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WORKSHOP ON AGRICULTURAL TRANSFORMATION IN AFRICA: ABIDJAN, COTE D'IVOIRE, SEPTEMBER 26-29, 1995

by

Moussa Batchily Ba, John M. Staatz, Laura Farrelly,
Youssouf Camara, and Georges Dimithè

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EXECUTIVE SUMMARY

As Africa approaches the new millennium, throughout the continent there is an emerging need to create an environment that enables members of civil society to contribute fully to sustainable economic and social development. As many countries move away from the model in which the state tried to do everything, it is clear that there needs to be much broader participation of various actors in the development process. This transition to a more participatory approach, which is taking place at different speeds depending on national, regional, and international conditions, can only occur if there is a rethinking of development approaches in all areas, but particularly with respect to agriculture.

At the initiative of USAID, the ADB, MSU, and INSAH, 40 researchers, policy makers and private-sector entrepreneurs from 19 countries, representing 20 African and international organizations, met in Abidjan for a continent-wide workshop to debate issues related to transformation of African agriculture. This meeting was hosted by the Ministry of Higher Education and Scientific Research of Côte d'Ivoire.

The Abidjan workshop built on previous discussions organized by Winrock International, the World Bank, USAID (AFR/SD/PSGE/FSP) and IFPRI concerning the key challenges (food insecurity, poverty, and environmental degradation) that need to be addressed while fostering a structural transformation of African agriculture. In 1992, Winrock International held a seminar in Baltimore, financed by USAID (AFR/ARTS), to examine these questions. A large number of North American analysts participated in this meeting. One of the principal conclusions was that there existed appropriate agricultural technologies already "on the shelf" that would allow African agriculture to grow at 4% annually, but that the adoption of these technologies was often hindered by unfavorable macroeconomic and sectoral policies. At that time, World Bank analysts had argued that a 4% agricultural growth rate was needed to stimulate fast enough overall economic growth to allow meaningful increases in real income and a reduction in poverty.

In 1993, USAID (AFR/SD/PSGE/FSP) hosted a workshop in Harare that brought together a group of African analysts to examine these same problems. The Harare group, less convinced of the widespread availability of appropriate technologies for all regions of Africa, raised the issue of the potential serious negative effects of structural adjustment programs on African agriculture. The workshop participants in Harare therefore recommended that USAID: (1) commission specific studies on the impact of agricultural policy reforms in various African countries, (2) encourage more attention be given to the development and promotion of agricultural technologies appropriate for specific agro-climatic zones, and (3) foster a re-examination of the relationships between the NARS and the CGIAR in order to assure that the technologies developed in the international research centers are adapted to the specific needs of different localities in Africa.

The recommendations of the Harare workshop served as the starting point for the workshop in Abidjan. The organizers commissioned papers on the recent experiences with agricultural transformation in Zambia, South Africa, Malawi, Ethiopia, Tanzania, Ghana, and the Sahelian countries. The Abidjan workshop also drew on the results of a workshop organized in Senegal in

December 1994 by IFPRI, which examined the difficulties encountered in the elaboration of long-term agricultural development strategies in Africa.

The Abidjan workshop attempted to go beyond these previous meetings by concentrating on identifying the specific investments and policies that African governments, firms, and international organizations and donors could undertake in the short and medium term to encourage sustainable economic and agricultural transformation. The challenge was to identify specific ways in which to foster the structural transformation of agriculture in African countries. This transformation would then stimulate broad-based economic growth while at the same time assuring improvements in food security, poverty reduction and environmental protection.

The discussion and debates in the workshop were organized around three modules:

- The first module dealt with the basic issues and challenges involved in agricultural transformation. These were introduced through three presentations, followed by discussion.
- The second module dealt with the case studies and experiences with agricultural transformation in different regions of Africa.
- The third module consisted of discussions in small working groups.

From this sharing of experiences and the discussion in the working groups there emerged a consensus that three broad areas need to be addressed in order to foster the structural transformation of African agriculture: **policies, investments, and technologies**. More specifically, the participants came to the following conclusions:

- In order to ensure a sustainable process of agricultural transformation, African countries can no longer afford to put off the necessity of critically reexamining their macroeconomic policies. The case studies show that in most of the countries, structural adjustment programs have been launched. Intended to stimulate market-driven economic growth, these programs have had mixed results in most of the countries. It remains nonetheless true that certain countries have achieved substantial progress in the implementation of these programs.
- Improvements in the system of governance are absolutely imperative. Specifically, there needs to be transparency in the design and implementation of policies, through greater involvement of farmers, who are the main actors in the system and the intended beneficiaries. The diagnoses and outlook for these countries that emerged from the case studies point to the need to make such changes as soon as possible.
- Substantial national public investments, specifically in infrastructure, that are complementary to the agricultural policy reforms constitute important measures that can contribute decisively to the structural transformation of African agriculture. These

investments should come mainly through the mobilization of domestic resources and through increased competitiveness of products on the national, regional, and international levels.

In order to foster agricultural transformation, these countries also need to undertake actions that are complementary to the infrastructure investments, notably those necessary to reach an annual minimum agricultural growth rate of 4%. They also need to accelerate regional integration (specialization by region and inter-regional trade) as a key element in their transformation strategy.

- Because there is no universal solution, it is absolutely necessary to take account of agro-ecological differences across zones when developing alternative strategies for sustainable structural transformation of agriculture. The participants in the Abidjan workshop identified six zones on the basis of objective criteria. The classification proposed by the workshop has several advantages: It helps to guide the development of technologies and the definition of programs to manage natural resources. It facilitates examination of questions regarding comparative advantage and specialization. Lastly, it is useful in formulating general policies.

In summary, the participants identified three key dimensions necessary to foster agricultural transformation: **the full involvement of farmers, an approach based on regional integration, and the mobilization of domestic resources.** These are key missing links that are necessary to accelerate the process of agricultural transformation in Africa.

The structural transformation of agriculture also will require a better understanding of certain bottlenecks that reinvigorated national agricultural research systems will have to attack. With respect to this issue, the workshop participants identified key research questions to be addressed in the coming two years. These issues were put together in the form of an analytic agenda. Such research would allow the different workshop participants to work in an informal network, participate in similar research efforts, and to then meet to evaluate their common experiences.

Finally, the workshop recommends that the ADB, USAID, and other development partners be asked to support this process, which will in the end help them to justify the need for their own involvement and kindle new enthusiasm for agricultural transformation in Africa.

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LIST OF ABBREVIATIONS

ADB	African Development Bank
AFR	Africa Bureau of the U.S. Agency for International Development
ARTS	Office of Analysis, Research & Technical Support of Africa Bureau, USAID
CFAF	CFA Francs
CGIAR	Consultative Group for International Agricultural Research
CILSS	Comité Permanent Inter-état de Lutte Contre la Sécheresse au Sahel (Permanent Inter-state Committee to Fight Drought in the Sahel)
COMESA	Common Market of Eastern and Southern Africa
ECOWAS	Economic Community of West African States
FSP	Food Security Division & Productivity Unit of Africa Bureau, USAID
IFPRI	International Food Policy Research Institute
IARCs	International Agricultural Research Centers
IGAD	Intergovernmental Authority on Development (Autorité Intergouvernementale sur le Développement)
INSAH	Institut du Sahel
MSU	Michigan State University
NARS	National Agricultural Research Systems
NGO	Non-governmental organization
PRISAS	Programme Régional de Renforcement Institutionnel en Matière de Recherche sur la Sécurité Alimentaire au Sahel (INSAH)
PSGE	Productive Sector Growth & Employment of Africa Bureau (USAID)
REDSO	Regional Economic Development Support Office

SADCC	Southern Agriculture Development Coordinating Committee
SAP	Structural Adjustment Program
SD	Office of Sustainable Development, Africa Bureau (USAID)
USAID	United States Agency for International Development
WCA	West and Central Africa

1. INTRODUCTION

The public and private-sector decisionmakers who participated in the Abidjan workshop reached a consensus that structural transformation of agriculture in Africa is necessary in order to serve as the catalyst for overall economic growth. (See box 1 for the definition the structural transformation of agriculture.) This growth is indispensable in order to assure food security and reduce poverty, while at the same time promoting environmental protection. This overall theme of Agricultural Transformation in Africa served as the terms of reference for the workshop held in Abidjan on September 25-29, 1995 at the Golf Hotel, under the joint initiative of the ADB, USAID, INSAH, and MSU.

Box 1: Structural Transformation of the Agricultural Sector

Every country in the world that has substantially increased per capita incomes has done so through a *structural transformation* of its economy. Structural transformation refers to a process in which greater and greater proportions of GDP and employment are contributed by sectors other than production agriculture. In other words, while remaining an important sector of the economy in absolute terms, the relative contribution of agriculture in terms of GDP, employment and foreign exchange earnings becomes smaller. This process is induced by (1) gains from specialization, regional and international trade, and scale economies, (2) increase in agricultural productivity at the farm level, and (3) the fact that the income-elasticity of demand for non-processed agricultural products is less than one and thus grows more slowly than do incomes (Engel's law).

