Food Systems under Stress in Africa

African-Canadian Research Cooperation

Proceedings of a Workshop held in Ottawa, Ontario, Canada 7–8 November 1993

Edited by Ronnie Vernooy and Katherine M. Kealey
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**Food Systems Under Stress in Southern Africa:**

*Agenda for Research and Action*

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**Abstract** Southern Africa is sufficiently well endowed with natural resources to offer food security to its 80 million inhabitants. The food, agriculture, and natural resources sectors face problems of food production-population imbalances; lack of employment; household, national, and regional food insecurity; and environmental degradation. But, to get agriculture moving, nations must invest in five prime movers: technology, human capital, physical and biological infrastructure, effective institutions, and favourable economic and policy environments. In this paper, food security is defined and research results from the region summarized. Action to get agriculture moving must focus initially on encouraging political support for agriculture and empowering smallholder farmers and institutions in land reform and food security policy and going beyond structural adjustment to embarking on development strategies.

Southern Africa, over the last decade, has been a region full of hope and optimism with respect to the food, agriculture, and natural resources sectors. The region has also been devastated by recurrent drought culminating in the severe drought of 1992. Civil conflicts in Angola, Mozambique, and South Africa have also dampened the optimism.

Southern Africa is made up of 10 countries of wide variation in their abilities to achieve national and household food security and combat poverty and environmental decline. It is, therefore, important to account for these and other differences in ecosystems, political structure, and histories as we draw general conclusions. This paper focuses on the 10 states in the Southern Africa Development Community (SADC).

The food, agriculture, and national resources (FANR) sector of SADC is strategic to the economies because the majority of the estimated 80 million people live in rural areas. This sector contributes an estimated 35% of the regions’ gross national product (GNP), employs up to 80% of the total labour force, and accounts for 26% of the total foreign exchange earnings. In member states that are not dominated by mining, FANR contributes about 60% of total foreign exchange.

The SADC region is well endowed with basic resources of land, labour, and water for agricultural production, broadly defined to include crops, livestock, forestry, fisheries, and wildlife. Out of a total arable land base of 477 million ha, 5% is under crops, 41% range land, 33% forests and woodland, and 21% is currently considered unsuitable for agricultural use given available technology and market conditions (SADC 1992). In Lesotho and Malawi, however, most of the land has been brought under cultivation. Botswana is carefully considering the environmental implication of opening new land for irrigation. Zimbabwe and Namibia face problematic land inequality problems.

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1Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia Swaziland, Tanzania, Zambia, and Zimbabwe are the 10 countries of the Southern Africa Development Community (SADC). A postapartheid South Africa is expected to be the 11th member state.
On average, SADC member states have produced about 10 million tonnes (mt) of cereals a year over the last decade. The region still faces chronic difficulties in meeting its cereal requirements and the deficit for 1991/92 was estimated at 2.8 mt with a decade average deficit of 2 mt. This deficit rose to a record of 6 mt in 1992/93.

Livestock is a major activity in the region. In 1989, the region is estimated to have held approximately 32 million cattle, 15 million sheep, and 17 million goats. The distribution of the livestock, however, is uneven with two countries accounting for 64% of all cattle (Tanzania 44%, Zimbabwe 20%). Sheep and goats are the most important small stock in the region. Goats have added economic significance in Lesotho for mohair, and sheep in Namibia for Karakul.

The SADC region covers an area of 5.7 mkm², equivalent to 17% of the African continent. About 4.8 mkm² is land surface, whereas 0.9 mkm² is made up of inland water systems. Most countries in the region have considerable areas of land that are neither arable nor forested. Although not productive in terms of agriculture, these range- and wildlands have great importance for livestock, wildlife, and conservation.

Plant resources include forest, woodland, savanna, and grassland, which cover 61% (i.e., 2.9 mkm²) of the SADC region. Approximately 0.25 km² of this land has been set aside especially for forestry purposes. Indigenous, closed forests are quite limited, including a relatively small area of moist forest in northern Angola, and mountain areas in Malawi and Zimbabwe. Forest-savanna mosaics occur in Angola, Malawi, Zambia, coastal Tanzania, and in riverine and coastal Mozambique. Dry deciduous forests are common in northern Botswana, Malawi, south-western Zambia, and western Zimbabwe. There is a narrow strip of mangroves along the Zaire (Congo) river in Angola and the coasts of Mozambique and Tanzania. Grasslands occur in Lesotho, Malawi, western Swaziland, along the Angola-Zambia boundary, and in Zimbabwe. Although the region as a whole is self-sufficient in commercial, indigenous, and plantation wood resources, fuelwood resources are becoming increasingly scarce.

