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 Vernooij and Katherine M. Kealey
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INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
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Food Crisis and Strategies in Rwanda

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Abstract Food insecurity is a very serious problem in Rwanda. Agriculture, which is the main source of national income, and the provision of food in general are under stress. Agricultural production is unable to satisfy the (increasing) demand for food. During the 1980s, and especially since the 1988-1989 famine, a large part of the population is suffering from chronic food shortages. To develop sustainable and equitable food security strategies, two major constraints must be considered: the explosive growth of the population and the rapid degradation of the soils. Overpopulation contributes to overexploitation of arable land, which leads to soil erosion and loss of fertility. At the same time, farmers do not have the financial means to invest in soil improvement. Research has an important role to play in developing a demographic and agricultural policy based on sustainable and equitable use of available land.

This paper presents a case study of the food strategy and food crisis in Rwanda. To address the issue of food systems under stress in Rwanda, we must mention the one million people who have been displaced by the civil war of October 1990. These people, who have been forced to leave their land, homes, and other belongings behind, have been suffering for more than 3 years already, especially in terms of food supply. Hundreds of children, pregnant women, and the elderly have died. Today, with the peace accords of Arusha and the return of the people to their homes, we hope that the country can now deal with its development and rebuild what has been destroyed by the war.

Unfortunately, the fighting has not completely ceased in this African subregion of great lakes. The war continues to kill people, this time not in Rwanda but in neighbouring Burundi where a military coup has caused the massacre of thousands of people. The direct consequence of this war is that 500,000 persons have sought refuge in Rwanda resulting in enormous additional pressure on food demand, which is already too high under normal conditions. Now, to guarantee the security of people and their belongings and to be able to develop a research and action plan for a sustainable food security at the local, national, and regional levels, we need a democratic state and political stability, in other words, a democratic development process.

Rwandan Agriculture

Agriculture forms the basis of Rwanda’s economy. It consists of food crops and export crops (primarily coffee and tea). Farming is the major source of income for farm families (some 95% of the population). The lion’s share of food production is consumed directly by farm households, i.e., subsistence farming. A small fraction of output is surplus that is sold at local markets to feed the urban population. This is the primary source of cash income for farm households.

The output of industrial crops (coffee, tea, pyrethrum) is destined almost entirely for export. It constitutes the country’s main source of foreign exchange and generates cash income for peasant coffee growers. Tea production, unlike coffee, is in the hands of the government. The production
of food crops falls into four main sectors: bananas, cereals, legumes, and tubers. The relative importance of each varies according to area, primarily as a function of altitude and rainfall. The government is advocating crop regionalization with the aim of intensifying agricultural production.

In recent years since 1980, however, agricultural output has been dropping steadily, and the shortfall has been increasing. In consequence, the rural population has joined the urban population in having to import significant quantities of food, specifically cassava, beans, and sorghum. Such products are traded from one part of the country to the other (hill, commune, prefecture), or are imported from neighbouring countries: Burundi, Tanzania, Uganda, and Zaire.

**Short-Term Food Demand and Supply**

From independence until 1988, food production seemed adequate, albeit irregular with supply more or less following the demand curve. In quantitative terms, the availability of food per inhabitant does not seem to have suffered under the weight of population growth (Table 1). In terms of nutritional quality, however, there is a sharp food imbalance, with a marked shortfall in animal proteins, fats and certain vitamins (Vis et al. 1975).

A significant food shortfall became increasingly apparent from 1988 on, even in quantitative terms. This resulted in famine (official documents use the euphemistic term "scarcity"), which hit the country hard and caused many deaths.

The primary reason for this was the unusual weather conditions of 1988 when heavy rains were followed by severe drought, the effects of which were felt throughout 1989 and in subsequent years. When we surveyed the population by means of interviews on this topic in the community

| Table 1. Increase in food production 1962-1986. (Annual rate of increase in percentage.) |
|----------------------------------------|-----------------|-----------------|-----------------|-----------------|
| Legumes                              | 8.8     | 1.2     | 10.4    | 6.0    |
| Cereals                              | 6.9     | 2.8     | 9.3     | 5.2    |
| Carbohydrates                        | 2.8     | 7.0     | 0.3     | 3.9    |
| Bananas                              | 31.1    | 2.3     | 11.0    | 11.7   |

of Nyokizu, Butare Prefecture, on behalf of Oxfam, we were told that the famine was comparable to the Ruzoyoyura famine of 1943–45. The difference was that the seriousness was less apparent this time and the damage was limited (in terms of loss of human life) by the relative ease with which food could be distributed (an extensive infrastructure of good roads and means of transportation, supplemented by international food aid). The statistical survey of the economy (Cahiers Economiques du Rwanda No. 4) describes trends in agricultural output and the problem of food self-sufficiency for the four food crop categories as follows, for the period 1988–90 (Planning Ministry, Rwanda 1992, pp. 42–43).