The process of structural transformation of the economy depends in turn on transformation of the agricultural sector. *Agricultural transformation* is a process in which (1) agriculture becomes increasingly reliant on input and output markets, (2) it integrates more fully with other sectors of the economy, and (3) local producers in the food system are increasingly incorporate modern scientific knowledge into their practices. As integration between agriculture and other sectors of the economy increases, the sources of agricultural growth shift progressively from mainly extensification and increased use of labor to the use of new knowledge that originates off the farm (e.g., new technologies, management practices, and institutions).

Realizing these changes requires important investments in the development of human resources and the creation of mechanisms to mobilize public and private resources for development of the complementary infrastructure necessary to draw full advantage from these new sources of growth. These mechanisms also need to assure the transmission of the productivity gains to other sectors of the economy through production and consumption linkages.

SOURCE: John M. Staatz. 1994. *The Strategic Role of Food and Agricultural Systems in Fighting Hunger through Fostering Sustainable Economic Growth*. Department of Agricultural Economics Staff Paper No. 94-39. East Lansing: Michigan State University.

Building on a series of previous meetings on this topic (in Baltimore in 1992, Harare in 1993, Senegal in 1994, and others), this workshop brought together representatives of agricultural producers' organizations, NGOS, researchers, and decision makers from the different regions of Africa as well as from the North. (See Annex I for the list of participants.) The participants were expected to formulate recommendations that would address **what should be done** and **who should do what**, while at the same time identifying themes for future research that would be innovative and add value beyond the previous reflections on this topic.

The workshop's official opening ceremony was presided over by a representative of the Minister of Higher Education and Scientific Research of Côte d'Ivoire, in the presence of the representative of the ADB, the Director of USAID/REDSO/WCA, the Director of the Food Security unit of Africa Bureau of USAID/Washington, and the representative of the Executive Secretary of CILSS.

Speaking before the representative of the Minister, the representatives of the ADB, USAID, and CILSS each expressed the hope that the workshop would deepen the reflections on the structural transformation of agriculture in Africa by formulating innovative recommendations and approaches for all the various actors and partners involved.

Proceeding to the opening ceremony of the workshop, the representative of the Minister welcomed the participants. He praised the initiative of organizing such a meeting and said how satisfied his country was to see such a meeting being held in Abidjan. He noted that the workshop's theme was of burning importance given current challenges facing Africa. These include improving food security, reducing poverty, and assuring protection of the environment. The representative of the Minister expressed confidence that the sharing of experiences would allow the identification of new actors in the process and their respective roles and to specify the policies and investments that governments, firms and organizations will need to undertake in Africa to support the process of agricultural transformation from this point onward.

Following this opening ceremony, the workshop adopted its agenda (see Annex II). The work was organized into three modules:

- The first module dealt with the fundamental questions surrounding the structural transformation of agriculture. These questions were introduced by three presentations, followed by debate.
- The second module dealt with case studies and experiences of different geographic zones in Africa.
- The third module consisted of discussions in working groups.

At the end of the first two days, specific points that were not yet resolved were formulated into terms of reference, which were given to three working groups. (The terms of reference and the composition of the groups are given in Annex III.) The following groups were formed:

Group 1 dealt with technological aspects, in particular, determining criteria for classifying agro-ecological zones, the use of appropriate technologies (by zone), and the geographical distribution of production.

Group 2 was interested in investment, putting particular emphasis on problems of financing and access to credit.

Group 3 dealt with institutional aspects and policies (notably macroeconomic and sectoral policies), land tenure, and regional integration and cooperation.

In addition to these questions, all the groups were asked to address the following cross-cutting questions:

- the impact of structural adjustment programs (SAPs) and the degree of implementation of the reforms;
- the actors involved (who should do what--i.e., roles, organization, and arrangements for participation and coordination);
- communication (how to convey the recommendations and the findings of research efficiently); and
- a final plenary session was devoted to approving the conclusions of the workshop. Material in the following chapters help facilitate an understanding of the workshop's main results.

2. THE FUNDAMENTAL ISSUES OF TRANSFORMING AFRICAN AGRICULTURE

The fundamental issues concerning the structural transformation of African agriculture were introduced by three papers, which served as a basis for the subsequent discussion.

The first presentation was that of Ousmane BADIANE of IFPRI. This organization had published a study entitled “A 2020 Vision for Agriculture and the Environment in Sub Saharan Africa..” This publication grew out of a discussion of African experts who met in Dakar in December 1994. It clearly identified the challenges facing African agriculture while proposing the structural transformation of African agriculture as a strategic objective and highlighting the key choices that have to be made. With regard to the current challenges (food insecurity, poverty, environmental degradation), IFPRI identified five objectives:

- Significantly reduce (by 50%) the absolute number of the poor.
- Eliminate chronic malnutrition among children.
- Increase the agricultural growth rate to at least 4% per year, in order to launch a process of overall economic growth that is necessary to significantly increase per capita incomes.
- Halt environmental degradation.
- Reduce the rate of population growth even if the impact of such a reduction will be felt only after many years.

Attaining these objectives will require that structural and policy questions be addressed, each of which has both internal and external dimensions. The 2020 vision proposes to address these critical choices through the following strategic actions:

- Improve the quality of governance systems, including increased transparency in the adoption of policies.
- Undertake important national public investments in agriculture, largely through mobilization of domestic resources.
- Involve the poor and malnourished in the process of elaborating programs and not simply as the beneficiaries of programs (such as targeted subsidies).
- Increase the competitiveness of local products at the national, regional and international levels.

According to this study, a critical re-examination of macro-economic policies is imperative in order to see their impact on these strategic actions, and this re-examination needs to be undertaken without delay. A number of diagnostic studies and projections indicate that there

really are no alternatives to adopting these actions, particularly if Africa is to attain a minimum annual agricultural growth rate of 4% .

The second presentation was that of Lual DENG and his colleagues from the ADB. It was entitled "Agricultural Transformation in Africa: The Missing Links." This paper identified two critical missing links in the strategies used up to now to try to promote structural transformation of African agriculture. The authors stressed that:

- most of the efforts undertaken up to now to promote agricultural transformation in Africa have emphasized the role of improved technologies and policy reforms.
- these approaches have not paid enough attention to:
 - the necessity to empower African farmers and involve them in the process of development and diffusion of new policies;
 - the critical role of regional integration (specialization by regions and inter-regional trade) as a key element in a transformation strategy. Traders represent a vital link between farmers in the process of regional integration, and thus can play a central role in allowing African countries to move from their current strategies of food self-sufficiency towards food security strategies based on regional trade.

The authors argue that empowering the farmer is a fundamental necessity. This implies that farmers need to be fully involved in the strategic choices and decisions concerning agriculture, such as those concerning technologies and investments, and in sharing in the benefits of the subsequent growth.

The need for greater economic integration is also undeniable. Deng and his co-authors question, however, how far African countries have gone in actually trying to achieve this oft-cited goal. They argue that economic integration needs to be accelerated in order to create an internal market in Africa that would justify and reward the efforts that will be necessary to increase productivity and competitiveness.

The third presentation was that of Dunstan SPENCER, dealing with "Past Trends and Future Prospects for Agricultural Development in Sub-Saharan Africa." He examined alternative strategies for sustainable agricultural transformation in Africa, distinguishing between agro-ecological zones. Apart from South Africa and Nigeria, which have their own particular characteristics, Spencer proposes to divide sub-Saharan Africa into 4 distinct zones: Center-West, North, East, and South. Spencer's central arguments are that it is necessary to:

- develop specific strategies for each agro-climatic zone, as there is no single approach that will guarantee success in all zones of Africa;

- increase investments in infrastructure even though, according to Spencer, the Asian model of a Green Revolution is not replicable in Africa. This increased investment will require substantial mobilization of domestic and international resources. To this end, farmers need political empowerment to assure that an adequate proportion of national resources is invested in the agricultural sector;
- opt for a strategy that includes three alternative scenarios:
 - Invest in the high-potential regions of East and Southern Africa in order to create an Asian-style Green Revolution based on maize and wheat. To realize this objective, an annual investment of approximately US \$5 billion would be necessary. Spencer stresses that even with this level of investment, the resulting production would not be sufficient to meet completely Africa's projected food deficit in the year 2020. Besides, according to the author, Africa doesn't have access to the resources necessary to the apply the Asian model (see Box 2).
 - Follow, the same approach as outlined above, but applied also to the Sahel. In order to realize this objective, it would be necessary to increase investment in irrigation in the Sahel by approximately U.S. \$600 million per year. As above, this investment would not be sufficient to meet the food deficit in the year 2020, and Africa lacks the resources to apply this model.
 - Follow broad-based strategy involving an increased investment of at least US \$1 billion in national agricultural research and extension systems. This investment would permit them to continue their internal reforms, become more productive, and develop technologies that are endogenous and adapted to local resources, while still using certain external inputs such as chemical fertilizer.

Spencer estimates that this broad-based strategy should permit Africa to meet its food deficit by the year 2020. It remains to be seen what the response of the NARS would be to such a program and whether this level of investment would lead to an annual agricultural growth rate of 4%.

Box 2: Is the Asian Path Replicable?

