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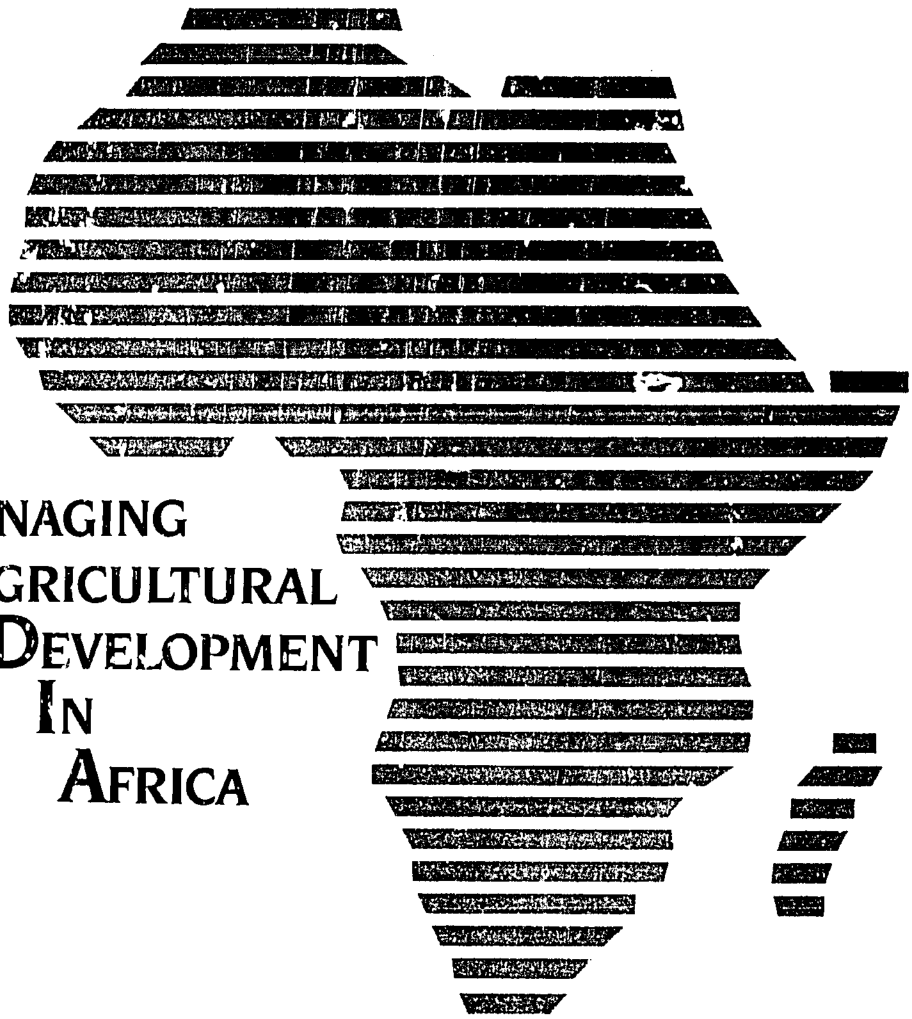

Managing Agricultural Development in Africa

The MADIA Study

Although many generalizations have been made about the agricultural crisis in Africa, relatively few detailed country and cross-country studies of African agriculture based on systematic data analysis have been conducted. Similarly, although foreign aid has constituted a large part of total government expenditures in Africa for close to fifteen years, there has been little analysis of the role of external assistance in African countries that goes beyond political criticism of official assistance or the alleged self-serving objectives of donors. The impetus for the study "Managing Agricultural Development in Africa" (MADIA) was to begin the process of filling this gap and to explain the nature and sources of the agricultural crisis, particularly the extent to which it originated in resource endowments, historical and contemporary events, external and internal policies, and the economic and political environment.