Almost 16% of the SADC region is inland water surface (i.e, 0.9 mkm²). This makes up the support system of a very important fresh water fish resource. Apart from this, the region has more than 5,000 km of coast-line with a 200 mile limit that extends into the sea and, therefore, supports an even more important marine fish resource. The total fish production in the SADC region exceeds 926,000 tonnes/year of which about 65% originates from marine fisheries and 35% from inland fisheries and aquaculture.

Wildlife of the SADC region is of exceptional diversity. Of Africa's 84 species of large herbivores, for example, more than half are found in the region; some of them in spectacular numbers, others less conspicuous. The more arid savanna zone contains very important populations of game animals. These have become particularly well-adapted to the arid and often agriculturally marginal environment. They have traditionally furnished the rural population with meat, skins, and other raw materials. As agricultural expansion has progressed, wild animal populations have come more and more into conflict with human endeavours.

In large parts of the region, the large indigenous herbivores have and are still being replaced by cattle. The greater part, however, of the semi-arid savanna woodlands of Angola, Mozambique, Tanzania, Zambia, and Zimbabwe and the arid thornbush steppe of Botswana still
support significant game populations. Wildlife-based tourism is of particular economic importance to Botswana with 37%, Zambia with 30%, and Malawi with 11.3% of total area set aside for this purpose.

**Major Problems**

**Food Production—Population Imbalance**

Rapid population growth is increasing the pressure on food supplies and the natural resources base, including fisheries, fuelwood, and grazing land for wildlife and livestock. In many SADC states, growth in population and income will demand that food supplies grow at 4–5% per year; an awesome task in the light of historical evidence. For example, the few countries achieving these rates of growth of food production have brought large areas of idle, undercultivated land under production and intensified irrigation. Moreover, few countries have achieved, and sustained, 4–5% annual growth rates for the agricultural sector as a whole for a decade or more. For example, from 1880 to 1960, the annual compound rate of growth of agricultural output was 1.5% in the U.S. and 1.6% in Japan.

In short, rapid population growth necessitates that expansion of efficient food production be one of the cornerstones of food security strategies in SADC. Food aid can help to fill the food gap as it did in India for 15 years, 1956–71. In the final analysis, however, each member state must develop a cost-effective strategy to ensure food availability through local production, storage, and trade.

**Lack of Employment in Rural Areas**

On average, 7 out of 10 people are living in rural areas in the region. The majority of the people will still be living in the rural areas by the year 2000 because of the inability of the industrial and service sectors to generate adequate jobs. For example, in the 22 low-income countries in Africa, the labour force in agriculture fell by only six percentage points (84–78) over a 16-year period, from 1965 to 1981.

Rural employment generation will be as important a challenge in the 1990s as expanding food production had been during the 1980s. SADC’s food and agriculture strategy must address the following employment question: What can be done to help school leavers, redundant workers in mining and parastatals, and returning miners from South Africa find productive employment in agriculture and rural nonfarm activities until population growth declines or industrial expansion creates more urban employment opportunities? This challenge requires far-reaching programs to bring more land under cultivation, increase the productivity of land currently in use, promote rural growth points and market towns, and employment-intensive industries and long-term public works programs. These programs can fulfil the objectives of providing jobs, increasing the purchasing power to acquire food, and developing rural infrastructure.

In summary, the emerging employment crises requires a medium- and long-term perspective because the newcomers to the labour force in year 2000 are already born. Close cooperation
between industrial and agricultural planners is required to develop policies and programs that concentrate on increasing the rate of agricultural growth and spreading employment opportunities throughout the rural economy.

**Household Food Insecurity**

An estimated 25% of SADC citizens are hungry or malnourished or both. There is great divergence between national levels of household food insecurity, and this issue will be discussed further later. The thrust of SADC’s food security strategy is clear, research on food crops and investment in food production and storage are essential but not sufficient vehicles for solving malnutrition and household food insecurity problems. The reduction of poverty is a central part of a strategy to reduce food insecurity and malnutrition. Rural income and employment generation, food aid, and public feeding and public works programs are important components of the strategy to tackle malnutrition and food insecurity among the poor, the underemployed, and the sick.