Spencer's paper raises the issue that in order for Sub-Saharan Africa (SSA) to follow the Asian path, using the same types of intensive Green-Revolution technologies, there needs to exist a set of enabling conditions, such as those that existed at the onset of the Green Revolution in Asia, which could help to fuel a similar revolution in Africa. A fundamental question raised is whether or not these conditions exist, and if not, what is the likelihood that SSA could create a set of enabling conditions similar to that of Asia? Spencer estimates that in order to bring the rural road network/population density in the high potential South and East zones by the year 2010 to a level equivalent to that of India in the early 1950s, 766,000 km of rural roads would need to be built. This endeavor would require a total investment of \$38,290 million or approximately \$5,380 million annually. In those same zones, use of fertilizer would need to increase from 20kg/ha today to 70kg/ha by the year 2010. In order to increase the area under irrigation in the North region to a level equivalent to India's in the 1950s, it would require an increase of roughly 150% and the total investment needed would be \$4270 million (\$600 million annually). In other words, an incremental annual capital investment equivalent to about 10% of SSAs agricultural GDP would be necessary in the high potential zones of SSA in order to create the enabling conditions that would facilitate the use of Green Revolution technologies.

Is it feasible for Sub-Saharan Africa to achieve a similar level of investment in infrastructure and increase in the use of purchased inputs by the year 2010 as that of Asia in the 1950s? If so, will it produce the desired result, that is, the closing of the food gap in SSA?

Spencer argues that such investment is not feasible on macro grounds. Even if it were, it would still leave large food gaps by the year 2010. Spencer therefore argues that a much more productive path would be to invest heavily in national agricultural research systems (NARS), with the aim of producing locally adapted technologies that are less dependent on imported inputs and high levels of infrastructure.

SOURCE: Dunstan Spencer. Past Trends and Future Prospects for Agricultural Development in Africa.

Out the discussions and debate that followed these presentations, the participants reached a general consensus about the necessity to:

- develop strategies to transform the agricultural sector in African countries over the next 25 years;
- identify the key missing links in the structural transformation process of African agriculture in order to go beyond the search for single solutions for all of Africa;
- consider more specific approaches for each of the different zones of Africa.

At the end of these discussions, there remained key unanswered questions about the strategies needed to transform African agriculture. These questions were further discussed by the working groups without being entirely resolved. They deserve further reflection, which ought to be carried out in each country as an integral part of the design of its overall development strategy. These questions include:

- What criteria should be used to stratify countries in order to carry out detailed cross-country analysis of agricultural transformation (agro-ecological zone, sociopolitical context, etc.)?
- What roles should different actors play (the state, NGOs, private sector, civil society) in the structural transformation process of agriculture? A balance needs to be struck between a pure *laissez-faire* approach and the *dirigiste* approach of the omnipresent state, while determining new roles for collective action and acknowledging the wide variety of forms that it can take.
- What are the potential conflicts among different objectives related to the agricultural transformation (for example, between protection of the environment and growth, or between different patterns of growth)?
- How to establish priorities among the different objectives:
 - between sectors;
 - within the agricultural sector.
- What structure of land tenure and size of farm should be promoted? How can new types of agricultural units be promoted that will be dynamic elements within the system?
- What is really meant by the concept of “broad-based development”?
- What sort of strategic planning should be adopted? Going beyond a simple strategy, how should the problem of the sequencing of actions be addressed in order to promote transformation? In other words, what should be done and in what order?
- How will the spatial distribution of the population change over the next 25 years (urban/rural, and among agro-ecological zones) and how will this new distribution affect the structural transformation of agriculture?
- What alternatives exist for developing and promoting new technologies? What role should be played by the private sector and public investment?

- How can information about the factors impeding structural transformation of agriculture be communicated in a more convincing manner to various decision makers (government officials, businessmen, etc.)?

Out of the discussions in the working groups, emerged three dominant themes: **policies, investments, and technologies**. These three themes are interdependent in that the adoption of good agricultural policies reflects in part the quality of investment priorities that have been chosen, but it also depends on the quality of available technologies.

However, the workshop participants concluded that in order to capture the synergies between policies, investments, and technologies, inter-sectoral coordination is necessary in order to avoid the dispersion of efforts currently seen in many countries, where policies are designed and implemented, but with few positive results. It's also necessary to promote coordination of investments between different ministries (e.g., transport and agriculture) and between government and the private sector (Dapaah 1995 and Gebre et al. 1995). This coordination is also necessary in the area of research in order for research to contribute significantly to agricultural transformation. Research coordination is needed both within geographical zones, where the basic problems are common, and between the national and international research systems.

3. AGRICULTURAL TRANSFORMATION: POLICIES

The workshop participants argued that “neolithic” agriculture, which relies entirely on home produced inputs and is still practiced in Africa, needs to be rapidly bypassed if the continent is to achieve food security. In order to achieve this goal, the development of long-term policies and strategies is absolutely necessary.

3.1. Country Experiences

To delve into the issues of policies and strategies, the workshop examined the experiences of the following regions and countries:

- Southern Africa: Zambia, Malawi, and South Africa
- East Africa: Ethiopia and Tanzania
- West Africa: Ghana and the Sahelian countries

These case studies show that in most of the countries, macro-economic and sectoral reform programs have been implemented. Nonetheless, the performance of these adjustment measures remains in question.

The reform programs have been undertaken in the context of structural adjustment programs (SAPs). These adjustments have involved:

- macro-economic stabilization;
- trade liberalization;
- exchange-rate reforms;
- institutional reforms (including marketing reforms, privatization, regulatory and judicial reforms, and financial reforms); and
- reforms in investment codes.

Designed to favor market-driven growth, these adjustments have had mixed results. Even though certain countries such as Ghana and Zambia have realized some progress in implementing adjustment programs, in general, the studies show that progress has been quite variable and not very satisfactory in most African countries with respect to:

- exchange rate, monetary and fiscal reforms
- institutional reforms, and
- financial reforms.

The degree of progress observed depends on the degree of political will, the speed of implementation, and the sequencing of specific actions in the different countries. While these reforms may have established a solid base for future progress, their impact in terms of accelerating agricultural transformation has been disappointing, especially given the key role that agricultural transformation must play in Africa. Given this finding, what should be done?

According to the workshop participants, the weak performance of the reforms vis a vis agricultural transformation is due to the following factors:

- structural and institutional rigidities (prices, land tenure, infrastructure);
- lack of political will (e.g., the case of Zambia until the mid 1990s);
- instability due to highly variable weather;
- attitudes of various actors towards the agricultural reforms, which leads to behaviors based on their distrust of the changes;
- insufficient policy response to exogenous factors (such as questions of trade, natural risks, emergence of new trading blocs outside of Africa, the development of synthetic substitutes for African agricultural exports, and the debt burden);
- inadequate long-run supply response for non-tradeable products;
- weak capacity to design and implement policy reforms; and
- the lack of coordination among reforms across countries (see Box 3).

Box 3: Coordination of Reforms across Countries

One of the objectives of the structural adjustment programs adopted by many African countries is to align the prices of their domestic resources with opportunity costs on the international market. These programs include reductions in taxes and subsidies aimed at inducing farmers, traders and other entrepreneurs to allocate their investments in those sectors of the economy in which the country has a comparative advantage. However, problems can arise when these same reforms are undertaken in neighboring countries at different rates. This is the case for many sub-Saharan African countries, where unofficial trade flows through porous borders can easily influence the performance of national reforms. The case of reforms undertaken in Zambia illustrate this problem well.

At the beginning of the 1990s, the Zambian government abolished its agricultural subsidies at a more rapid rate than did its neighboring countries, in particular Zimbabwe and South Africa. Notwithstanding the abolishing of the subsidies, Zambian officials had hoped that the country would have a logistical advantage in exporting maize to several African countries, particularly Congo-Kinshasa, Malawi, Rwanda, Burundi, part of Tanzania, Angola, and Mozambique. However, the rapid liberalization of prices created disparities that hurt the performance of the new policies. These negative effects were accentuated by the porousness of the borders. Scott shows, for example, that one of the perverse effects of this policy was the increase in illegal, informal trade of rice, flour, and several other agricultural products from Zimbabwe. Similarly, the border between Zambia and Congo-Kinshasa, along the Luapula River, is the main route for illegal exports of maize flour. Maize grain is illegally exported to Malawi through the region of Lundazi. Another example of the perverse effects of the policy differences between neighboring countries is the increase in illegal exports of maize flour towards Namibia along the Zambezi River in response to increases in the maize prices (compared to the regional average) announced by the Namibian government in order to promote national production.

SOURCE: Guy Scott. Agricultural Transformation in Zambia: Past Experience and Future Prospects.

In this context, the workshop recommends that governments adopt programs, complementary to the SAPs, that translate the governments' desire to move out of the current stagnation into concrete actions, such as encouraging growth of investment in infrastructure and better land use. Similarly, it is important that policies and programs encourage an appropriate mix of investments and create incentives to eliminate the harmful effects of non-price rigidities.

In addition, the participants recommend that, with regard to specific programs, it is important to:

- Promote a favorable policy environment. This includes, in particular, adopting key aspects of good governance, of which transparency, participation, and the delegation of responsibilities are elements that reinforce the economic reforms currently underway. (For example, beginning in the mid 1990s Mali began efforts to create transparent, local units

of government and to decentralize research and extension.) Particular attention needs to be paid to countries just emerging from conflict.