The MADIA study involved detailed analysis of six African countries—Kenya, Malawi, Tanzania, Cameroon, Nigeria, and Senegal. In addition to the World Bank, seven donors, USAID, UKODA, DANIDA, SIDA, the French and German governments, and the EEC participated in the study. The analysis of country policies and performance during the last 20-25 years was carried out with the benefit of substantial input from the governments and nationals of each of the countries represented. The study had three main areas of focus: (1) the relationship between domestic macroeconomic and agricultural policy and agricultural performance, (2) donors' role in the development of agriculture, and (3) the politics of agricultural policy.

The MADIA study was the result of encouragement and support from many people. Anne Krueger, former Vice President for Economic Research Staff in the World Bank, encouraged the establishment of these studies on aid and development in 1984. Gregory Ingram, former Director of the Development Research Department, provided unstinting support for the study. During the reorganization of the World Bank in 1986, the strong support from Benjamin King, then acting Vice President for Economic Research Staff, proved invaluable. Barber Conable, President of the World Bank, and Mr. Edward V. K. Jaycox, Vice President for the Africa Region, have played a key role by ensuring support for the study's completion, as did Stanley Fischer, the Vice President for Development Economics. Yves Rovani, Director General of the Operations Evaluation Department, was particularly helpful as the MADIA study drew heavily on the works of OED.

A special debt of gratitude is owed to the World Bank's Research Committee, which provided the initial funding for the study, and to the MADIA Steering Committee. In particular the strong support of the chair of the Steering Committee, Stephen O'Brien, has been of critical importance.

Finally, without the active and continued encouragement of many African policymakers and donor officials, including numerous colleagues in the World Bank, this study would not have provided new perspectives. This support has taken the form of numerous reactions to written and oral presentations, and refinement of the analysis to identify the areas of consensus and continuing controversy.

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Managing Agricultural Development in Africa

Lessons of experience for governments and aid donors

Uma J. Lele

Throughout most of Sub-Saharan Africa, agriculture is in crisis. Frequent droughts, growing expenditures on food imports, and falling export earnings have been cutting into living standards and growth prospects. The effects have been pervasive, not only on incomes of agricultural producers, who include most of Africa's poor, but also on supplies of food and raw materials for industry, on employment, savings, government revenues, and on the demand for goods and services produced outside agriculture. Yet policy changes and planning for the resumption of growth in agriculture are hampered by a pervasive lack of country-specific information. Reform efforts all too often try to apply general remedies to Africa's diverse problems.

Prompted by these concerns, the Bank in 1985 launched a cross-country comparative study, Managing Agricultural Development in Africa (Madia). The study analyzed developments in agriculture in Kenya, Malawi, and Tanzania, in East Africa, and Cameroon, Nigeria, and Senegal, in West Africa, since independence and drew lessons for future policies and programs (see box). This article draws on the findings of the study.

East Africa

The three East African countries studied inherited broadly similar production possibilities at independence. However, Kenya's agriculture, formerly the preserve of one of the largest European settlements in Sub-Saharan Africa, was much more advanced than Malawi's or Tanzania's. In both Kenya and Malawi, population growth has put intense pressure on agricultural land, and the structure of land holding has been dualistic, with a few large and many very small farms. In Tanzania, land has been abundant in most areas and the possibilities for agricultural production more diverse.

Since independence, the three countries have followed different policy paths with very different outcomes for agriculture. Kenya, which has achieved the fastest growth of agricultural output, has given smallholders a leading role in its development strategy. It has thereby achieved the greatest success in reconciling growth with equity, and in developing both foodcrops (especially maize) and export crops (tea, coffee, and horticultural crops). Malawi achieved substantial growth in high-value agricultural exports (especially tobacco, tea, and sugar) until 1983, but largely from estates; smallholder production grew little or not at all in per capita terms. Tanzania, as is well known, has given precedence in its development strategy to equity over growth. In the 1970s, heavy investments in industry and social welfare programs led to a severe overextension of government resources, and neglect of agriculture.

