sera responsable de continuer à y surveiller l'évolution du pian. Il est fort possible que ce soit le Service des Grandes Endémies qui sont amener à jouer le rôle principal dans ce programme de contrôle du pian.

Ce programme aura besoin de l'assistance extérieure pour la pénicilline, les seringues, les aiguilles, et l'équipement de stérilisation. Il aura aussi besoin de moyens de transport. L'effort de planification et d'évaluation devra de temps en temps faire appel à des consultations épidémiologiques qui pourraient sans doute être obtenues d'un épidémiologiste régional de la LCMIC. L'assistance technique aux aspects opérationnels du programme pourrait être très utile, au moins dans un début. Si des campagnes localisées sont employées, le personnel devrait fonctionner au niveau de la subdivision sanitaire plutôt qu'au niveau national.

Autres Programmes

La vaccination contre la méningite cérébro-spinale pourrait aussi être incluse dans un programme de LCMIC, mais il faudrait dans ce cas élaborer une stratégie appropriée. Ceci est dû au fait que, bien que les épidémies atteignent surtout les enfants, pour arrêter la transmission de la maladie, il faut vacciner aussi les adultes. Malheureusement l'efficacité du

177

vaccin est de quelques années seulement, le vaccin est cher, et les épidémies sont imprévisibles.

Des épidémies du type A et B sont survenues dans les zones contigues au Nord Togo ces dernières années, ce qui préconise l'utilisation d'un vaccin bi-valent. Dans le cas de méningite du type A, on peut vacciner les enfants dès l'âge de six mois. Devant la présence des cas du type C, la vaccination des enfants de moins de 2 ans est inefficace. C'est donc le type de virus en cause lors de l'épidémie qui dicte comment la population doit être vaccinée, et il ne serait pas prudent de recommander un système uniforme.

Si un système d'alerte pouvait être établi dans l'Afrique de l'Ouest, pour donner l'alarme d'une invasion de méningite cérébro-spinale, le moyen de lutte le plus efficace serait d'avoir le vaccin sous la main et dès les premiers signes d'une épidémie, procéder à une immunisation tout autour des zones atteintes de façon à établir un cordon sanitaire et d'arrêter la transmission du fléau. Ce système serait le même que pour l'éradication de la variole. L'inclusion d'un tel système, en coordination avec l'OCCGE et les épidémiologistes régionaux de la LCMIC, pourraient bien faire partie du programme régional de LCMIC.

Si le programme de LCMIC réussit à établir un système de formation qui puisse atteindre même les agents itinérants à la périphérie du système, ce mécanisme pourrait être utilisé pour la formation du personnel sanitaire en milieu rural de plusieurs façons. Un programme de traitement du paludisme à base de nivaquine pourrait s'étendre au niveau des villages. On pourrait faire de même avec les programmes de nutrition et d'espacement des naissances. Ainsi, les connaissances curatives fondamentales de ces agents pourraient être améliorées de

178

temps en temps, tandis qu'une supervision plus fréquente et l'encouragement du personnel sanitaire périphérique devrait leur remonter la morale et augmenter l'efficacité de leur action.

Finalement, un avantage indirect du programme de LCMIC pour le système sanitaire togolais dans son ensemble, serait l'amélioration de la statistique sanitaire. Le besoin de contrôle des divers éléments du programme de LCMIC devrait produire un système de collecte et analyse de données à réponse rapide et efficiente.

NOTE CONCERNANT LA RECHERCHE AGRONOMIQUE EN AFRIQUE CENTRALE.

ZAIRE.

En 1980, le Président du Zaïre a exprimé le désir que la Belgique envisage une nouvelle relance de l'Institut de Recherche Agronomique.

A la Commission Mixte d'avril 1981 à l'Inshasa, les autorités zaïroises ont demandé à la Belgique d'envoyer une mission d'experts afin d'examiner les possibilités d'une relance des activités de la recherche agricole.

La Belgique, fort de son passé connue dans la recherche agronomique au Zaïre, et qui assure le fonctionnement du département de la climatologie et l'Institut de recherches, a accepté d'envoyer une mission technique à caractère international, car elle estime que l'importance de la relance de la recherche agronomique est telle que seul un consortium de pays donateurs peut venir à bout du problème; la Belgique estime néanmoins qu'elle peut jouer un rôle de coordination.