- Adopt positive attitudes and approaches with respect to the reforms: maintain high-level government involvement to assure systematically that there is consistency and continuity in the implementation of the reforms. An example of policy inconsistency was cited for Mali, where despite the devaluation, price policy is handicapped by inconsistency across policies within the cotton subsector. Producer prices continue to be fixed, while there is a liberalized market for local consumption of cotton, but not for exports.
- Reconsider current land tenure arrangements. Grosso modo, in Africa, one sees the following patterns: (a) bimodal distribution of land, (b) a lack of access to land for some rural residents, (c) poorly defined property rights (communal lands), and (d) land fragmentation. To the extent that these different arrangements constitute constraints to agricultural transformation, measures need to be taken to adopt transparent and precise rules governing access, ownership, and use of land.
- Limit the effects of exogenous factors. The results from economic policy reforms in Africa continue to be strongly affected by exogenous factors such as drought and natural disasters, shifts in the terms of trade, the existence of new trading blocks outside of Africa, and the development of new synthetic substitutes for African agricultural exports.
- Reduce the effects of unfavorable external factors (such as declining terms of trade), the workshop recommends:
 - the easing of policy measures which implicitly or explicitly tax agriculture exorbitantly;
 - increasing the value-added to products before export, for example through increasing the quality of exported products;
 - the undertaking of collective actions to gain access to new markets within the new trading blocks.

In addition, in order to deal with the unfavorable consequences of drought, the workshop recommends:

- the creation and strengthening of early warning systems, the pre-planning of drought and famine mitigation activities, and the development and strengthening of market information systems;
- the promotion of intra-African trade by abolishing artificial trade barriers between local markets and across borders.

- Work to overcome the limited availability of resources. Relax resource constraints by:
 - innovative reciprocal debt swaps that favor agriculture (reciprocal debt agreements for agriculture and for infrastructure);
 - efforts to attract private, especially domestic, investment as part of a domestic resource mobilization strategy.

More broadly, the workshop recommends:

- developing analytic capacity to plan and carry out improved policies. A way to help guarantee the success of the policy reforms lies in reinforcing local analytic capacity.
- consolidating regional economic integration. African countries recognize the importance of regional economic integration. They have created several regional and sub-regional groupings, such as ECOWAS, SADCC, COMESA and IGAD. Unfortunately, for diverse reasons, these groupings have experienced real difficulties. They still have to prove their efficiency.

With regard to these difficulties, the participants noted that African food and economic systems are strongly tied to the North, to the detriment of intra-African trade. The consequence is an incapacity to take advantage of intra-African comparative advantage and specialization with regard to agricultural production and trade. The absence of regional infrastructure to facilitate intra-regional trade, the existence of tariff and non-tariff barriers, and the lack of competitiveness of products produced at the regional level also help explain these difficulties. Numerous examples were cited during the workshop to illustrate this situation, such as the failure of Senegal to exploit the potential export market for peanut oil in Nigeria.

3.2. Conclusions

In summary the participants draw the following conclusions from their review of the case studies:

- In most African countries reforms have been undertaken to foster agricultural transformation. Nonetheless, these reforms remain stuck in a short-term vision and face problems of investment, financing and access to land (land tenure issues). The case of South Africa was cited as an example (see Box 4).
- There is very weak coordination among actions taken at several different levels.
- The arrangements to assure participation and control by the various actors need to perform better and be more transparent.
- The lack of dynamism in the process of regional integration constitutes a serious handicap to the process of transformation.

Finally, the workshop concluded that its necessary to recognize that the structural adjustment programs can produce either positive or negative social, environmental and production effects.

Box 4: Structural Transformation of the Agricultural Sector in South Africa

The agricultural sector of the South African economy has been marked by a long period of massive direct state interventions in its organization and management. These interventions were defined through several laws (e.g., the Agricultural Acts of 1913, 1936, 1939, and 1970). This phase of interventionist policies reached its high point at the end of the 1970s through laws and regulations that in effect guaranteed the white minority control over and access to natural resources (more specifically, the best land), capital and labor, as well as to agricultural product markets. These measures to segregate the rights to access and ownership between whites and blacks in effect restricted the majority of black farmers to the role of hired laborers. The policies implemented in South Africa since 1913 also encouraged agricultural production systems that had negative environmental effects and research and extension systems that were designed to serve large farms managed by whites. Two consequences of the cumulative effects of all these measures were: (1) an increasing gap between the cost of production and the price paid to small farmers, which translated into growing indebtedness of small farmers; and (2) food insecurity among many consumers.

In order to reverse this trend, South Africa has undertaken, at its own initiative, a restructuring program since the beginning of the 1980s. It is thus one of the rare African countries to initiate a structural adjustment program for its economy without the sponsorship of the World Bank and the International Monetary Fund. In particular, the governments that preceded the National Unity Government [in place in 1995] initiated a vast program of privatization during the end of the 1980s. Cyclical factors, the political transition, and uncertainty regarding the political stability of the country complicated the implementation of the reforms. In particular, these reforms ran into resistance from non-parliamentary political groups and many unions, with the result that the reforms were suspended and then reoriented towards marketing reforms and deregulation. Nonetheless, the debate over privatization has re-emerged on the political-economic scene in South Africa.

It should be noted, however, that the changes in agricultural policies were themselves induced by the liberalization of the financial sector and its positive effects on interest rates, on agricultural credit, and on input costs. The positive effects of the restructuring and readjustment programs undertaken since the 1980s have resulted in, among other things, an improvement in the financial situation of small farmers and a dramatic change in South African agriculture at the beginning of the 1990s.

Nonetheless, because the systems of research and extension were designed to serve large farms managed by whites, the need to reorganize these systems to support small farmers has become apparent. This need has raised concerns among South African officials about whether these structures have the capacity to reform themselves and whether these small farms have the capacity to assure the country's food self-sufficiency. These concerns are reinforced by the fact that such a reorientation of agriculture implies the need to deal with the difficult problem of changing the land tenure system the country inherited from the Apartheid era.

SOURCE: C.J. van Royen, J.F. Kirsten, J. Van Zyl and N. Vink. Structural Adjustment, Policy Reform and Agricultural Performance in South Africa.

4. AGRICULTURAL TRANSFORMATION: INVESTMENTS

A theme broadly shared by the workshop participants is the need for massive investments in the African agriculture sector, notably in areas such as production, processing, and marketing, including related sectors such as transportation. For these investments to be effective, the workshop has identified certain principles to help guide them:

- The investments must increase the agriculture sector's competitiveness.
- Farmers must have effective voice in and be fully associated with the decision-making process. Particularly, they must have freedom of choice regarding the types of investments with which they are associated, and the investments must increase the profitability at the farm level.
- The investments must be sustainable.
- A solid partnership needs to be created between farmers, investors (including the producers themselves) and policy-makers by developing the institutional mechanisms that will strengthen the ability to identify, plan, execute, monitor and evaluate the various investment programs. This also implies a partnership between these members in their choice of investment sources and in innovative ways to mobilize these investments.

The needs must be debated to focus on the right choices. In this regard, the participants stressed that a "food systems" perspective needs to guide discussions of agricultural transformation in that the agricultural transformation involves changing a series of physical transformations in the food system that are inter-linked by transactions (cf. Boughton et al.). Also a decision-tree approach to priority setting needs to be established.

4.1. Sources of Financing

In discussing relevant sources for financing the investments in agriculture, the workshop stressed the importance of considering domestic as well as foreign sources. Concerning domestic sources, the workshop noted that private funding may come from:

- Agricultural sources (labor, equipment, liquid assets, human resources through education),
- The commercial sector,
- Communal resources (direct or used as collateral),
- From NGOs.

The participants noted, nonetheless, the importance of also reflecting on what role farmers' self-financing of agricultural investments can play relative to commercial financing, by asking the following questions:

- How can self-financing be increased (importance of retained earnings and the mechanisms to channel them into the agriculture sector)?
- What are the appropriate policies that can help mobilize investments from the private sector by making available information about such opportunities?
- What sorts of policies could induce the private sector, including the producers themselves, to invest in areas traditionally financed by the private sector (e.g., by adapting the AGETIPE approach, used in the urban centers of most Sahelian countries, for rural investments. See Box 5.)

Box 5: Agencies for Carrying Out Public Works and Employment Generation (AGETIPE)

Traditionally, one of the challenges in carrying out public works is to assure good performance by the executing agency, typically a government organization. The World Bank has pioneered an approach, the AGETIPE (Agences d'Exécution de Travaux d'Intérêt Public pour l'Emploi), which promotes efficient public works with strong job creation. The basic notion is one of subcontracting: rather than the state itself undertaking a major public work (such as road construction), it enters into a performance-based contract with a private agency, which in turn acts as a general contractor. The general contractor then divides up the work, often contracting with many small, labor-intensive firms or cooperatives, which would be unable to undertake the entire job themselves. The contractor is paid based on achievement of specific implementation benchmarks that are spelled out in the contract. Although primarily used to date for road construction in urban areas, Mali is exploring the possibility of developing rural AGETIPEs for strengthening rural infrastructure while creating urgently needed employment. The following extract from a proposal for rural AGETIPEs outlines their potential in Mali.