**Legumes**

Overall production of legumes rose by 9.1% in 1989 over the 1988 figure, which was down 6.4% from the previous year. The increase was only temporary, however, as output fell by 12.5% in 1990. The increase in production in 1989 resulted from increases in the output of peas (48.3%) and beans (7.8%). Output of both crops declined significantly in 1990 (by 35.8 and 10%, respectively) accompanied by a 44.4% drop in peanut output.

**Cereals**

Cereal production increased by 10.9% in 1989, compared with a 1988 decline of 6.9% over the previous year. This increase was a result of a significant increase in output of sorghum and rice, along with a parallel decrease in 1989 in other products, namely maize, finger millet, and wheat. Sorghum output increased by 32.7% and rice by 69.2%, whereas maize, finger millet, and wheat declined by 18.1, 5.9, and 2.2%, respectively. Because the declines did not involve large amounts, the increase in sorghum and rice production resulted in a net increase in cereal output.

The production increase did not continue in 1990. That year, the irregular rains in the major producing areas resulted in a significant drop of 14.4% in cereal output. The most severely affected crops were rice and sorghum, which recorded declines in production of 22.4 and 46.9%, respectively.

The decline in rice production, which had been noted over several years, was temporarily halted in 1988–89 by positive growth rates. This improvement did not, however, last, as the situation again deteriorated in 1990, when output dropped by 46.9% over 1989. Rice production activities suffered from the many problems in the rice-growing industry: quality, management of irrigation water, plant disease, and high production costs.

**Tubers**

In 1989, tubers, the second most important crop after bananas, registered the largest rise (19.3%) in comparison with other categories, following a drop of 11.1% in 1988 over the 1987 figure. The increase in tuber output in 1989 was due primarily to an increase in potato production. The increase in cassava production (21.9%) also had a considerable effect. Sweet potato production increased by only 3% as output was limited by a shortage of cuttings. Output of taro and yams remained essentially steady, with a slight rising trend for taro, matched by a decline in yams.
The situation deteriorated further in 1990. Tuber output dropped 11.2% because of a decline of 41.9% in cassava and 4.6% in sweet potato production, in the wake of a proliferation of diseases affecting these crops and the ongoing shortage of sweet potato cuttings. Taro output increased in consequence (91.2%) as a substitute for these two commodities. Potato production increased slightly (by 3.7%).

**Bananas**

Banana production increased by 2.8% in 1989, after declining by 6.5% in 1988, as a result of an improvement in weather conditions for crops in the producing areas. This rate of growth continued in 1990, as a result of particularly favourable weather conditions and continuing efforts to combat disease; 1990 output was 18% up from 1989.

**Risk of a Chronic Food Crisis**

Agricultural production has recovered somewhat after the famine of 1988–89. Unfortunately, the effects were mitigated by the war of October 1990. Fighting took place in the volcanic lava region, which is a major potato-producing area and, in the Mutara region, which has become an important source of food supplies, specifically rice and livestock, since it was developed.

These cyclical factors (weather conditions, war) affecting agricultural production are compounded by structural problems, specifically low yields as a result of overexploitation and soil deterioration. This is corroborated by Cahiers Economiques du Rwanda:

Total agricultural output in 1991 increased because of continuing favourable weather conditions affecting the producing areas as a whole and a decline in crop diseases. Yields nevertheless declined in several areas as a result of erosion and soil deterioration (Planning Ministry, Rwanda 1992, p. 42).

Relative self-sufficiency in food has been possible for some time now as a result of a strategy of bringing new land into production and reducing the amount of land lying fallow. With the exception of the swamps, almost all the reserves of arable land are now under intensive production and traditional farming methods are accordingly no longer capable of meeting the nation’s food requirements.

Because of the constantly increasing population, demand for food is also increasing, but the resources, in terms of available arable land and extensive agriculture, are lacking. We are witnessing a steady drop in the size of family farms. Although the size of the average family farm was estimated by the Belgian authors of the 1950 10-year plan at 2.88 ha, this had sunk to 1.20 ha, according to the 1984 National Agricultural Survey (Ministry of Agriculture and Livestock Raising, Rwanda, 1984, p. 69).

This is, however, merely an average as in reality a growing number of households farm less than 0.50 ha. It is often, moreover, more appropriate to regard them as landless peasants because their farms do not produce enough to meet their subsistence needs. They live below the poverty line and either hire themselves out as labourers to other peasants with larger farms or look for
small, nonfarm jobs to survive. Others simply choose to emigrate to neighbouring countries, whereas others resort to outright begging. In short, close analysis reveals that the food crisis of 1988–89 was an indicator of the precarious nature of Rwanda’s food self-sufficiency.

Those prefectures most affected (Butare, Gikongoro, and Kibuye) are unquestionably the areas that have habitually suffered from chronic food shortages. Unfavourable weather conditions merely aggravate the latent food shortage.

