Staple-crop marketing in sub-Saharan Africa:
Ten case studies

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1 INTRODUCTION

1.1 Background

Staple food crops are crops that are widely grown and consumed and that contribute a significant portion of the caloric intake of the population. In rural areas of developing countries, staple foods are generally the least expensive source of calories available. Most staple foods are derived from cereals (such as maize, rice, wheat, and sorghum) or starchy root crops (such as cassava, sweet potatoes, and yams), but other crops (such as pulses or plantains) may also be staples in some regions. Although there are exceptions, the following general patterns characterize the production and consumption of staple foods in developing countries:

- A relatively small share of production is marketed. Because staple foods are inexpensive sources of calories, they tend to have low value/bulk ratios, which means that the cost of transporting them is high relative to the value of the commodity. Poor infrastructure and high costs of marketing further reduce the marketed share of output.
- The importance of staple foods in the diet depends on household income. Poor households spend a larger share of their income on food, and staples represent a larger share of the diet, precisely because they are an inexpensive source of calories.
- The composition of staple food consumption mirrors production patterns. Because of the small share of staple crop production that is marketed, the regional distribution of consumption of each staple food follows closely the regional distribution of production.
- The production patterns of staple crops depend on agro-ecological conditions. For example, sorghum and millet are most important in semi-arid regions, while maize and rice tend to dominate higher-rainfall areas. Cassava can be grown over a wide range of agro-ecologies, but it is most important as a staple in higher-rainfall areas.

However, it is misleading to think of staple crops as purely subsistence crops. Almost all farm households in developing countries have some connection to the market, selling agricultural products or labor and buying food and non-food items. In some situations, staple crops also act as cash crops. In the densely populated countries of Asia, rice is often a cash crop. Similarly, 84% of the cassava produced in Benin is marketed, and 42% of the rice grown in Tanzania is marketed.

Nonetheless, staple crop marketing systems suffer from a number of contraints, particularly in sub-Saharan Africa:

- High post-harvest losses: Post-harvest losses are high due to insufficient drying, inefficient processing equipment, and inadequate storage facilities.
- Insufficient storage: Cash needs at harvest time mean that farmers must sell most or all of their harvest when prices are lowest. This reduces farm income exacerbates seasonal price fluctuations.
- Lack of information: Farmers often lack information about prices and demand in different markets, while traders often lack information about the volume and timing of crops being harvested.
- Lack of trust: Without accepted quality standards and a means of enforcing contracts, traders are forced to inspect each purchase, requiring extra travel and repacking and adding to marketing costs.
- High marketing costs: Because of poor roads, dispersed production, and the factors listed above, the costs of getting staple foods from farmers to consumers is higher in sub-Saharan Africa than in other developing regions.
Improving the efficiency of staple crop marketing in sub-Saharan Africa would have significant benefits. Reducing the cost of processing and marketing would raise the farm-gate price, boosting farm income and encouraging participation in the market, while reducing the retail price of staple foods. Reducing storage losses and facilitating storage would reduce seasonal variation in staple food prices. And promoting policies and institutions that can improve market information and trust would make markets more efficient and less volatile. Because of the importance of staple food crops to poor households, both as a source of income for poor farm households and as a large component of the budgets of all poor households, the potential impact on poverty of improving staple food marketing systems is large.

The benefits of improved staple crop marketing are magnified by parallel efforts to stimulate productivity in staple crop production because of complementarity between the two. Experience has shown that large increases in staple crop productivity without marketing improvements can lead to a localized glut, driving the price down and causing farmers to abandon the new technology. With more efficient markets, any increase in production is distributed more widely, resulting in smaller reductions in farm-gate prices. At the same time, the benefits of improving staple crop markets depend on the availability of a marketed surplus. Thus, on-going investments in staple crop productivity by the Bill and Melinda Gates Foundation call for a parallel effort to improve the efficiency and equity of staple crop marketing channels.

1.2 Objectives

In light of the constraints associated with staple crop marketing and its importance to small-scale farmers and other poor households in sub-Saharan Africa, this report has three objectives:

- To summarize the patterns and recent trends in the marketing of four staple food crops (maize, cassava, sorghum, and rice) in at least five African countries, including the role of these commodities in household livelihoods, marketing costs at different stages, the magnitude to flows through different channels, the extent of internal and cross-border trade, and the policy environment;
- To describe the patterns and recent trends in the processing of the four staple commodities in the same countries, including the cost of processing, the proportion of production undergoing different types of processing, the composition of small and large-scale processors, and policies affecting the sector;
- To review current and potential interventions to improve the efficiency of staple crop marketing and, to the extent possible, to evaluate the qualitative impact of these interventions on farmers, traders, and consumers.