“The implementation of such a reform must be built upon an innovative institutional environment, conceived in a way that brings services and rural clients closer together, thereby limiting the defects of the current, overly bureaucratic system, which is characterized by approaches that are fragmentary, poorly targeted, and frequently uncoordinated. The performances of the AGETIPE offers an appropriate model in this case. Therefore, we recommend that an agricultural AGETIPE model be set in place that is adapted to the needs of the rural sector. Such an independent and multi-functional organization could contribute to creating better conditions for:

- exploiting the potential of initiatives from entrepreneurs of various agricultural sub-sectors,

- ensuring the professionalism of the private sector and increasing the profitability and competitiveness of the activities,
- improving the management of contracts with the public sector and the international donors,
- mobilizing the necessary specialized technical backing,
- implementing projects for infrastructure development and for improving and managing natural resources.

At the level of the overall economy, giving priority to the establishment of an agricultural AGETIPE is further justified by the favorable impacts it would have on employment (especially of recent graduates [many of whom are unemployed in Mali]), by its multiplier effects through inter-sectoral links, and by its effects on income generation and distribution. In Mali, agriculture, the most important sector for the nation's economy, offers many great opportunities, especially with the devaluation of the CFA franc. Nonetheless, agriculture and the rural sector suffer from a shortage of capital, the mobilization of which requires reforms in the financial system through regulatory measures and appropriate incentives to promote and support the development of private rural banking institutions.”

SOURCE: Extract of a memorandum by Josué Dioné addressed to: the Conseil Économique, Social et Culturel de la République du Mali, Mémoire du Centre d'Etude et de Recherche sur la Démocratie et le Développement Economique et Social (CEDRES, Bamako, Mali, June 1995).

Concerning the public sector, the workshop participants recommended the following principles to allow the sector to contribute more effectively:

- Increasing budget allocations to the agricultural sector and other related sectors such as transportation;
- Reducing budget allocations to sectors where the participants considered the expenses to be a waste, an example being the spending on arms;
- Promoting debt swaps involving agriculture, according to modalities that yet need to be defined;
- Improving coordination between government ministries in order to capture the maximum benefit from government expenditures, as has been done in Ghana (see Box 6);
- Promoting and integrating domestic capital markets and involving them more in agriculture.

As for foreign sources, their continued mobilization will require changes in policies to make agricultural investment more attractive (e.g., through developing a rural investment code). Private and bilateral sources may be included in this category. Changes in policies and a revision of the mandates of the donor agencies appear to now allow bilateral aid to directly support the private sector. Among other foreign sources are diverse multilateral sources. The workshop participants believe it is important to assure greater coordination in order to better channel these various funds coming from multiple sources and to promote broad-based development.

**Box 6: Coordinating Agricultural Development Strategies and Programs:
The Case of Ghana**

Agriculture is the key sector of the Ghanaian economy. It employs over 70% of the active population, contributes approximately 40% of the GDP, and 50% of export revenues. It also contributes significantly to the financing of other sectors of the economy. It is made up of many sub-sectors, such as non-cocoa crops (63% of agricultural GDP), cocoa (14%), forestry (11%), fishing (7%), and livestock raising (5%). The cocoa sub-sector is under the direct authority of the Presidency of the Republic. In contrast, livestock production, fishing and other agricultural production fall under the mandate of the Ministry of Food and Agriculture.

Despite the relative importance of agriculture in Ghana's economy, its performance is mediocre. Between 1970 and 1984, for example, the annual growth rate of agricultural production (-1.2%) was lower than that of the population (2.6%). Faced with this situation, the Ghanaian authorities looked for ways to ensure a rapid transformation of the agricultural sector. Ghana was thus, in 1983, the first African country to initiate a structural adjustment program (Ghana Economic Recovery Program, or ERP). In the view of the Ghanaian authorities and the donor agencies, despite the substantial progress made in the agricultural sector under the ERP, agriculture continued to operate below its potential.

The weak performance of the sector is linked to problems experienced with the acquisition and distribution of inputs, and the production, processing, preservation, marketing and consumption of agricultural products. Some of these problems were due to lack of information or poor organization. Other problems required changes in behavior, the initiation of new programs, or a revision of existing programs. Particularly during the first phase of the ERP, it was noted that the links between the Ministry of Food and Agriculture (MOFA) with other organizations involved in agriculture were practically non-existent. Moreover, the links between the various sub-sectors were weak, each operating independently and not inter-dependently. Many unprecedented initiatives, seen nowhere else in Africa, were established to ensure linkages and coordination between the different strategies and the programs affecting the agriculture sector.

Thus, MOFA took the initiative of organizing a national debate involving producers, processors, donor agencies, governmental authorities, and other interested parties. This debate led to the publication in 1986 on an action plan and strategies for the agricultural sector (Ghana's Agricultural Policy: Action Plans and Strategies, 1986-1988). Similarly, a national committee for agricultural policy coordination was formed. This committee included representatives of the ministries of Commerce, Industry, Finance, Roads, Transportation and Communication, the Central Bank of Ghana, local governments, government-sponsored development corporations, and the National Commission for Planning. Presided by the Ministry of

Finance, seconded by Ministry of Commerce and Industry, this committee supported MOFA and ensured the coordination between MOFA and the other ministries and organizations involved, directly or indirectly, in agriculture.

These initiatives eloquently illustrate the importance that the Ghanaian government accords to agriculture and its recognition that: (1) this sector is not limited to farm-level production, (2) its performance cannot be evaluated independently of the other sectors of the economy, (3) a multi-disciplinary approach is necessary to identify the strategies and initiatives needed to induce agricultural transformation.

SOURCE: S.K. Dapaah. Empirical Analysis of the Likely Future Evolution of Agriculture in Ghana and How It Will Affect Prospects for Longer Term Growth of Agriculture, the Food System and Broader Economy.

4.2. Resource Mobilization

Identifying sources for funding is nothing new. The challenge is in the mobilization and the channeling of these funds in an adequate and creative manner. To support this objective, the workshop identified two overarching conditions:

- The creation of a viable political environment. Apart from the usual macro-economic conditions, the following are also needed:
 - Security of investment;
 - The right to expatriate profits;
 - An adequate fiscal system;
 - A reduction of political uncertainty;
 - The rule of law and the promotion and protection of contracts (see Box 7);
 - The creation of one-stop administrative centers in order to reduce cumbersome bureaucratic procedures and harassment;
 - The diffusion of information needed by intended beneficiaries (e.g., on the available tools for financing);
 - The demonstration of the country's absorptive capacity;
 - Banking reforms to facilitate transfers within a given country and between African countries.

- A degree of flexibility in policy conditionalities. Conditionalities need to be realistic, capable of being implemented, and based on:
 - The restructuring of portfolios (shifting funds towards productive sectors);
 - The opening-up of the private sector;
 - Increased dynamism on the part of farmers and agri-food companies in searching for financing, which can be fostered through an initial financial assistance aimed at strengthening their capacities. These pre-investments can be done by government or other sources.

Box 7: Difficulties of Protecting Contracts in the Zambian Agriculture Sector

Maize is the main crop of large commercial farms as well as of small subsistence farms in Zambia. Conditions in this subsector play an important role in defining the political relations between the rural and urban sectors, and define a certain “social contract” between citizens and government leaders. This subsector is going through a rapid transition between a past marked by weak performance and an uncertain future.

Under state control for many years, the maize sub-sector started its liberalization in 1992 following accords signed in 1991 between the Zambian government and donor agencies. These accords called for the withdrawal of political influence from the sub-sector. Reforms were implemented in 1992, particularly the removal of subsidies in processing, input marketing, and transportation. These measures helped develop new areas of private-sector activity, such as import trade, input marketing, and the proliferation of small mills. On the other hand, many other sectors remain subsidized. Progress towards liberalization in these areas continues to be hindered by weather and political pressures, which have limited the government’s capacity to ensure that players honored contracts.

In 1991-1992, for example, Zambia went through one of its driest seasons on record. The government had to adopt exceptional measures to reduce widespread hunger. Prices of local and imported maize were fixed by the government, both in grain and processed forms. However, maize marketing was more or less liberalized one year later (in 1994). Although the *distribution* of credit to small farmers was to be assured by the private sector, the *financing* of this credit (for the purchases of maize and inputs) came from the government, through two programs that suffered from weak credit recovery rates. These low recovery rates are explained by the highly politicized nature of maize production in rural areas, which made it practically impossible for any credit institutions other than government to operate profitably in these areas. What happened is that from one year to the next, members of parliament and other politicians continuously made credit new available to those who failed to repay their previous loans.

Zambia’s problems in financing and marketing maize expanded to other sub-sectors. These problems made life difficult for those who promoted small farming. For example, a Zimbabwean tobacco company (*Burley Tobacco Industry*), operating with local Zambian businessmen, for many years tried to promote

tobacco production in Zambia by offering inputs and technical expertise to contracted farmers, in exchange for exclusive purchase rights to the crop. But often the crops was fraudulently sold to others in violation of the contract between the farmers and the *Burley Tobacco Industry*. These violations were difficult to eliminate and were most often organized by the employees of *Burley Tobacco Industry* itself. The fraudulent sales translated to little or no profits for the company. This situation was aggravated by the local and national politics at stake. It was not uncommon to see members of parliament, right before elections, push farmers to revolt against the company.