**National and Regional Food Insecurity**

From 1980 to 1993, SADC’s main concern has been getting food and agriculture programs moving, with the aim of reducing food dependence on the world at large. Changes in the world food economy and international capital markets dramatise the need for SADC’s agricultural strategy to be continually modified in the context of changing international realities. National and regional food insecurity can originate from drought and national, regional, and international economic forces, including the following:

- Natural disasters such as drought, floods, and diseases and pests;
- Blockages and disruption in transport routes; and
- Shifts in international prices of food imports and export crops.

Because SADC economies are open and heavily dependent on international trade for food imports, such as wheat, and for exports, such as beef, cotton, coffee, and tea, it follows that national and regional food insecurity can originate in sudden and unpredictable shifts in commodity prices and increases in foreign exchange requirements for food imports. Research on international commodity markets is a crucial input into national and regional food policy analysis. The challenge is to design cost-effective national and regional food security policies to combat a given level of risk associated with drought, pests, e.g., locusts, transport disruption, and international price movements. To anticipate rather than respond to changes in the world food economy, SADC will require assistance from its cooperating partners to help increase its policy analysis capability as part of the strategy to develop local capacity in economic management.

**Environmental Degradation**

Evidence from a wide range of scientific studies indicates that sustained overuse of biological systems can lead to a cascading effect that is difficult to reverse. The loss of top soil,
tree and grass cover from increasing human and livestock pressure is now a fact of life in the region and in other parts of Africa. For example, livestock numbers in Africa have increased 75% from 1950 to 1983. In a number of SADC countries, fuelwood consumption is now running far ahead of tree growth. There is, therefore, a need to address the problems of environmental degradation in the region and implement measures to preserve natural resources and a healthy environment. But these measures require sound economic analysis and close cooperation between specialists in ministries of natural resources and of agriculture.

SADC states recognize the need for a strategy of conservation for sustainable development. Thus conservation is defined as the management of human use of the biosphere with a view to deriving the greatest sustainable benefit for the present and future generations. Conservation within the region is faced with the following priority problems: reduction in quality and quantity of agricultural areas and grasslands; accelerated soil erosion and land degradation; overgrazing and desertification; extinction of species, subspecies, and varieties; loss of support systems of fisheries and wildlife; and inadequate institutional and operational mechanisms essential for land-use planning.

Getting Agriculture Moving

Why have the food and agriculture sectors of Africa done so poorly over the last three decades. There is now enough evidence to suggest that Africa, compared with say Asia or Latin America, is only at the early stages of human, scientific, and institutional, development. Looking back to the beginning of Africa's independence in the late 1950s and early 1960s, African nations, with the assistance of Western donors and the council of Western economists, gave priority to promoting basic industries and taxing agricultural exports to finance industrialization and urbanization (Rukuni and Eicher 1991). This was basically an attempt to skip stages of development and "catch up" with the industrialized nations. Africa is today paying a price for not investing in the prime movers of agricultural development.

In spite of the urgency of Africa's agricultural crisis, there appears to be no shortcuts to intensifying, on a long-term basis, investment in the prime movers of agricultural development. Five basic prime movers must work together to achieve sustainable agricultural development:

- New technology produced by public and private investments in agricultural research.

- Human capital in the form of professional managerial and technical skills produced by investments in schools, agricultural colleges, faculties of agriculture, and on-the-job training and experience.

- Sustained growth of biological capital (genetic and husbandry improvement of livestock herds, crops, forests, plantations, and so on) and physical capital investments (large and small dams, irrigation, grain stores, roads).
• Improvements in the performance of institutions, such as marketing, credit, research, extension, and land reform.

• Favourable economic policy and political environment (Eicher and Rukuni 1986).

Worldwide experience has shown that no single prime mover, such as new technology or higher prices, can increase agricultural production and sustain it for any period of time. Another significant characteristic of prime movers is their long gestation period (10 to 25 years).