La *(et d'identification)*
~~Cette~~ mission a tenu compte dans son rapport que les priorités en matière de recherche appliquée sont de créer ou d'introduire, de multiplier et de diffuser du matériel végétal et animal amélioré et de l'utiliser dans les meilleures conditions possibles afin d'augmenter la production des agriculteurs et d'améliorer le niveau de vie de la population.

En tenant compte des zones de développement agricole, le rapport vise à réhabiliter un certain nombre de stations de recherche disposant encore de possibilités de recherche par l'existence d'une infrastructure entretenue, un personnel spécialisé et un matériel génétique conservé.

Pour ce qui concerne la grande multiplication du matériel amélioré, sa diffusion et sa vulgarisation, le rapport prévoit la prise en charge de ces activités par les structures existantes dans les pools de développement agricole.

x

x x

COOPERATION FOR DEVELOPMENT IN AFRICA

CHAIRMAN'S REPORT

AD HOC COMMITTEE ON ENERGY

ABIDJAN, JUNE 1982

182

1.0 INTRODUCTION

The High Level meeting held in Ottawa on September 81 deemed that an ad hoc committee on Energy should be formed with Canada to act as coordinator. The High Level group also instructed that the first meeting should be held as soon as possible.

Accordingly the first meeting of the ad hoc Energy group was held in Ottawa in January 82 and a further meeting was held on May 25 - 27th again in Ottawa. Both meetings were attended mainly by energy experts families with energy policies, program planning and project implementation. The level of the individual delegates has been extremely satisfactory and much appreciated by the chairman.

2.0 FIRST MEETING

2.1 The first meeting reviewed the C.D.A. criteria from the energy aspect and also performed a preliminary review of African energy requirements. based on these main factors the committee established its goals as listed below.

- 1) - To support national, regional and internationally-agreed programs in the energy sector in ways consistent with overall economic development including social and environmental considerations and the encouragement of regional cooperation.
- 2) - To ensure that energy activities are oriented towards fundamental needs (rural and urban).
- 3) - To ensure that projects and programs are based on sound planning.
- 4) - To strengthen African technical and institutional capacity in areas relating to energy (planning, administration, research, development, production, manufacturing, etc.).
- 5) - To use leverage provided by CDA's co-ordinated approach to mobilize supportive funding and to make the most efficient use of available funds.
- 6) - To accelerate new and renewable energy programs in support of the Nairobi plan of action and to facilitate the development of other indigenous energy resources.

183

- 7) - To complement the work of CDA in the forestry sector by supporting energy projects which would encourage the more effective use of wood fuels.

2.2 Form was then given to these goals and strategies and lists of long short term activities for the committee were arrived together with a list apparent priorities in each of the following technical subSectors :

- 1) - Energy focal points, energy planning, energy seminars, energy surveys, technical assistance and training programs.
- 2) - New and renewable demonstration projects and identification of replicable projects.
- 3) - Energy savings, including efficiency of utilization.
- 4) - Feasibility studies for regional interconnectors or energy trade.
- 5) - Large hydro feasibility studies and construction, including interconnectors.
- 6) - Geothermal feasibility studies and project implementation.
- 7) - Coal-fired thermal projects, coal as fuel-wood substitute, coal for gasification, coal for liquid fuels.
- 8) - Fossil fuels pre-exploration.
- 9) - Fuel from the biomass.
- 10) - Synthetic gas and liquid fuel production

2.3 Information was exchanged on program activities and through this channel it has now been revealed that C.D.A. members are involved in well over 250 projects for a total value in excess of \$1 billion US. Integrating activities on a program of this size, even in chosen areas of endeavour, is a formidable task.

2.4 Areas for immediate action were identified and reports were provided as follows

184

- a) Reduction of fuel-wood by U.K.
- b) Energy conservation by Canada.
- c) New and Renewable Energy by France, Germany and U.K. (not yet completed).
- d) Information exchange mechanisms by the U.S.

3.0 SECOND MEETING

- 3.1 The second meeting was held in Ottawa on May 25, 26 and 27, 1982 and the above reports were presented with agreement being reached for members concerned to formulate detailed projects for discussion with African participants at a 3rd meeting proposed to be held during the last week of November perhaps in Ottawa.
- 3.2 It was decided that early involvement of the IBRD, UN, African Development Bank and others is imperative. Representatives of these will be invited to the November meeting.
- 3.3. Preliminary identification was made of projects, already in an advanced stage of formulation by various CDA members, which could be candidates for CDA cooperation in the near term. These will be formally presented at the November meeting and they include :
- a) Large scale energy survey for West Africa (Canada)
 - b) Tanzanian 220 Kv North West Grid (Canada).
 - c) The Kagera hydroelectric project (Belgium).
 - d) The utilization of agricultural wastes in West Africa (US).