SOURCE: Guy Scott. *Agricultural Transformation in Zambia: Past Experience and Future Prospects*.

4.3. Credit

The workshop put particular emphasis on loans directed towards small farmers, as those for large farmers seem less problematic. For small farmers, it is important to distinguish between credit for food crops and for cash crops.

The participants identified the following as key questions concerning credit:

- The aggregate availability of credit (e.g., in the CFA zone, where the banks have large amounts of un-lent funds);
- Limited access to credit for small farmers, due to a lack of collateral and proven solidarity. Loans are given to small farmers through groups to reduce risks and transaction costs;
- The weak repayments of contracted credit by farmers. This is partially explained by a lack of monitoring by the lending agencies. Loan repayment by small farmers depends on the social pressures within the group, the financial viability of the enterprise, agricultural policies and the monitoring of policy implementation (case of Zambia—see Box 7);
- The channeling of credit to productive uses is influenced in part by:
 - The timing and calendar of the loans;
 - The type of loan (short term/medium term);
 - The size of the loan.

Specifically, for food production, an important question arises concerning how to make credit available and accessible given the risks due to lack of markets and uncertainty concerning weather and prices? The workshop noted that credit was often seen as a form of insurance, which means that (a) the interest rate is often high because it includes an “insurance premium”, and (b)

repayment rates are sometimes low. To promote credit availability in this situation, the participants suggested a certain number of options:

- Create a reliable domestic output market, using measures adapted to local conditions;
- Offer storage facilities and furnish credit for storage to respond to immediate liquidity demands;
- Create crop insurance programs supported by government.

Generally, the participants recommended that governments take the responsibility to reduce the risks facing farmers, if food crops are seen as having national strategic importance. In these cases, explanations for these decisions must be clearly spelled out. If measures are taken to protect national agricultural production, the justification must include recognition of the inflation resulting from high food prices, as well as possible foreign exchange savings resulting from the low levels of food imports caused by such prices.

5. AGRICULTURAL TRANSFORMATION: TECHNOLOGIES

The workshop participants felt that questions regarding technologies are of great importance, as they can directly help in achieving the necessary conditions for agricultural transformation. These questions were addressed from three angles:

- The stratification of the various African economies by agro-ecological zones and by regional sub-zones;
- The review of agricultural technology gaps for each of the identified zones;
- The mechanisms for developing and diffusing appropriate agricultural technologies.

5.1. Stratification of African Agriculture

The workshop developed the following criteria to help classify the agro-ecological zones:

- The length of the growing season;
- Altitude;
- Temperature.

Using these criteria, the workshop proposed the following 6 zones:

- Arid/semi-arid zone;
- Savanna/sub-humid zone;
- Humid zone;
- Medium- and high-altitude zone;
- Mediterranean zone;
- Elevated veldt zone (temperate).

For the participants, this classification has many advantages. It helps guide technology development and define resource-management programs. It also allows examination of comparative advantage and specialization, as well as the formulation of policies. In using this stratification to develop policy, other factors must be taken into account: political, institutional, administrative and economic systems, the existence of regional economic organizations, and factors related to demography and infrastructure.

5.2. A Review of Technological Gaps

The workshop participants identified certain gaps which constrain structural transformation of African agriculture. These gaps are strongly felt in all of the zones in terms of non-traditional exports and food goods. Nonetheless, the gaps described below are general. Follow-up work is needed to refine and further detail their characteristics. This work could be done starting with the knowledge base of the NARS and the international and regional centers in each of the zones, as such work should be an integral part of the strategic planning of these centers.

At the workshop itself, the participants adopted the following criteria to help evaluate the applicability of such agricultural technology:

- Technical efficiency;
- Profitability;
- Environmental sustainability;
- Social and cultural acceptability;
- Institutional sustainability.

Based on these criteria, the following gaps were identified as the most prominent for each of the zones:

5.2.1. Arid/Semi-arid Zone

Gaps identified in this zone concern appropriate technologies for livestock/game systems, soil and water management, management to overcome seasonal labor constraints, and new renewable energy systems.

5.2.2. Sub-humid Zone

The gaps here are technologies concerning soil and water management, post-harvest systems, integrated crop and livestock systems, and renewable energy systems.

5.2.3. Humid Zone

As in the sub-humid zone, the gaps identified here were soil and harvest management, and integrated pest management.

5.2.4. Medium- and High-altitude Zone

Apart from soil management and anti-erosion efforts, technological gaps identified concerned pasture management and aqua-culture systems.

5.2.5. Mediterranean zone

In this zone, the biggest gaps are in natural resource management technologies.

5.2.6. Elevated Veldt Zone

The gaps here are those related to technologies which have to do with resource management systems for small farmers (see Box 4 on the impact of the Apartheid policy).

5.3. Mechanisms for the Development and Diffusion of Appropriate Agricultural Technologies

Participants agreed that these gaps must be addressed in the medium and long term. Hence, the workshop recommends:

- Strategic planning at several levels; notably at the level of the NARS to establish the priorities in a rigorous manner;
- A systematic involvement of all the key actors (farmers, traders, processors, etc.) in the development and diffusion of technologies;
- The creation of a system of incentives for researchers and extension agents to induce them to respond adequately to the demands of farmers. In order to create such a system, it is necessary to set up unambiguous mechanisms to ensure funding for the NARS;
- The creation of a network of researchers and extension agents to develop the critical mass necessary to generate and improve technologies continuously;
- The development of a training program based on a systems approach (farming systems, sub-sectors, and so on). This program should facilitate the integration of the social sciences with the technical and biological sciences related to agriculture;
- The strengthening of relations between research, extension, and farmers in all programs.

5.4. Communication

According to the participants, agricultural transformation presupposes a greater sharing of information among all development partners. In this regard, researchers have an interest to in assuring a broader outreach effort to make their research results available to farmers, policy makers, development partners and broader public.

Specifically, the workshop concluded that NARS need to be strengthened so that they can better communicate among themselves. It's also important to foster the development of a network between the IARCs and the NARS by capitalizing on the latest communication technologies (e-mail, Internet, and so on).

More broadly, the participants recommended the strengthening of links between agencies dealing with agriculture and the ministries of finance so the latter focus more attention on the structural transformation of agriculture as a means of fostering broad-based economic growth. In this context, the workshop proposed the establishment of pro-active groups which lobby for the promotion of agricultural research.

6. ANALYTIC AGENDA AND FOLLOW-UP ACTIONS

6.1. Analytic Agenda

The following agenda emanates from the discussion at the Abidjan workshop and from other studies and research in the field. Capitalizing on this work allows us to identify the main emphases needed in future work in this area.

Following Harare, the Abidjan workshop has put back onto the agenda the role of policies, investments, and technologies in the structural transformation of African agriculture. The arguments in favor of agricultural transformation are widely known. The participants at the Abidjan workshop argued that we need to go beyond those general arguments to identify new approaches that will allow research to contribute to the process of agricultural transformation, which everyone hopes to achieve in the first decades of the next century.

Many questions remain for of the players involved. However, increasingly scarce resources and time constraints require that priorities be set among the various concerns raised within this report. These concerns do not cover the totality of the issues related to agricultural transformation, but they reflect an effort to synthesize the current debates. They also help to link new research themes with new research approaches. They also illustrate the willingness of the researchers to commit themselves to carrying out additional studies, with the aim of meeting again in the short-term and use these studies to feed into decisions regarding priority-setting.

The Abidjan workshop itself focused particularly on factors one could call the *missing links* in the structural transformation process of African agriculture, such as farmer participation, regional integration, and mobilization of domestic resources. The workshop participants agreed that only pro-active policies would engender decisive reforms. These reforms must explicitly target the promotion/mobilization of investments that favor technological and institutional improvements as well as substantial reduction of transaction costs in the agricultural system. These policies involve institutional and regulatory measures, mobilization of domestic resources, and strengthening the regional competitive position in order to induce and increase the capacity of the various actors to invest more in agricultural transformation.

Building on this overarching view of the problem, the Abidjan participants developed the following analytic agenda:

- How to accompany and support village/farmer organizations, which are currently emerging everywhere in Africa? These organizations must become pro-active players with real power, ensuring that farmers participate in the development and implementation choices regarding policies, investments and income for which they are the primary intended beneficiaries. What are the mechanisms and methods to follow?
- What strategy should be used to allocate investments between “high-potential” areas and more marginal zones, if the goal is to foster *broad-based* development? How to

incorporate land tenure concerns (access to, and control of natural resources) in the transformation process?