These differences in countries' performance reflect their differing macroeconomic policy environments and agricultural policies. Both Kenya and Malawi have maintained a macroeconomic policy environment that broadly favored agriculture and allowed them to adjust better than Tanzania to the severe external shocks all three East African countries have faced. These shocks included substantial terms-of-trade losses on agricultural exports. Unlike Tanzania, Kenya and Malawi have avoided prolonged overvaluation of their currencies, and thus implicit taxation of agriculture, and their budgetary deficits and inflation rates have been smaller and more stable than Tanzania's. Their shares of government expenditures in GDP have been smaller than Tanzania's, but they have devoted larger shares of their government budgets to agriculture and infrastructure.

As to agricultural policies, Kenya avoided explicit taxation of its smallholders by passing on international price changes to tea and coffee producers. Malawi, by contrast, responded to new opportunities for exporting tobacco in the mid-1960s and 1970s by promoting a rapid expansion of burley and flue-cured tobacco production on estates, because it was thought that only large farms could achieve the rapid growth necessary. Malawian smallholders retreated increasingly into subsistence farming, and the distribution of agricultural income and assets became increasingly skewed. The differences in the policies the two countries pursued in the 1970s, combined with differences in initial institutional endowments, left Kenyan small farmers better able than their Malawian counterparts to adopt improved maize and other technology in the 1980s, and created stronger growth linkages with the rest of the economy.

In Tanzania the government heavily taxed the major export, coffee. Though other exports were taxed less heavily and later even subsidized, producer prices have not compensated adequately for the implicit taxation caused by increasing overvaluation of the currency. Export crops have stagnated in both the large-scale and smallholder sectors, and smallholders have moved out of these crops into foodcrops. The difficulties created for smallholders by price and tax policies compounded the effects of institutional instability through such policies as involuntary resettlement in Ujamaa villages and successive official experiments with cooperative and public sector production and distribution arrangements.

West Africa

The presence of oil in Nigeria and Cameroon and phosphates in Senegal has meant that agriculture plays a smaller role in these economies than in the three East African countries studied. Nigeria inherited better infrastructure and institutional endowments than Cameroon or Senegal. Cameroon has more abundant and diverse agricultural land than Nigeria, where population pressure is higher. Senegal's variable and declining rainfall and poor natural resources for agriculture make it the least well endowed for agriculture of the three.

Unlike their East African counterparts, all three economies benefited in the 1970s from changes in their international terms of trade. The boom in the extractive sector, however, had adverse consequences for agriculture. It inflated incomes and expenditures, swelled the movement of population into cities, reducing labor availability in agriculture, and encouraged a shift in consumption away from traditional domestic foods toward imported rice and wheat.

Agricultural performance has been best in Cameroon. Like Kenya, Cameroon has followed relatively stable and predictable macroeconomic and sectoral policies. It has expanded its output of robusta coffee, cotton, and oil palm, and achieved the highest cotton yields in Africa (1,300 kilograms per hectare). Taxation encouraged a fall in the quality and profitability of arabica coffee, however, leading to a switch to food and horticultural crops. In response to growing urban demand, the government has encouraged production of relatively high-cost "new" crops such as rice and sugar, over traditional foodcrops such as cassava, yams, and sorghum.

Nigeria's agriculture declined rapidly in the wake of the oil boom, in part because of the implicit taxation of export crops through overvaluation of the currency, but also due to ever-changing thrusts in policy initiatives, neglect of technology, and erosion of the capacity of state and local governments to provide services.

Senegal's difficult natural conditions for agriculture have been exacerbated by poor policies. The loss of French protection for groundnuts, its main export, encouraged it to diversify out of agriculture into industry and, within agriculture, into irrigated rice. Its economic diversification and import substitution of rice have turned out to be costly, as is discussed below.

Productivity

Agricultural output in all the countries studied has grown more from expansion in area, and changes in cropping patterns, than from increases in yields per hectare. Yields on estates have risen impressively in Kenya and Malawi. But except for coffee in Kenya, cotton in Cameroon and Senegal, and maize in areas of assured rainfall, together with occasional irrigated rice schemes, average crop yields per hectare have not risen significantly on smallholdings. (Though productivity may have risen on original land holdings, in many areas population pressure has brought increasingly marginal land into cultivation, perhaps affecting statistics on average yields per hectare.) Pressure on land for agriculture is rising fast in several countries, and the need to increase land—and labor—productivity is becoming urgent.