In addition to providing information to allow evidence-based planning of Foundation activities, this project will identify gaps in the information base which could be filled with more in-depth examination of staple crop value chains. Overall, the project aims to contribute to the effective use of resources by the Bill and Melinda Gates Foundation to meet its objective of reducing poverty and inequity.

1.3 Data and methods

The most important staple crops in sub-Saharan Africa, based on their contribution to caloric intake, are maize, cassava, rice, sorghum, wheat, millet, yams, plantains, groundnuts, sweet potatoes, and beans. The Foundation identified maize, cassava, rice, and sorghum as the focal commodities for this study. The criteria used to select these crops included the share of the crop grown by smallholders, its importance in food security, its relevance across regions, its contribution to caloric intake, and its potential for value addition and trade. For example, these crops are the four most important sources of calories in sub-Saharan Africa.

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1 If the list were expanded to include processed foods and animal products, then sugar, meat, milk, palm oil, groundnut oil, and alchoholic beverages would be included.
The selection of countries to examine was determined by four criteria. First, the selected countries should be geographically dispersed, including representative countries from West Africa, East Africa, and southern Africa. Second, they must be countries for which at least one of the four staple crops is important. Third, to accelerate the data collection process, we gave priority to countries in which IFPRI has recently worked, particularly ones that currently have an IFPRI office. And fourth, priority was given to countries that have available household survey data to address the questions about household-level production and marketing patterns. Taking into account these criteria, the study focuses on Benin, Ghana, Uganda, Tanzania, and Malawi.

In order to select ten country-commodity case studies, we identified the countries where each commodity is most important, based on per capita production. Table 1 shows the per capita production of maize, cassava, rice, and sorghum in the five selected countries. Based on these results, the report focuses on maize marketing patterns Malawi, Benin, and Tanzania, the top three in terms of per capita production. Similarly, in the case of cassava, the report examines the three countries with the highest per capita production of cassava: Ghana, Benin, and Uganda. Rice and sorghum are less important than maize and cassava both in terms of per capita production and in terms of caloric intake, so we select only two countries for each commodity. Thus, we consider rice markets in Tanzania and Ghana and sorghum markets in Tanzania and Benin.

This study is based on four complementary sources of information. First, it relies on an extensive search for previous studies and secondary data on the production, processing, and marketing of the selected commodities in the selected countries. This includes published literature and, perhaps more importantly, the “grey literature,” consisting of unpublished reports prepared by consulting firms, international organizations such as the World Bank, non-governmental organizations, research institutes, and government agencies.

Second, the team members carried out 1-2 week trips to four of the five countries identified above. Prior to the trips, the team developed a common strategy and detailed list of potential sources of information and key questions to be answered. The field visits included informal interviews with representatives of international organizations, local and international researchers, representatives of non-governmental organizations, and officials from relevant Ministries and other government agencies.

The third source of information is household survey data. For each of the five selected countries, a household survey data set was obtained and analyzed (see Table 3). These household surveys were used to examine the production and marketing behavior of farm households in the selected countries.

Finally, the project collected and analyzed price data from various markets in the selected countries. The data are used to examine price trends over time, seasonal patterns, and spatial margins between cities.
This information provides some clues regarding the flows of staple crops between regions and the efficiency of staple markets.

<table>
<thead>
<tr>
<th>Country</th>
<th>Survey</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benin</td>
<td>Benin Agricultural Household Survey</td>
<td>1998</td>
</tr>
<tr>
<td>Ghana</td>
<td>Ghana Living Standards Survey</td>
<td>2004</td>
</tr>
<tr>
<td>Uganda</td>
<td>Uganda National Household Survey</td>
<td>2005</td>
</tr>
<tr>
<td>Tanzania</td>
<td>Tanzania National Sample Census of Agriculture</td>
<td>2003</td>
</tr>
<tr>
<td>Malawi</td>
<td>Malawi Agricultural Household Survey</td>
<td>1998</td>
</tr>
</tbody>
</table>

1.4 Organization of the report

This report is divided into seven chapters. After this introductory chapter, Chapter 2 provides a brief summary of the supply chains for the four commodities in the selected countries and some of the key marketing constraints facing each commodity.

Chapters 3 through 6 focus on the four staple crops under consideration: cassava, maize, rice, and sorghum. Each chapter includes a brief introduction and the country case studies for that commodity, three each for cassava and maize and two each for sorghum and rice. Each case study examines five topics: production, marketing, processing and storage, utilization, and recent projects that address marketing issues for that commodity.

Finally, Chapter 7 identifies some potential interventions to improve the efficiency of the marketing system for each crop. In addition, the chapter discusses a number of areas where there are gaps in the current state of knowledge, questions whose answers would guide the direction of intervention in the marketing, storage, and processing of the crop.