Hindsight tells us that over the last three decades African nations and donors should have pursued development rather than growth strategies. The more current experience with structural adjustment programs in Africa also suggests that attempts to stabilize economies without a deliberate policy to bolster long-term investments into prime movers will not "get agriculture moving." The initiative to strengthen Africa’s human capital and institutional base for smallholder agriculture must emerge from Africa. The routine tailoring of African strategies to changing trends of donors over the past 30 years must be put to rest.

**Food Security Research**

SADC has adopted the following definition of food security:

Food security is defined as ensuring that all members of a household, nation or region have access to an adequate diet to lead an active and normal life.

Food security, according to Rukuni and Eicher (1987), has two essential elements: food availability and food access. The University of Zimbabwe/Michigan State University food-security research, therefore, addressed both sides of the food security equation. Food availability can be achieved through domestic productivity, storage, trade, food aid, and so on. Access to food is achieved through home production, purchasing on the market, and through food-transfer programs. For purposes of research, food security was defined at three levels: household, national, and regional. At each level, a set of issues and problems were addressed. Major findings and conclusions of research within Southern Africa are (Rukuni and Bernsten 1988):

• Poverty is considered the major cause of hunger, malnutrition, and environmental damage.

• The relationship between hunger and economic growth is important in developing food security policy. This is because even though economic growth is the ultimate cure for poverty and hunger it will take a long time to achieve such levels of economic growth. African governments in the short run have the duty to ensure that nationals

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3Research results summarized here are mainly from the University of Zimbabwe/Michigan State University research project on Food Security in Southern Africa.
are not starving needlessly. In this regard, the problem of hunger is not confined to the agricultural sector alone. Rural nonfarm employment is a vital element in the ability to acquire food. There is also increasing evidence that as rural infrastructure and markets develop, cash crops increase household incomes and their ability to acquire food.

- Rural households are not homogenous entities. Even in high-potential areas and in good agricultural seasons hunger and malnutrition may persist in chronic food insecurity.

- Although food crops are a major source of income in most areas studied, remittances, livestock sales, and wages from nonfarm labour are important income sources. The level and composition of these sources varies greatly between households and regions.

- Marketed surplus varies considerably between years, regions, and households. In favourable rainfall years, marketed surpluses stretch the capacity of government and private trades to store, and dispose of, these surpluses.

- In drought-prone regions, government sponsored food-for-work and other food-transfer programs are an important source of food security for the most at risk.

- Unreliable rainfall is a major source of risk. Interyear yield variability is extremely large, even though farmers have adopted coping strategies such as staggered planting, intercropping to reduce risk, etc.

- Household labour is a major production input. Labour is, paradoxically, in limited supply given demands of improved farming methods. Compared to urban wages, returns to labour in agriculture are low.

- Market controls and restrictions more often than not depress producer prices, hinder movement of grain, and discourage rural traders.

- Parastatal marketing is geared to purchasing and storing food centrally, but is ineffective in distributing food to deficit regions and households.

- At the regional level, intraregional trade is negligible, mainly because of nontariff barriers. This means that even if the region is self-sufficient in aggregate terms, some nations still face severe food insecurity problems.
Agenda for Action: Lessons from Zimbabwe

Mobilizing Political Support for Agriculture

Zimbabwe’s agricultural development experience provides some valuable lessons and insights for policymakers and donors in Southern Africa, South Africa, and the rest of Africa.

Agriculture is treated differently in the political process in the industrial countries than it is in most countries in Africa. This issue is of fundamental importance in understanding agricultural stagnation in many countries in Africa. With few exceptions, agriculture is heavily taxed in most countries in Africa and used as a national parking lot for the poor. At the same time, governments have generally reinvested only a token amount of the tax revenues extracted from farmers back into rural institutions, infrastructure, and villages. By contrast, virtually every industrial country subsidizes its farmers and urban consumers, donates food aid abroad, and still has a chronic problem of farm overproduction. For example, the accumulation of agricultural surpluses in Japan, the United States and Western Europe has been fostered by farm commodity groups with enormous political power (e.g., rice farmers in Japan, grain producers in the United States and livestock producers in Europe).