185

3.4 Following a brief presentation on energy seminars and a more extensive presentation on conservation seminars, all members endorsed the idea of proceeding to the stage of commencing the planning necessary for the implementation of energy seminars at various locations throughout Africa.

Detailed proposals will be ready for presentation at the November meeting in order to induce comments and improvement during discussions with Africans and others present.

In the event that these are well received, members who are presently seeking approval in principle in their capitals with respect to these seminars, would hope to move quickly towards implementation. Canada agreed to coordinate the preparation of this seminar program through mutual consultation with the CDA participants. It was accepted that CDA member experts should form a mixed team for the preparation and presentation of the seminars. Canada agreed to seek financing for the basic costs of the first energy planning seminar, with the CDA members picking up their own staff costs. These seminars will be offered in both French and English.

3.5 Preliminary discussions were held on training and these merely revealed the complicated nature and tremendous need and extent of training requirements in the energy sector. The US agreed to provide a report based on its own current investigations for training in the new and renewable sector and it was felt that this would be a healthy first step. Training programs for operation, maintenance and system management will probably be better identified following energy planning and conservation studies.

106

- 3.6 A proposal was accepted to investigate the practicality of having each CDA member designated to be responsible for liaising with a number of individual African countries so as to ensure efficient feedback to CDA members of the energy needs and developments in the countries concerned. The division and exact mechanism for this is still to be arranged. The arrangement is likely to accelerate identification and implementation of energy projects.
- 3.7 The UN Nairobi plan of action has been the main guide for the energy sub-committee's activities so far i.e. concentration on fuelwood economy, energy planning, energy conservation, training and regional development, and the proposed projects of CDA cooperation are either a priority for the African country concerned or are in line with the Lagos Plan of Action.

RESOURCE MOBILIZATION EFFORTS OF THE BANK GROUP

1.1 There has been a considerable increase in the level of Bank Group activities since the inception of ADB in 1967, ADF in 1974 and NTF in 1976. The rise in the level of operations is clearly reflected in loan commitments which for the entire Bank Group amounted to US\$ 3,106.4 million dollars by the end of 1981. With the rise in the level of lending operations, other activities such as co-financing and technical assistance also gained increasing importance. In conjunction with these activities, resource mobilization efforts have been undertaken in order to raise the necessary funds. Resource mobilization has therefore been a central concern of the Management.

1.2 Briefly, the main areas of resource mobilization explored in this paper are as follows:

- (i) Mobilization of resources for direct transfers both internally (i.e. changes in equity capital, reserves and surpluses) and externally (through borrowings by ADB and financial subscriptions to ADF and NTF.)
- (ii) Mobilization of resources for indirect transfers and technical assistance.
- (iii) Resource Deployment.

Mobilization of Resources for Direct Transfers

The African Development Fund

Equity Capital

1.2.1 There have been significant increases in the capital structure of the Bank since its inception. Starting with a net worth figure of US\$ 250 million, the Bank's authorized capital was doubled to \$ 500.0 million in 1975, and to \$ 1,042.5 million in 1981. By the end of 1981, this level had

again been more than doubled to \$ 2.7 billion. Actual available resources do however constitute only a small portion in the form of paid-up capital, while the greater remaining portion is callable capital which determines the bank's borrowing capacity.

2.1.2 Fundamental changes in the capital structure took place on three occasions. The first one was in 1974 when equity capital was raised to U.A. 400 million (\$ 482.5 million); the second one was in 1976 when it was again increased to UA 800 million (\$ 965.0 million) and the third one was in 1981 when it was increased to U.A. 2,385 million (\$ 2,776 million). These measures were undertaken to strengthen the Bank's borrowing capacity and to meet rising levels of resource requirements in member countries.

2.1.3 Paid up capital was relatively small during the initial years of the bank but formed a rather substantial part of subscribed capital. However, as the capital base expanded, there was a decline in the ratio of paid up to subscribed capital, implying correspondingly lower cost free resources available to the bank. This strengthened the callable capital position which in turn raised the opportunity to enhance resources from borrowings.