- How to ensure an intelligent, renewed commitment on the part of the public sector, whose hasty retreat during the era of structural adjustment has often left gaps, especially regarding a strategy for investing in the minimum infrastructure necessary for production and marketing (including domestic, regional and international trade)? What are the different types of infrastructure needed? At which locations? To be undertaken by which professional organizations? What kind of institutional innovations and what regulatory frameworks would be appropriate to create incentives for the various actors? (e.g., rural AGETIPEs -- see Box 5).
- How to attract non-traditional investments into agriculture? What would be the contractual protocols needed (e.g., rural investment code)? What incentives should be offered while still avoiding monopolistic situations? How to ensure the coordination of investments between the different sectors, noticeably between the agricultural and financial sectors? (See Box 6).
- What are viable ways of organizing the production and marketing of technologies that would involve farmers and other users from the private and public sectors and that also require mobilization of domestic resources?
- How can funding from regional and international institutions be attracted and made profitable (e.g., through formulation of a guide for these institutions regarding investments related to agricultural transformation)?
- What are effective models to assure sustainable financing for restructured and “reinvigorated” NARS, which at the same time work to assure that research is coordinated and articulated across various levels (e.g., between NARS and IARCs)?

6.2. Follow-Up Actions

In order to avoid just ending with a set of conclusions and resolutions, the workshop has established a plan to follow up on the work done in Abidjan. This plan consists of short- and medium-term follow-up actions as well as a work plan:

6.2.1. Follow-Up

Short term: Complete the minutes of the workshop, including the formulation of a work plan.

Medium term: Involve sub-regionally based networks of participants who will analyze and thoroughly study the concerns and issues raised and share the experiences of each of the zones through a broader system to swap scientific and technical information.

This network will serve as a working group which will help support the African continent, notably through ADB and other development partners, in the definition, the monitoring and the evaluation of policies and strategies to encourage the structural transformation of agriculture. One of the immediate outputs of the Abidjan workshop is the organization by the CILSS of a debate on the same issues facing the Sahelian sub-region (Bamako workshop, on structural transformation of agriculture, December 1995).

ANNEXES

ANNEX I: LIST OF PARTICIPANTS

ATELIER SUR LA TRANSFORMATION AGRICOLE EN AFRIQUE WORKSHOP ON AGRICULTURAL TRANSFORMATION IN AFRICA

Banque Africaine de Développement/ African Development Bank
USAID, Africa Bureau, Office of Sustainable Development (AFR/SD/PSGE/FSP)
Institut du Sahel/PRISAS
September 26-30, 1995

List of workshop participants/ Liste des participants

(version: 30 Sept. 1995)

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ANNEX II: WORKSHOP AGENDA

WORKSHOP ON AGRICULTURAL TRANSFORMATION IN AFRICA

African Development Bank
USAID, Africa Bureau, Office of Sustainable Development (AFR/SD/PSGE/FSP)
Institut du Sahel/PRISAS

Sept. 25-29, 1995
Abidjan, Côte d'Ivoire

(Presentations and discussion in English and French, with simultaneous translation)

The aim of the workshop is to identify *strategic investments and policy actions* that African governments, firms, and organizations and donors can undertake to foster agricultural and economic transformation. The challenge is to identify ways of fostering agricultural transformation that will stimulate broader economic growth while increasing food security, reducing poverty, and protecting the environment.

Workshop participants will stay at the Golf-Intercontinental Hotel. All workshop sessions from Tuesday through Thursday will be held at the Golf Hotel. The final day's session, on Friday, 29 September, will be held in the main auditorium of the African Development Bank, Avenue Joseph Anoma. The auditorium is located on the 18th floor of the South Tower. The shuttle bus to the ADB will leave the Golf Hotel on Friday promptly at 8:00 am.

The working sessions on late Monday morning, and on Tuesday through Thursday, will be held in the ANONO Room, located on the terrace level of the Golf Hotel.

Monday, 25 Sept.

Monday is designed as a "reading day" and a day for informal organization of workshop procedures. This will allow workshop participants who arrive over the weekend to review documents that they may have received late. It will also informal interaction with workshop coordinators on organizational procedures to be followed during the workshop. (Note: not all arrive before Monday.)

Tuesday 26 Sept.

8:30-9:00

Discussion of workshop logistics - John Staatz, Laura Farrelly and Fatoumata Sanoko

- 9:00-10:30 *Official Opening: Opening remarks by:*
- Ivoirian Minister of Scientific Research and Higher Education
 - Mr. A. SANGOWAWA, Vice President of the African Development Bank
 - Director, USAID/REDSO/WCA
 - Dr. Tom Olson, Director of the Food Security and Productivity Unit, Africa Bureau (AFR/SD/PSGE)
 - Yamar Mbodj (CILSS)
- 10:30-10:45 Coffee Break
- 10:45-11:30 *Discussion of Workshop Objective and Procedures*
- Workshop Objectives - Lual Deng (ADB), George Gardner (USAID/SD/PSGE), and John Staatz (MSU)
 - Workshop Procedures - Moussa Batchily Ba (INSAH)
 - Discussion of the proposed agenda
- 11:30-13:00 *Session I (Plenary) - Anomo Room, Golf Hotel: Agricultural Transformation in Africa: The Need, the Challenges, and Perspectives for the Future*
- Chairperson: Glenn Magagula
 Rapporteurs: Tony Ikpi and H. Rabby Wane
- 11:30-12:00 ● "A 20/20 Perspective on Agricultural Transformation in Africa" - Ousmane Badiane, IFPRI
- 12:00-12:30 ● "Agricultural Transformation: The Missing Link" - Lual Deng, ADB
- 12:30-13:00 ● "What Path for Agricultural Transformation in Africa?" - Dunstan Spencer
- 13:00-14:30 Lunch at the Golf Hotel
- 14:30-15:30 *Session I (continued): Discussion*
- Chairperson: Kandeh Yumkella
 Rapporteurs: Chris Ackello-Ogutu and Oumar Aw
- 14:30-15:00 ● Discussion Openers: Gordon Sithole and Kimsey Savadogo
- 15:00-15:30 ● Open discussion, with the aim of arriving at moving beyond Africa-wide generalizations. What are the challenges facing agricultural transformation by:
- Socio-political setting - e.g.,

- Countries with predominantly small-holder agriculture and fairly stable political regimes
 - Countries with bimodal patterns of land holdings (e.g., South Africa, Zimbabwe)
 - Countries currently in or recovering from major disruptions due to war and natural disasters
- Agro-ecological zone

15:30-15:45 Coffee Break

15:45-17:15 Open discussion (continued)

Wednesday

27 Sept. All sessions on Wednesday will be held in the Anomo Room of the Golf Hotel.

8:30-10:30 *Session II (Plenary): Country Experiences and Perspectives:*

Chairperson: A. Aklilu
 Rapporteurs: Johan van Rooyen and Touba Bedingar

- 8:30-8:45 ● Key issues from previous day's session and issues to address today - Member of Rapporteurs Committee
- 8:45-9:05 ● Zambia - Guy Scott's paper presented by B.D.S. Kapita
- 9:05-9:25 ● South Africa - Bongiwe Njobe-Mbuli
- 9:25-9:45 ● Malawi - Davis Ng'ong'onla's paper, presented by Brave Ndisale
- 9:45-10:45 ● Open Discussion

10:45-11:00 Coffee Break

11:00-12:30 Session II (continued)

Chairperson: A. Aklilu
 Rapporteurs: Charles Lufumba and Brian D'Silva

- 11:00-11:20 ● Ethiopia - Hagos Gebre or Daniel Molla
- 11:20-11:40 ● Tanzania - Wilfred Ngirwa's paper presented by Luther Sibisi
- 11:40-12:30 ● Open Discussion

- 12:30-14:00 Lunch at the Golf Hotel
- 14:00-15:30 Session II (Continued)
- Chairperson: Dunstan Spencer
 Rapporteurs: Yamar Mbodj and Kimsey Savadogo
- 14:00-14:20 ● Ghana - Sam Dapaah
- 14:20-14:40 ● Sahelian Countries - Josué Dioné
- 14:40-15:30 ● Open Discussion
- 15:30-15:45 Coffee Break
- 15:45-17:15 Open Discussion and plans for working groups

**Thursday
28 Sept.**

All sessions on Thursday will be held in the Golf Hotel, in the Anomo Room and in break-out rooms.

- 8:30-9:00 *Session III: Working groups: Developing Strategies to foster agricultural transformation that reduce poverty while fostering food security and environmental protection*
- Discussion in plenary session (in Anomo Room) of objectives of the working groups
- 9:00-10:30 Discussion in working groups of the key issues raised in the papers and discussion of the past 2 days. The aim will be to identify key policies, technologies, changes in governance procedures, and investments that could foster agricultural transition in different settings in Africa. What have been the lessons from past experience in attempting to foster transformation? Who needs to do what, and how can these goals be achieved in an era of shrinking donor resources?
- 10:30-10:45 Coffee Break
- 10:45-12:30 Continue work in small groups
- 12:30-14:00 Lunch at the Golf Hotel
- 14:00-15:30 Continue work in small groups.

15:30-15:45 Coffee Break

15:45-17:00 Small working groups develop summaries of key points to report to the plenary

17:00-17:15 Brief Plenary session to discuss Friday's plan of work.

18:30 - ? Reception, pool area of the Golf Hotel

**Friday,
29 Sept.**

Friday's session will be held at the African Development Bank. The buses will leave the Golf Hotel for the ADB promptly at 8:00.