A high percentage of new African governments from 1960 to 1990 have been dominated by top-down military and industrial and urban political coalitions. Most organized farm groups have been excluded from the political arena, and farmers have been taxed to generate public revenues to support the army, highly visible social services, and a barrage of government beer, textile, and bicycle factories. The extent of the tax burden imposed on agriculture in Africa and other Third World regions is staggering. A recent World Bank study of 18 Third World countries over a 25-year period (1960–84) revealed that the average tax burden on the agriculture sector was 30% (Schiff and Valdés 1992).4

If African farmers are excluded from the political process, who will make the case in the national political arena for rural schools, higher farm prices, year-round feeder roads, rural electrification, and modern colleges and faculties of agriculture? The first generic lesson that emerges from Zimbabwe’s two agricultural revolutions is that farmer-led initiatives have been crucial to Zimbabwe’s agricultural success.

Today, Zimbabwe has two farm organizations — the Commercial Farmers Union (CFU) and the Zimbabwe Farmers Union (ZFU).5 By contrast, in many other African nations, farm

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3This section draws heavily from Eicher and Rukuni (n.d.).

4Schiff and Valdés (1992) report that the average total taxation (direct and indirect) of agriculture in three African nations included in their study was as follows: Cote d’Ivoire, 49% for 1960–82; Ghana, 59.5% for 1958–76; and Zambia, 46.3% for 1966–84.

5The Zimbabwe Farmers’ Union (ZFU) was formed in 1991 through the merger of the Zimbabwe National Farmers’ Union (ZNFU) and the National Farmers’ Association of Zimbabwe (NFAZ) (see Bratton 1991).
organizations are kept on short tether by the ruling party. Food and agricultural policy in Africa will continue to be dominated by the interests of urban, industrial, and military coalitions if farmers and farm organizations have little voice in the political system.

In summary, agricultural revolutions worldwide have not been simple technocratic exercises. Rather, political support for agriculture has been an essential ingredient. The policy lesson for nations in Africa is the need to encourage farmers to develop farm organizations and make the case in the political arena for public investment in agriculture and rural communities. Why are donors so reluctant to help farmers establish farm organizations and encourage increased farmer participation in the political process in Africa?

**Land: Putting People to Work**

Experience in Zimbabwe and other countries has shown that smallholders can be competitive with large farms if they have political support, access to technology and efficient farmer support services, incentive prices, and market outlets. Two important dimensions of the land question in Zimbabwe have not been adequately addressed in the current debate over land.

The first issue is the economic justification for a smallholder agrarian structure to replace Zimbabwe’s dual agrarian structure over time. The economic case for land reform and a smallholder-dominated agrarian structure is supported by empirical evidence “that small farms generally have a higher value of output per unit of land and capital than do large farms” (Dörner 1992, p. 23). Binswanger and Rosenzweig (1984) have shown that small farms are generally more efficient than large farms because family members receive a share of the profits and, therefore, have more incentive than hired workers to work hard. Also, there are no hiring and search costs for family labour and, unlike hired labour on large farms, each family member assumes a share of the risk in smallholder farming.

The second issue that should receive more attention in current debates is the role of land policy in rural employment generation. Because of rapid population growth, the agricultural and rural nonfarm sectors will have to provide jobs for up to 75% of all newcomers to Zimbabwe’s labour force in the foreseeable future. Land reform for smallholders is appealing because it can help meet the challenge of putting more people to work in rural areas. This issue is of strategic importance to policymakers because the absolute size of the rural labour force will increase over the next two to three decades. But there is a large gap between the theory and practice of a smallholder road to development. The following discussion reveals that there are complex problems involved in developing efficient farmer support organizations to assist hundreds of thousands of smallholders.

**National Food Policies**

Southern Africa is now probably the most organized region when it comes to national and regional food security. Food security at the regional level is becoming more feasible as

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*See Berry and Cline (1979), for empirical evidence of the inverse relation between farm size and productivity in Asia (India, Pakistan, the Philippines) and Latin America (Brazil and Colombia).*
governments develop national food policies. Botswana clearly took the lead in the early 1980s and, eventually, in 1985, promulgated a National Food Strategy white paper that lay down a permanent mechanism for dealing with hunger and malnutrition. This strategy allows Botswana to support up to 60% of its 1.1 million people through various food transfer programs and, in particular, to deal with recurring drought.