Internal Resources.

2.1.4 Since it was formed, the bank has not distributed profits to its shareholders - who are the member countries themselves. The amount of reserves accumulated out of profits has however tended to be small due to the developmental nature of its operations, rising financial charges and the generally generous terms and conditions attached to the loans it makes. The building up of reserves has been directly related to the level of commitments and disbursements made on them. Consequently during the initial years when the level of commitments was small, reserve accumulations were generally sluggish. Reserves rose significantly thereafter as a result of increased lending activity.

2.1.5 Reserves amounted to \$ 2 million in 1972 when loan commitments stood at \$ 35.5 million during that year. These figures rose progressively during succeeding years and by 1976 reserves and commitments stood at \$ 51.7 million and \$ 395.5 million respectively. During the following five years ending in 1981, reserves increased substantially to \$ 131 million and commitments to \$ 1,649.1 million. Although reserves were small in comparison with assets in loans, they still constituted an important basis for improving the Bank's access to the world's financial markets.

Borrowings.

2.1.6 Borrowing was not the major means of resource mobilization until after 1975 when the Bank could no longer finance its loan commitments from its own equity, surplus funds, and reserves. Thus, with the adoption of the first five-year lending programme in 1977, entailing considerable amounts of resources, the relatively minor role played by paid up capital meant that the borrowing capacity, created by the periodic enlargement in the capital stock and thereby of its callable capital, had to be used rather extensively to mobilize development capital.

2.1.7 The level of borrowings by the Bank rose from US\$ 43.4 million in 1975 to high figures of \$ 133.3 million in 1976 and more than tripled to \$ 437.8 million in 1978. Thereafter, borrowings of the Bank increased to about \$ 1 billion in 1980 and 1981. Drawdowns as a proportion of these borrowings were significant throughout 1975 to 1979 but declined to less than half the level of total borrowings during 1980 and 1981. These borrowings were mainly in eurocredits, contracted to cover commitments made. However, due to the floating rates of interest associated with them there has been little incentive on the part of the Bank to draw them down. All the borrowings from foreign governments have however virtually been drawn down as well as those contracted in the bond market.

2.1.8 The Bank's statement of Borrowings as at 31 December 1981 shows an amount of \$ 1,024.7 million consisting of \$ 21.4 million borrowed from bilateral sources (mainly Canada, Sweden and Australia), \$ 418.8 million in euro credits and \$ 340.5 million in bond issues. Other sources (e.g. Japan, ECU and fixed rate loans and short term deposits) accounted for \$ 124.0 million.

2.1.9 With the exception of bilateral borrowings from Austria which carried an interest rate of 3 percent and the first Swedish loan which carried a nominal rate of only 0.75 percent, other bilateral funds were provided on grant basis. The highest interest rates ever recorded in the Bank's borrowings relate to ADB FRN (1978)* which attracted an interest rate of 18 7/8 percent and the ADB 2-year bonds (1979) which carried an interest rate of 15 percent. Other borrowings in the bond market involved interest rates in the range of 6 to 9 percent.

2.2 The African Development Fund.

2.2.1 The establishment of ADF in 1974 was a great milestone by ADB in its efforts to mobilize resources for financing development programmes in member countries. Initial subscriptions to resources of ADF were made by ADB itself and a group of 23 non-regional countries. These subscriptions amounted to FUA 159.6 million or US\$ 171.1 million. The largest contributors to the Fund (those countries subscribing \$ 10 million or more) made available a total of \$ 104.4 million. This represented about 50 percent of total subscriptions and comprised 8 countries (Austria, Canada, France, Italy, Japan, Republic of Korea, Saudi Arabia and U.S.A.).

2.2.2 To meet increased commitments programmed by ADF additional funds were mobilized through a subsequent appeal to participating countries to contribute towards a special general increase. This appeal generated resources amounting to FUA 45.6 million or \$ 50.0 million from the bank and 12 other countries. Canada, U.S.A. and the Federal Republic of Germany together contributed \$ 26.6 million.

2.2.3 The Fund's resources are replenishable every three years. Thus, the first and second general replenishments of ADF corresponded to its second and third lending programmes. A substantial volume of resources was mobilized for the second and third programmes. These amounted to FUA 294.0 million (US\$ 315.0 million) and FUA 115.0 million (US\$ 125.0 million) respectively.