All the countries studied have had major institutional problems in generating new agricultural technology, but Kenya has been quite successful in promoting technological change in maize, as well as in tea and coffee, pineapples, vegetables, potatoes, wheat, and pyrethrum. Over 60 percent of Kenya's small farms cultivate hybrid maize, compared to less than 10 percent in Malawi or Tanzania. In the West African countries, the most promising and cost-effective technical improvement has been the expansion of maize production under diverse conditions and, in the Francophone countries, of cotton; productivity in traditional crops has not increased.

Adjustment

Thus far, the main efforts of adjustment programs in agriculture in the six countries studied have been to rationalize prices and reduce the role of government in marketing. Many of the price reforms have sought to remove subsidies and to reduce the taxation of agriculture by adjusting exchange rates and bringing domestic producer prices into line with international prices. In East Africa, programs have also concentrated on governments' intervention in markets, and better allocation of resources to agriculture. Nigeria's program includes the removal of price distortions in the export crop sector; its export marketing boards were abolished in 1986. Senegal has abolished marketing boards, removed input subsidies, and revised producer prices.

The changes in relative prices have changed the mixture of crops being grown, but have not changed the low levels of productivity. This has brought home the need to address issues other than prices—such as land tenure arrangements, the generation and adoption of new technologies, and the institutional development necessary to broaden access to credit, extension services, and markets.

The studies undertaken for Madia have stressed the paucity of information on the very diverse microeconomic and institutional factors that determine producers' decisions. These factors need to be better understood on a specific basis so that price reforms can be complemented by the technological and institutional changes that specific countries and regions need if they are to achieve productivity growth (see Ajay Chhibber,

The Madia study

The Madia study was jointly undertaken by the World Bank, seven other donors (USAID, UKODA, DANIDA, SIDA, France, Germany, and the EEC) and the governments of six African countries (Kenya, Malawi, and Tanzania; Cameroon, Nigeria, and Senegal). The study covered a period of 25 years. Its analyses of macroeconomic and sectoral policy took account of the influences of historical and political factors on economic policy, and looked at the ways in which interactions between policy and resource endowments help to determine agricultural performance. In evaluating the role of aid donors, the study gave particular attention to the influences of donors' policy advice on recipient governments' policy and investment choices. The findings are being published in a series of books and working papers; further information on the study is available from the author.

"Raising Agricultural Output: Price and Nonprice Factors," *Finance & Development*, June 1988).

Role of aid

Aid flows to Madia countries have been large, and have had a profound effect on the scale, direction, and quality of recipients' development efforts. Excluding Nigeria, which received little concessional assistance in the 1970s, concessional foreign assistance supplied 20 to 60 percent of government expenditures in 1970–85 and was equivalent to between 5 and 20 percent of GDP. Just as important as financial assistance has been the donors' role in the formulation of policy and of investment strategies. Success in development depends less on the size of aid flows than on the quality of assistance.

The development of smallholder tea and coffee in Kenya, cotton in Cameroon, and maize in Northern Nigeria and elsewhere provides outstanding examples of the catalytic role that well-conceived assistance can play in agriculture. Overall, however, aid has made a relatively small contribution to the agricultural growth that has occurred.

In many instances, the swinging pendulum of donors' concerns has tended to divert attention from basic long-run problems. Development strategies in the 1970s tended to concentrate on "quick" poverty alleviation, which gave priority to helping low-income regions and populations, and to raising foodcrop production, mainly to meet growing urban demand. The results of these poverty-oriented strategies, and of efforts to replace imported food with domestic production, were mixed. In the 1980s, the emphasis switched to equally "quick" solutions, based on the correction of price incentives and liberalization of markets, designed to raise production, particularly of exports. Most recently, interest has revived in food security.