What is very serious, however, is that this situation is spreading to other regions of the country or, at the very least, to certain classes of the population in normally self-sufficient areas. The deterioration in the food system is, therefore, both qualitative and quantitative:

Despite our finding that overall calorie supply is adequate to feed the population...a large number of households lack sufficient calories. The poorest households are, on average, far below what they need in terms of available calories.... [and] ...these food shortages are chronic for a large proportion of the population (Loveridge 1992, p. 31, 35).

**Research Project On Sustainable Food Security**

The food challenge in the medium, and especially in the long term, is common to all of Sub-Saharan Africa, undoubtedly with some aspects that are peculiar to Rwanda, and demands new strategies to deal with it. The World Bank Report, entitled "Sub-Saharan Africa: From Crisis to Sustainable Growth," explains the challenge in these terms:

More and more Africans are going hungry. Severe food shortages were exceptional in 1960; now they are widespread. It is estimated that about one-quarter of Sub-Saharan Africa’s population — more than 100 million people — faces chronic food insecurity. Expanding food production is essential — the target is 4 percent growth a year — although that will be adequate only if food trade within Africa is also liberalized. This rate of growth would be enough to feed the growing population (2.75 percent a year), improve nutrition (1 percent a year), and progressively eliminate food imports (0.25 percent a year) between 1990 and 2020. An improved supply is not enough; the purchasing power of nonfarm families will also have to be sufficient. With the rising level of employment proposed in the target scenario, the number of low-income households unable to afford an adequate diet would gradually decrease. But recurrent droughts will continue to cause famine for a residual core of the poorest. For this vulnerable group, sharply targeted food subsidies or food-for-work programs will be needed, supplemented by direct feeding programs for malnourished women and children (IBRD 1989, p. 6).

Strategies for a fair, sustained growth in output are absolutely essential if we are to tackle this problem of hunger effectively and respond adequately to the inexorable rise in the demand for food. Two major variables must be taken into account to achieve this: exploding population growth and accelerating environmental degradation.
Medium-Term Sustainable Food Security Research Project

In the case of Rwanda, a research project has been initiated, led by a multidisciplinary team, with support from Canada's International Development Research Centre (IDRC). Its primary objective is to see what kind of strategies can be implemented by a hungry rural population in a densely populated area to combat hunger through the sustainable development of the resources available in the local human and physical environment.

Rwanda is not only the most densely populated country in Africa (over 280 inhabitants per square kilometre, in relation to total usable farmland), its birthrate currently surpasses the world record (birthrate 5.2%, mortality 1.8%, growth 3.4%). The August 1978 national census recorded a population of 4,819,317, whereas the August 1991 general census of the country and its population recorded more than 7 million, with the prospect of reaching 10 million by the year 2,000 (Republic of Rwanda 1984). In light of the population situation, one of the major problems facing Rwandan agriculture is the amount of farmland available for cultivation. Given the limits on available farmland, research will focus on the peasants' land use, their choice of crops, and farming methods.

Subsequently, the research will attempt (specific objectives) to see how the population and the local authorities perceive the problems of hunger, how they attempt to respond to these problems (convergent or divergent approaches), to see to what extent these solutions are compatible with sustainable management of the available resources:

- Highlight the rural population's ability to innovate in response to famine; and

- Highlight opportunities for increasing incomes through farm and nonfarm activities that are compatible with environmental conservation.

Research Project On Long-Term Sustainable Food Security

Based on the research findings at the local level, on the peasants’ farms and with the peasants, agricultural and food (macro-socioeconomic) strategies will be developed at the national and regional (eastern Central Africa) levels for the long term. To achieve this, it will be necessary to create an appropriate research framework in which researchers, decision-makers and other principle social and economic players work together in developing an agenda of priority themes and goals and developing strategies to achieve them:

A long-term perspective of sustainable growth with equity in Sub-Saharan Africa is correctly concerned with economic policy goals and improving the efficiency of policy instruments. It should also consider political developments and the environment in which economic objectives are specified and pursued and the political processes and institutions that produce the national agenda, which would explain why past goals were not achieved and why the instruments employed failed or were prevented from functioning fully (Tarr 1990, p. 32).
Conclusion

Taking into account the environment under stress, we can no longer use the available natural resources without any long-term planning and management. It is of crucial importance, therefore, to develop policies and strategies in the agrofood sector that promote viable and sustainable food security as well as conserve our natural resources.

Rwanda, is confronted with the interrelated problems of increasingly less fertile arable lands and a growing population. To solve these problems, we urgently need to develop modern agricultural techniques that are adapted to the agroecological conditions of the country. We must also establish a close collaboration among all the social actors involved: farmers, researchers, technical experts, politicians, and administrators.

To achieve equitable food security, agrofood policies and strategies should give priority to rural households. Farmers, who are the principal actors in the agrofood sector, should be the principal beneficiaries of agricultural development.

References