* This related to ADB borrowings in the Euro-market on floating rate of interest basis. This includes floating rate notes.

2.2.4 By the end of 1981, total subscriptions (first and second replenishment) amounted to \$ 1130.7 million. More than half of this amount (\$598.3 million) was subscribed by 4 ADF participant countries i.e. the Federal Republic of Germany (\$ 114.2 million), Canada (\$ 132 million), Japan(\$ 190.6 million), and U.S.A. (\$161.5 million). Instalment payments totalling \$ 90.2 million are still outstanding from Japan and U.S.A. in respect of their combined subscriptions.

2.2.5 Recent negotiations in Paris, related to the third replenishment, generated \$ 1,080.8 million. On this occasion again, approximately half the amount mobilized (\$ 486.7 million) was subscribed by Canada, the Federal Republic of Germany, Japan and U.S.A.

2.2.6 The table below summarizes mobilization results of the ADF.

MOBILIZATION OF ADF RESOURCES*

	<u>FUA (m.)</u>	<u>U.S.\$ (m.)</u>	<u>% of Total</u>
Original subscriptions (1974)	159.0	177.3	7.2
Special general increase (1970)	45.0	50.0	2.1
First Replenishment (1977)	294.0	327.3	13.4
Second Replenishment (1979)	667.1	809.4	33.1
Third Replenishment (1981)	1,008.0	1,080.8	44.2
Total Subscriptions 1974-1981	2,174.0	2,445.2	100.0
	=====	=====	=====

The conversion rates of the ADF unit of account used are the following:

1974-1977 : 1 FUA = U.S.\$ 1.11111
 1979 : 1 FUA = U.S.\$ 1.21129
 1981 : 1 FUA = U.S.\$ 1.07267

2.3 The Nigeria Trust Fund:

2.3.1 This Fund came into existence in 1976 by virtue of Article 6 of the Bank's statutes which permits mobilization of resources by establishing trust funds administered by the Bank. The Government of Nigeria has once replenished the fund following their initial subscription of Naira 50 million, equivalent to BUA 65.5 million or \$ 79.0 million (1976 exchange rate). The second subscription was again for Naira 50 million, i.e. BUA 65.2 or \$ 75.9 million (1981 exchange rate) of which amount the first tranche of Naira 35 million was made in October, 1981. Total subscription to NTF therefore amount to about \$ 155 million.

2.4 Other Resource Mobilization Efforts:

2.4.1 Strenuous efforts have been made in the past to mobilize resources from other sources which have hitherto been untapped, such as the oil exporting countries, and socialist countries. Regarding the first category of countries, efforts have been made to mobilize resources from the Middle East countries, such as United Arab Emirates, Qatar, Kuwait, Saudi Arabia, and from the OPEC Fund. In spite of extensive campaigns made in this regard within the context of Afro-Arab solidarity (OAU and the Arab League) and other international fora, these efforts have not yielded commensurate results. Likewise, past overtures to obtain material support from the non-aligned as well as socialist countries (with the exception of Yugoslavia's participation in ADF) have not proved fruitful. Possibilities of establishing additional trust funds have been explored. Proposals to establish such funds have recently been made to a few oil producing countries.

193

2.5 Future Resource Mobilization Efforts:

2.5.1 In its operational programme for the period 1982-86, resource requirements for the Bank Group have been estimated at \$ 8.97 billion, shared almost equally by ADB on the one hand and ADF and NTF on the other hand. Total requirements of non concessional resources (ADB) during the five year period stand at \$ 4.4 billion while the aggregate requirements of concessional resources (ADF and NTF) have been estimated at \$ 4.5 billion. The availability of the magnitude of concessional and non-concessional resources implied in these estimates will largely depend on the prospects for continued and increasing replenishment of ADF resources and on the resources that will be mobilized following the opening up of capital.

2.5.2 Pending the final ratification of the resolutions on the opening up of capital, the level of capital stock of the Bank was increased from U.A. 1,270 million (\$ 1,532.1 million) to U.A. 2,385 million (\$ 2,877.1 million) in May 1981. This was a transitional solution to provide resources for financing operations during the 1982-83 period. In 1983, the level of capital stock will be increased to U.A. 5,250 million (\$ 6,333 million) to be subscribed by regional and non-regional members in the order of U.A. 3,500 million (\$ 4,222 million) and U.A. 1,750 million (\$ 2,111 million) respectively. The non-regional members are expected to make payments of their subscriptions wholly in convertible currencies while regional members will make their respective subscriptions partly in local and partly in convertible currencies.