Too little attention has been paid to five prerequisites for achieving broadly based, sustainable agricultural growth:

Balancing food and export crops. In the 1970s governments, often encouraged by donors, shifted investments away from traditional export and foodcrops into new, high-cost, production of rice, wheat, and sugar for the urban sector. Reasons included export pessimism; humanitarian concerns about food security and poverty, especially in the light of the 1973–74 food crisis and severe African drought; the likelihood of Africa's increased exports competing with those of some aid-giving countries; rising domestic demand for food from growing populations; and expectations of rising world food prices. Efforts to ensure food security are obviously essential on welfare as well as economic grounds, but priority was in practice given to diversifying out of traditional foodcrops into new, high-cost production of rice and wheat for the urban sector.

The first lesson of the 1970s is the need to interpret the food security mandate broadly: it is often more efficient for a country to import certain foods (especially those consumed by urban dwellers), using revenues earned from thriving agricultural exports, than to grow all its own. Unfortunately, production of traditional foodcrops stagnated and agricultural export earnings fell; as a result, food import bills grew while the capacity to meet them shrank.

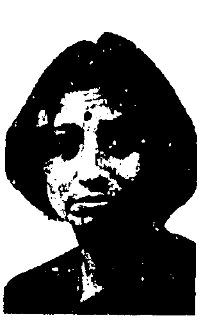
The second lesson is that whether at the household or at the national level, food security requires high and stable agricultural incomes. These can best be achieved by a balanced production strategy for food and export crops that draws on the productive capacity developed over a long period. Donors' advice and financial support for diversification out of traditional export crops, in which recipient countries had a strong comparative advantage, into new activities, was unfortunate. Such advice confused comparative advantage, based on the costs of the alternative production possibilities *within* a country, with the separate issue of the country's domestic costs relative to those of *other*, competitor, countries. In so doing, it failed to recognize the fundamental importance of cost-reducing technologies for maintaining competitiveness in traditional food and export activities. There was also a good deal of optimism about how quickly diversification could be achieved.

In Senegal, for example, economic analysis undertaken in the 1970s suggested that the country had lost its comparative advantage in its main export, groundnuts. This, combined with high projected rice prices in the mid-1970s, reinforced the government's desire to shift its own and donor support out of groundnuts into irrigated rice. Senegal lost shares of world trade in groundnuts and related products. Though it is true that Senegal's groundnut exports are less competitive than they once were, the Madia results suggest that a more cautious approach to moving out of groundnut exports, together with a more purposive emphasis on cost-reducing technology, would have maintained Senegal's competitiveness in a growing edible-oil market.

In Kenya after 1973–74, donors shifted their emphasis away from development of traditional export crops, warning of poor export prospects and the need for diversification. Notwithstanding, Kenya pushed ahead on the basis of its comparative advantage through very supportive government policies toward tea and coffee. Kenya's exports of these crops have grown rapidly, supplying increasing shares of world trade in these crops, and 50–60 percent of the country's export earnings.

In their support for adjustment in the 1980s, donors have again turned toward exports, and particularly toward correcting price distortions. Such price reforms have been easier than expected. But they now need to be followed by efforts to tackle long-term problems, such as the decline in research capacity in export crops and the need to develop new export markets. Unfortunately, the long-term attrition that has taken place in the export crop expertise of Britain and France has not been offset by growth of such expertise within Africa or from other sources that assist Africa.

Reconciling growth with equity. Donors' pervasive pessimism about export markets in the 1970s, together with a heightened concern for poverty alleviation, led them to reorient their approach to development away from growth and toward equity concerns. This change coincided with African governments' goals of expanding access to public services. Much progress was made in broadening participation in rural development and laying some of the foundations of long-term growth—for example through improving health and extending access to education. However, a large number of donor-funded projects inspired by concern for the poor depended on raising farm production in marginal areas, and areas where there were no suitable technologies for raising agricultural productivity; most such projects have had low economic rates of return (see Julian Blackwood, "World Bank Experience with Rural Development," *Finance & Development*, December 1988). A more balanced strategy would give priority to areas of known potential in the medium run while methodically seeking long-term solutions for resource-poor areas, including consideration of investment in human resources and of appropriate



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subsidies for certain groups in the short run and promoting emigration, to areas of more potential, or to pursue activities other than agriculture, in the long run.