8:30 -10:45 *Session IV: Plenary - Reporting of key conclusions by working group.*

 Chairperson: Touba Bedingar
 Rapporteurs:

10:45-11:00 Coffee Break

11:00-12:15 Open for informal discussions. The committee of rapporteurs will develop the preliminary workshop summary

12:30-14:00 Lunch (on your own)

14:00-15:30 Open for informal discussions. The committee of rapporteurs will develop the preliminary workshop summary

15:30-16:15 *Presentation of preliminary summary to the workshop by the rapporteurs' committee*

16:30 - 17:15 *Official closing*

PROPOSED GENERAL WORKSHOP RAPPORTEURS: Chris Ackello-Ogutu, Moussa Batchily Ba, Ousmane Badiane, Charles Mbwanda, John Staatz, with assistance from Millie Morton, Serge Snrech, Laura Farrelly, and Youssouf Camara

ANNEX III: COMPOSITION OF THE WORKING GROUPS AND TERMS OF REFERENCE

A. COMPOSITION OF THE WORKING GROUPS

I	II	III
TECHNOLOGY	INVESTMENT	POLICIES/INSTITUTIONS
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BERTHE	DAPAAH	BA
* FOSU	DENG	* BADIANE
GARDNER	DIONE	D'SILVA
MAGAGULA	HELLAND	IKPI
MBWANDA	OLSON	NADIR
MOLLA	** SAVADOGO	* SITHOLE
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REDDY	SNRECH	WANE
** <u>SPENCER</u>	** <u>YUMKELLA</u>	FARRELLY
VAN ROOYEN	KAPITA	

** CHAIRPERSONS

* RAPPORTEURS

B. EXPECTED OUTPUTS

I. RECOMMENDATIONS/ACTIONS

1. WHAT NEEDS TO BE DONE?
2. WHO SHOULD DO WHAT?

II. ANALYTIC AGENDA

THEMES FOR FUTURE ANALYSIS

C. QUESTIONS FOR EACH GROUP

TECHNOLOGY GROUP

- CRITERIA FOR DEFINING AGRO-ECOLOGICAL AND OTHER TYPES OF ZONES
- TECHNOLOGY PRODUCTION - DIFFUSION - PRODUCTION - USE

INVESTMENT GROUP

- FINANCING
- CREDIT AND ACCESS TO CREDIT
- SAPs - IMPACT OF SAPs AND THE DEGREE TO WHICH REFORMS HAVE BEEN ACTUALLY IMPLEMENTED

POLICIES AND INSTITUTIONS GROUP

- POLICIES (MACRO AND SECTORAL)
- LAND TENURE
- REGIONAL INTEGRATION AND COOPERATION

CROSS-CUTTING QUESTIONS FOR ALL GROUPS

- ACTORS: ROLES, ORGANIZATION, ARRANGEMENTS FOR PARTICIPATION AND COORDINATION
- COMMUNICATION

ANNEX IV: WORKSHOP PAPERS

- Badiane, Ousmane and Christopher L. Delgado, eds. 1995. *A 2020 Vision for Food, Agriculture, and the Environment in Sub-Saharan Africa*. Food, Agriculture, and the Environment Working Paper No. 4. Washington, D.C.: International Food Policy Research Institute.
- Dapaah, S.K. 1995. Empirical Analysis of the Likely Future Evolution of Agriculture in Ghana and How it Will Affect the Prospects for Longer Term Growth of Agriculture, the Food System and the Broader Economy.
- Deng, Lual A., Charles Mbwanda, Nadir Mohammed, and Charles L. Lufumpa. 1995. *Agricultural Transformation in Africa: The Missing Links*.
- Dioné, Josué. 1995. Adjustment, Policy Reform, and Agricultural Transformation in the Sahel.
- Gebre, Hagos, Daniel Molla, T.S. Jayne, and James Shaffer. 1995. Designing Strategies to Support a Transformation of Agriculture in Ethiopia.
- Ng'ong'ola, D. H. 1995. Analysis of Policy Reforms and Structural Adjustment Program in Malawi with Emphasis on Agriculture and Trade.
- Ngirwa, Wilfred. 1995. Agriculture Transformation Issues in Tanzania.
- Njobe-Mbuli, Bongiwe. 1995. Opening Remarks to the Workshop on Analysing Agricultural Comparative Advantage Within an Agroecological Zone Framework in Southern Africa.
- Scott, Guy. 1995. Agricultural Transformation in Zambia: Past Experience and Future Prospects.
- Spencer, Dunstan S. C. 1995. Past Trends and Future Prospects for Agricultural Development in Sub-Saharan Africa.
- van Rooyen, C.J., J.F. Kirsten, J. van Zyl, and N. Vink. 1995. Structural Adjustment, Policy Reform and Agricultural Performance in South Africa.

ANNEX V: OTHER DOCUMENTS

- Boughton, Duncan, Eric Crawford, Julie Howard, James Oehmke, James Shaffer, and John Staatz. 1995. *A Strategic Approach to Agricultural Program Planning in Sub-Saharan Africa*. MSU International Development Working Papers No. 49. East Lansing: Michigan State University.
- Staatz, John M. 1994. *The Strategic Role of Food and Agricultural Systems in Fighting Hunger through Fostering Sustainable Economic Growth*. MSU Agricultural Economics Staff Paper No. 94-39. East Lansing: Michigan State University.
- World Bank. 1994. *Adjustment in Africa: Reforms, Results, and the Road Ahead*. New York: Oxford University Press.

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- IDP 13 *Sources and Effects of Instability in the World Rice Market* by T. S. Jayne. 1993. 104 pp. \$11.00 (CDIE reference **PN-ABJ-359**)
- IDP 14 *The Impact of Agricultural Technology in Sub-Saharan Africa: A Synthesis of Symposium Findings* by James F. Oehmke and Eric C. Crawford. 1993. 33 pp. \$7.00 (CDIE reference **PN-ABP-321**)
- IDP 14F *L'impact de la technologie agricole en Afrique subsaharienne: Synthèse des conclusions du colloque par James F. Oehmke and Eric W. Crawford.* 1993. 34 pp. \$7.00 (CDIE reference **PN-ABQ-056**)
- IDP 15 *Market-Oriented Strategies to Improve Household Access to Food: Experience from Sub-Saharan Africa* by T.S. Jayne, D.L. Tschirley, John M. Staatz, James D. Shaffer, Michael T. Weber, Munhamo Chisvo, and Mulinge Mukumbu.* 1994. 61 pp. \$9.00 (CDIE reference **PN-ABS-755**)
- IDP 16 *Improving the Measurement and Analysis of African Agricultural Productivity: Promoting Complementarities between Micro and Macro Data* by Valerie Kelly, Jane Hopkins, Thomas Reardon, and Eric Crawford. 1995. 44 pp. \$7.00 (CDIE reference **pending**)
- IDP 17 *Promoting Food Security in Rwanda Through Sustainable Agricultural Productivity: Meeting the Challenges of Population Pressure, Land Degradation, and Poverty* by Daniel C. Clay, Fidele Byiringiro, Jaakko Kangasniemi, Thomas Reardon, Bosco Sibomana, Laurence Uwamariya, and David Tardif-Douglin. 1995. 115 pp. \$11.00 (CDIE reference **PN-ABX-501**)
- IDP 18 *Promoting Farm Investment for Sustainable Intensification of African Agriculture* by Thomas Reardon, Eric Crawford,

and Valerie Kelly. 1995. 37 pp. \$7.00 (CDIE reference **PN-ABX-753**)

- IDP 19 *Effects of Market Reform on Access to Food by Low-Income Households: Evidence from Four Countries in Eastern and Southern Africa* by T.S. Jayne, L. Rubey, D. Tschirley, M. Mukumbu, M. Chisvo, A. Santos, M. Weber, and P. Diskin. 1995. 83 pp. \$9.00. (CDIE reference **PN-ABX-754**)
- IDP 20 *Cash Crop and Foodgrain Productivity in Senegal: Historical View, New Survey Evidence, and Policy Implications* by Valerie Kelly, Bocar Diagana, Thomas Reardon, Matar Gaye, and Eric Crawford. 1996. 140 pp. \$13.00 (CDIE reference **PN-ABY-173**)
- IDP 21 Not issued
- IDP 22 *Determinants of Farm Productivity in Africa: A Synthesis of Four Case Studies* by Thomas Reardon, Valerie Kelly, Eric Crawford, Thomas Jayne, Kimseyinga Savadogo, and Daniel Clay. 1996. 50 pp. \$7.00 (CDIE reference **pending**)

WORKING PAPERS

- IDWP 39/1 *The Impact of Investments in Maize Research and Dissemination in Zambia. Part I: Main Report.* Julie Howard with George Chitalu and Sylvester Kalonge. 1993. 112 pp. \$11.00 (CDIE reference **PN-ABS-724**)
- IDWP 39/2 *The Impact of Investments in maize Research and Dissemination in Zambia. Part II: Annexes.* Julie Howard with George Chitalu and Sylvester Kalonge. 1993. 81 pp. \$9.00 (CDIE reference **PN-ABS-727**)
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