2.5.3 In order to increase its volume of operations during this period, it is estimated that the Bank will secure net annual borrowings as shown below:

	1982	1983	1984	1985	1986
U.S. m.	278.3	140.3	190.0	230.3	614.4
US\$ m.	335.7	169.6	228.2	277.3	493.9

(Exchange rate 1 U.A. = US\$ 1.200 at time of ratification on opening up of capital).

Best Available Document

As a result of these borrowings, the level of commitments are expected to increase and with this, reserves are expected to reach a level of a little under BUA 200 million (US\$ 241.2, or twice the current level) during the programme period.

3. Mobilization for Indirect Transfers and Technical Assistance

3.1 Past Role

3.1.1 The ADB Group played an important role in mobilizing direct transfers to member countries in the past year, but also played a catalytic role in mobilizing indirect transfers through co-financing with private and public sources as well as technical assistance and institutional support to member countries.

3.1.2 Concerning co-financing activities, about \$ 765 million or one third of ADB cumulative commitments during 1977-1981 have been directed towards co-financing. Some of the institutions involved are, IBRD, IADEA, EIB, USAID, CCCI and KfW. Most of these co-financing activities have been done with multilateral institutions with whom ADB has a broad cooperative programme. However, co-financing activities have been very limited with private institutions.

3.1.3 Technical assistance activities have also been expanded between 1977 and 1981. Out of its own resources, the ADB Group financed preinvestment studies for an amount of BUA 4.8 million and FUA 22.4 million respectively, for AIB and AIB. In addition, technical assistance resources have been made available to member countries through bilateral assistance. During the same period, 10 studies have been funded through AIB cooperative agreements with AIB State Participants for a total amount of about 1.08 million.

Best Available Document

195

3.1.4 ADB through equity participation contributed to the amelioration of the capital structure of many institutions as well as to enhance further their capability of mobilizing more resources. All institutions involved were in the financial sectors (Development Banks, Insurance, Investment Companies and more recently housing finance).

3.2 Future Role During 1982-86

3.2.1 Resource requirements for the Bank Group have been estimated at US\$ 6.97 billion. The share of ADB in total non-concessional financial flows was targeted to rise from 1.3 percent in 1982 to 1.5 percent in 1986. The corresponding figure for ADF and NTF was assumed to rise from 1.3 percent in 1982 to 2 percent in 1986. It is in this context that intensification of co-financing activities should be appreciated.

3.2.2 Through intensification of co-financing activities with traditional partners like multilateral development institutions and by closer cooperation with private institutions, the ADB Group expects to mobilise US\$ 6.10 billion for member countries.

3.2.3 As in the past co-financing with multilateral development institutions will continue to play an important and complementary role to ADB financing activities in member countries. It is also expected that the ADB will endeavour during this period to increase co-financing with private sources. This type of co-financing is expected to reach 33 percent of overall indirect financing.

3.2.4 In addition, new initiative such as co-participation financing will be developed. This type of financing consists of ADB taking a leading role in syndicated loans in projects which it identifies, organizes and supervises for the syndicate to provide projects in member countries.

Best Available Document

EVOLUTION OF INDIRECT TRANSFERS 1982-86
(million US\$)

<u>Year</u>	<u>Bank Group Estimated Commitment</u>	<u>Indirect Transfers</u>
1982	890	560
1983	1,120	800
1984	1,350	1,080
1985	1,710	1,540
1986	2,190	2,100

3.3 Technical Assistance:

3.3.1 During the period 1982-86, emphasis will be placed specially on an increased mobilization of resources for technical assistance and management of these resources in order to have a greater impact and a more effective contribution to the development of member countries.

3.3.2 The ADB Group expects to mobilise about US\$ 252 million for technical assistance. Most of these resources (\$ 155 million) will be contributed by the Group's own resources. The largest share (136) will be contributed by ADF since its terms are more adapted to this type of intervention. Bilateral sources will contribute about US\$ 100 million. This amount is much more important than contributions made earlier since more mobilization efforts will be carried out.

3.3.3 These resources will play a greater role towards funding feasibility and engineering studies, short term consultants for various activities as well as training for member countries staff.