A number of other countries in the region have now developed national food-security policies, in particular there is Malawi, which has probably the most advanced national nutrition-monitoring mechanism. The experience of the 1992 drought demonstrated that SADC was prepared for self-help through commercial imports as well as an effective food aid program. This is demonstrated by the record $850 million assistance program and a record 6 mt of food moved into and within the region in a little over a year avoiding a potential calamity.

**Cash Crops and Food Buying Power**

Zimbabwe’s smallholder cotton success story adds important empirical information to the ongoing debate over the role of food and cash crops in African development. Many academics and members of the donor/PVO community contend that cash crops are the "mother of poverty" and that they exacerbate hunger by diverting land and labour from food to cash crops. For example, Walter Rodney’s (1974) widely read polemic "How Europe Underdeveloped Africa" makes a powerful case against producing cash crops for overseas markets. But yesterday’s experience is not an adequate guide for making current policy decisions on whether to produce food, or cash crops, or both.

There is now solid empirical information in many African countries that cash crops such as cotton, cut flowers, and horticultural products can help improve the lives of smallholders. Clearly, cotton has helped thousands of poor farmers in Zimbabwe increase their food buying power, pay for school fees, and finance investments in oxen and equipment that has been useful in producing food. But it would be irresponsible to lay down a blanket policy guideline for, or against, cash crops in Africa. What is needed is a case-by-case analysis of the social, political, and economic dimensions of cash cropping. Rodney’s blanket contempt for cash crops should be replaced by a pragmatic assessment of the likely economic and social impact of each cash crop on a country-by-country basis. There is growing evidence that cash crops can play a positive role in increasing the food buying power of poor farmers.

**Strengthening the Rural Service Institutions**

The Zimbabwean success with smallholder agriculture after independence is solid evidence of the pay-off to effective service institutions, particularly marketing, credit, research, and extension. By providing these services, which had been denied smallholders before independence, smallholders outstripped large-scale commercial farmers in maize and cotton production. Zimbabwe thus proved that both large- and smallholder farmers can be dynamic forces in national development.
The Zimbabwean experience with institutions, however, also exposed some of the inexperience and lack of capacity in providing effective service to smallholders. Thus credit, research, and marketing and extension institutions are still unable to operate effectively as a system. Moreover, these institutions need major reform in philosophy and approach because the needs of smallholders and the conclusions are considerably different than for large-scale farming conditions.

**Beyond Structural Adjustment**

Development is a long-term process that unfolds over decades, generations, and centuries. Nevertheless, the North–South development dialogue has been dominated by a succession of short-term development thrusts that have originated in Washington, Rome, Brussels, and Paris. Over the last three decades, these development thrusts have included economic growth in the 1960s, integrated rural development in the 1970s, structural adjustment in the 1980s, and sustainable development in the 1990s. For example, about two-thirds of the nations in sub-Saharan Africa are currently implementing structural adjustment programs to improve macroeconomic policies, reduce the size of the government bureaucracy, and increase the role of the private sector and reliance on market forces. In most cases, structural adjustment loans have been cast in a short-term of 5–10 years.

The World Bank and many other donors have offered structural adjustment loans to African nations as an incentive to carry out badly needed policy reforms. But structural adjustment programs are not a substitute for a coherent and balanced long-range national development plan. Moreover, structural adjustment programs are not a substitute for a national agricultural development strategy. Finally, structural adjustment loans do not embody political muscle, which is vital to the success of the reforms because, ultimately, successful structural adjustment or policy reform is essentially a complex political bargaining process.

There is now a need for agricultural policymakers and planners in Southern Africa to move beyond structural adjustment and develop a strategy for an agricultural revolution. The challenge ahead for SADC is to put its political muscle, policy attention, and government expenditures behind a broad-based strategy to increase rural production and employment in both favourable and low rainfall areas, which is contingent upon strengthening the prime movers of agricultural development.

Smallholder-led agricultural growth will increase food and cash crop production and rural employment that, in turn, will generate effective demand for products from the industrial sector. But the agricultural technology/smallholder road to development is only applicable to rural households who have adequate land and resources (e.g., credit, draft animals, access to markets) to adopt new technology and employ all of the available family labour in farming. Rural households without adequate land or resources must be assisted by special food-for-work and food-safety nets and investments in health and education to equip them for eventual out-migration to the industrial–urban sectors.
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