Short-term macropolicy adjustments vs. long-term capacity building. There is good reason for donors' emphasis, in the 1980s, on relatively short-run policy reform. Nevertheless, it has left many donors with a need to rebuild their own capacity to assist with badly needed longer-term development investments. This is increasingly being recognized in the donor community.

Human capital and institutional development. By and large, relations between donors and governments still place much more emphasis on transfers of finance and technical assistance than on the development and use of African institutional and human capacity. Donors have often fallen back on technological and organizational solutions arising from their own backgrounds and expectations, which may have little to do with recipients' needs or their organizational and personnel endowments.

The successful cases of smallholder development cited earlier in tea, coffee, cotton, and maize expansion have all involved complex packages of public policy measures, designed on the basis of detailed local knowledge, together with strong field-level services that have responded to the grassroots needs of local producers, who have themselves developed a stake in the success of such efforts. In future, much will depend on how well African governments explain and donors understand the constraints on growth in individual projects and subsectors, and on the emphasis placed on training and relying on people with local knowledge. Governments themselves need to place greater emphasis on using external assistance to develop their own capacity.

Public sector. The Madia study emphasizes the strategic role the public sector has played wherever growth has occurred, by promoting a macroeconomic environment that is conducive to growth, an investment pattern that expands the supply of human and physical infrastructure, and an institutional strategy that supports agricultural research and extension and broadens factor and product markets.

In countries at early stages of development, the public sector plays a vital role in developing markets and broadening opportunities by investing in public goods. Where privatization is to be attempted, its speed, timing, and extent are all crucial to its success, especially at early stages of development. Unless the public sector has already helped to put in place transport and information networks that allow markets to function, and arrangements that ensure adequate supplies of credit to crop traders; and unless regulations exist that promote competition in the private sector, public monopolies may be replaced by private monopolies. The private sector may choose only to operate where profits are quick and high—as has been shown by experience with the liberalization of several African markets for grain and for fertilizer.

Conclusions

To sum up, the key issues identified by the Madia study include the following:

- High and rising pressure on land, and the urgent need to raise factor productivity. In much of Sub-Saharan Africa, technology development in agriculture is only now beginning to receive high priority. As yet, there are not strong enough links between the nature of resource endowments, the substance of development strategy, and the content of technology policy. Research and extension efforts in many cases need to be broadened, beyond plant breeding and toward, for example, soil management techniques and the integration of cropping with livestock and forestry.
- Mounting evidence that adjustment based on macroeconomic reforms and "getting prices right" cannot alone put African agriculture back on to a growth path. The study highlights the diversity of country circumstances and the importance of understanding individual countries' specific endowments, long-term processes of development, and needs, to which reform and investment packages must be tailored if they are to have sustainable positive effects. Unless the growing tendency of Africa's multilateral donors to "call the shots" on recipients' policies is accompanied by better and more consistent help with building indigenous capacity for development planning and implementation, the gains made under structural adjustment will not be maintained. In this context it will be necessary to reinstate aid at the level of projects and subsectors in its essential role as a catalyst of development, within the context of appropriately funded and targeted sector and macroeconomic policies.
- The desirability of reviving production of traditional food and export crops in which African countries still have a clear comparative advantage. More research is needed on export crops, as a complement to, for example, the currently exclusive focus on food crops of the Consultative Group for International Agricultural Research.
- The danger of relying on privatization to solve fiscal imbalances, and the need for effective actions by the public sector, especially in research, infrastructure, and information networks, to provide the preconditions for successful privatization and for smallholder agricultural growth. ■

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