MOBILIZATION OF BANK GROUP TECHNICAL FINANCE RESOURCES
(million US\$)

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1982-86</u>
ADB	7.8	11.5	11.7	11.4	11.8	13.1
ADF	10.2	21.5	21	30.1	31.9	136
Bilateral sources	12	15	18.4	21	27.9	98.8
TOTAL	30.0	48.0	49.0	57.0	73.1	252.9

1997

11

Best Available Document

4. Resource Deployment:

4.1 During the next Five-year Operational Programme of the Bank Group (i.e. 1982-1986), the deployment of resources will depend largely on country priorities expressed individually in their plans as well as collectively in the Lagos Plan of Action. The Bank Group's own past experience and the nature of the funds to be raised directly and indirectly will also be important factors in this respect.

4.2 Annual Commitment:

4.2.1 Starting from the last year of the 1977-1981 Action Plan, at \$ 655 million, the following annual lending commitment is envisaged in the 1982-1986 Operational Programme of the Bank Group.

<u>Year</u>	<u>Annual Commitment</u> (mil. \$)	<u>Increase</u> (mil. \$)
1981	655	
1982	890	235
1983	1,120	230
- 1984	1,350	230
1985	1,710	360
1986	2,190	480
1982-1986	7,260	207 (average)

4.2.2 The bulk of the concessional resources is expected to be channelled to least developed member countries of the Bank.

4.3 Sectoral Lending

4.3.1 Reflecting development priorities of both the Bank Group and countries in the region, the indicative sectoral lending expressed as a percentage of the total programme, is to be shared as follows: agriculture 33.5%, transport and public utilities 19.0%, industry and development banks 11.0%, health and education 9.2%, and finally new areas of lending, such as programme lending, 4.8%.

3.2 As a consequence of improvements in operational policies, the Bank Group will be in a position to make more extensive use of sector lending to facilitate the increased flow of resources to the countries. It is expected later that sector loans will be especially useful to increase absorptive capacity in such sectors as agriculture and rural development, water supply, education, health and small industries where a number of individually small activities could be usefully structured under the umbrella of a sector loan. Local cost financing has also been found to facilitate the transfer of resources and the rate of disbursements, as well as to help prevent cost overruns. This aspect has been found to be particularly desirable for Bank Group - financed projects in the social and basic needs sectors.

4.4 Operational Implications:

4.4.1 In order to carry out the increased lending programme during 1962-1965, the operational capacity of the Bank will need to expand and improve. In particular, the various stages of the project cycle, that is to say, identification, preparation, appraisal, implementation, supervision, and post evaluation activities will have to be further strengthened. Productivity of staff will need to be increased substantially. Steps to improve financial management of the Bank will need to be carried out as soon as possible.

4.4.2 The operational policies of the Bank Group will continue to evolve as necessary to meet the changing developmental conditions and needs of member countries in the region. For this reason, the operational programme itself will be subjected to periodic reviews in order to ensure that the Bank Group is fulfilling its role in Africa, and achieve its objectives.

AFRICAN DEVELOPMENT BANK
GROUP

RESOURCE MOBILIZATION EFFORTS OF THE BANK GROUP

AMDSAN
Ivory Coast

MAY 1982

200

CDA-Conference in Abidjan, 2-4 June, 1982

Federal Republic of Germany
Ministry for Economic Cooperation

Project group "Railway Programme in Southern and Eastern Africa"

As is generally known, the transport system in Southern and Eastern Africa is suffering from serious bottlenecks. The economies of these countries depend largely on the railway lines, in particular, working satisfactorily. The most important export as well as import goods of the countries concerned must be moved by rail; if major problems arise here, urgently needed receipts from the sale of goods fail to materialise and, on the other side, it becomes difficult to ensure the supply of vital goods for the people. Such problematic situations have in fact been existing on some lines of the region for a considerable period of time; on other lines, they occur time and again. The overall economy of the countries concerned is suffering from these problems to such an extent that the elimination of the bottlenecks mentioned must be given highest priority.

The member countries of CDA are agreed that the situation gives rise to concern. When the problems were discussed inside CDA, there was also unanimity that the task to be accomplished here exceeded by far the resources of an individual donor. On the other hand it was realised that the individual donors knew little about

...

201

the activities and plans of the other donors and that coordination which was really urgently required was effected only in specific cases. This finally led to the decision, at the first high level conference of CDA in Bad Honnef in May 1980, to set up a project group "Railway programme in Southern and Eastern Africa". The Federal Republic of Germany was requested to handle the business of the Group. All founding members of CDA expressed their interest and their willingness to cooperate.

The regional scope of the work of the Group covers to the member countries of the Southern African Development Coordination Conference (SADCC; so-called Lusaka-Nine-States) as well as Zaire and Rwanda. The Group considered its main tasks to be these: establishing the actual situation on the railway lines in the region; analysing the main problems; finding out current and planned activities of CDA member countries and other donors; developing priorities for future projects, and achieving a certain amount of coordination for the activities of CDA member countries in this field. The ultimate object was to achieve a more specific and thus more effective employment of the funds available. It was also understood that the Group was not qualified to give legally binding instructions; all it could do was drawing up recommendations.

The first working conference of the project group took place in October 1980 in Bonn. On that occasion, a paper "On the situation of railway in Southern and Eastern Africa" prepared on behalf of the Government of the Federal Republic of Germany by the Kreditanstalt für Wiederaufbau (KfW) was submitted and discussed. In the further course of the session, agreement on several questions

208

- Since the countries concerned are suffering at the present time from concrete problems, the Group was to busy itself less with far-reaching planning for the future than with a programme which could be tackled within the next three or four years.
- Here, the repair of existing railway lines was to have priority over the construction of new lines.
- Very great attention was to be paid to the management and to training and further training.
- Second priority was attributed to measures which go beyond the repair and expansion for the better utilisation of existing transport capacities and which would require, as a prerequisite, a considerable amount of investigations and political decisions.
- The construction of new lines would merely have third priority.
- The programme must cover, besides the railways proper, all directly related components such as access road connecting ferries (particularly in Zaire), and ports.

Subsequent to this first conference and the Maputo Conference (SATCC) in November 1980, the necessary detailed information was gathered. For this purpose, the executing organisations of the member countries exchanged the information they had and prepared new proposals. Missions went to Africa to coordinate matters with the African countries concerned. Particularly worth mentioning is the trip to Maputo which Kreditanstalt für Wiederaufbau (KfW) made in May 1981. On that occasion, the mutual ideas were discussed in detail with the Southern African Transport Coordination Committee (SATCC).

203

At the second conference of the working group in Bonn on 26/27 August 1981, a detailed programme was finally worked out and approved. It is based on the realisation that at least considerable parts of the following main lines stand in need of rehabilitation in the coming years:

- TAZARA
- Central line in Tanzania
- Voie Nationale in Zaire
- The Southern lines (railway connections in resp. between Malawi-Mozambique-Zimbabwe-Botswana).

For the lines referred to see attached sketch.

The approved overall programme was determined by the consideration to include primarily projects for which there was good reason to expect that the funds needed to support them would come forth in bilateral governmental negotiations during the next three or four years.

With this conference, the project group for railways had its main tasks fulfilled successfully. Information was exchanged to an extent achieved never before, and, on that basis, coordination of the planning of railway projects was effected among the donors and between the donors and the African countries. This made it possible for all concerned to obtain clearer ideas on needs, wishes, plans and possibilities both of the donor and the recipient side, and to gear activities accordingly.

The measures themselves will now be taken on a bilateral basis: The willingness in principle to take up certain projects as announced at the time when the overall programme was established must now be further coordinated in bilateral negotiations. The donors are willing in principle to give high priority, in their regular bilateral cooperation, to railway projects for which the African countries concerned may apply. The wealth of information obtained by the work of the project group will facilitate and accelerate the discussion on concrete approaches for action.

The project group itself is not considering at present to meet for a new conference in the near future. However, KfW has been asked to make regular inquiries with the CDA member countries regarding the present state of execution of the approved programme. In this way, the necessary flow of information is ensured.

In conclusion, the following appreciation of the work of the project group railways may be made:

Both the CDA member countries and the African countries concerned have done their best to make the work a success. As a result, this project group was the first to wind up its work. The experiences we gained in this cooperation have been very encouraging. The donors' talks among themselves were characterised by frankness and mutual understanding and the same was true for the exchange of information with the Africans. We were glad to hear that other project groups intend to let themselves be guided by the work and procedures practised in this group. Cooperation of this kind will certainly contribute towards finding solutions for the great problems of development now confronting the African Continent.

205

