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Post-harvest sector challenges and opportunities in Ethiopia

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Agriculture is the mainstay of Ethiopia's economy and it provides all the necessary dietary foods, raw materials for food industries and quality products for export market. The country's agricultural potential for food production is known to be immense and over 90 percent of its export earnings come from this sector. Coffee, oil seeds, spices, fresh fruit and vegetables contribute the largest portion of the export earnings.

Available sources indicate that a total of 10 million tonnes of cereals, one million ton pulses and oil crops, seven million tonnes of vegetables, 0.7 million tonnes of root and tuber crops, 0.25 million tonnes of coffee, 0.23 million tonnes of fruits are estimated to be produced annually (*MoA*, 1999).

At the national level, agriculture is important as a vehicle for addressing food security problems. Stimulating agricultural growth will therefore be the major instrument for increasing the income of the country and households in particular with which food can be bought domestically and imported from abroad. The largest groups of people in Ethiopia who suffer from food insecurity are the rural poor who have insufficient land and other resources to provide sufficient income or food.

Agriculture can thus contribute to overcoming the food security problem through growth that distributes its benefits as widely as possible and through food production increases by the rural poor. Agriculture in Ethiopia has not made such a contribution in the past because of the various constraints associated with it. Such constraints include the lack of integrated post-harvest technology.

In order to help and to address the problem of small-scale agriculture towards development into a modern production sector, strengthening the post-harvest sector or system is essential.

The average post-harvest losses of food crops such as teff, sorghum, wheat and maize are 12.9 percent, 14.8 percent, 13.6 percent and 10.9 percent respectively (Derege A. *et al.* 1989). According to Boxall (1998), a loss of 19.6 percent is recorded due to insects and moulds on pulses. Losses after harvest are a major source of food loss. Farmers growing horticultural crops are facing high economic loss, because there have been no methods of increasing the shelf life of these crops. Besides the country is not getting foreign exchange from horticultural crops due to the low levels of post-harvest technology, which makes the product of inferior quality, with no chance of competing in the world market. There are not enough processing plants and the country is loosing foreign currency by importing processed products.

The handling, processing and preservation of crop produce at and after harvesting may be designated as "Post-harvest Management". Improved post-harvest management depends on the quality and efficiency of handling, processing and preservation techniques used. Thus, whether the gain in crop yield is marginal or significant, it could be nullified because of inappropriate or unreliable post-harvest management. Moreover, proper storage also helps to ensure household and community food security until the next harvest and helps producers to avoid selling at low prices during the glut period that often follows harvest.

In a country where production is much lower than the national demand and is characterized by the above stated level of post-harvest loss, a great effort is needed in the area of generating technology that minimizes this loss. This could be in the form of technologies, which inhibit the growth of pests and provide for the proper storage facilities, appropriate packaging materials and transportation required to minimize losses and increase the shelf life of the food crops.

One of the methods to overcome this problem is to increase local value-added food products, through the development of rural agro-industries based on a commodity approach, by strengthening the post-harvest sector at national level. Processing of food crops to a form which has a longer shelf life and at the same time adding value to the original crop help the farmer not only to overcome the spoilage and losses, but also earn more money due to the newly added value of the product. Production of peanut butter, flour meal, dairy products, semi-processed food, are some of the areas that are envisaged in this category.

The importance of post-harvest management can also be historically justified. Thus, a document produced by the former Ministry of State Farms in 1978 pointed out that weevils annually destroy about 20 percent of crop yield. Of the annual crops produced at the time (wheat, maize, beans, barley and others) at about 80,000 to 1,000,000 metric tonnes, some 200,000 metric tonnes were destroyed by insect pests. On the other hand, the post-harvest losses of perishable (vegetable and fruits) food crops amounted to about 30 percent. High moisture content, insect infestation and damage during handling (packaging, storage and transportation) were the main causes of crop losses. Appropriate packaging materials, proper storage facilities and transportation are required to minimize these losses. Absence of toxicity and anti-nutritional factors in the raw materials are also important conditions in determining the quality and safety of processed foods. Efficient production and utilization of food crops are needed to increase food self-sufficiency and export earnings. Modern food processing techniques and post-harvest technologies are the main tools to reduce food losses and maintain/raise the quality of products. They are the only means to develop processed, semi-processed and new products with added value, at lower cost, and with reduced energy and labour. Unlike in our country, these products have higher consumer demand because of their extended shelf life, value and safety. The trend of the current market situation requires strict food processing procedures to compete with major food crop-exporting countries. Moreover, establishing food industries creates local employment opportunities, and increases foreign exchange revenue.

The major problem is that post-harvest technology has been given less emphasis both by concerned bodies and the public. Consequently, consumers show little interest in consuming processed foods, and remain with their traditional food habits. Therefore,

lack of awareness has negatively affected the development of the post-harvest sector throughout the country.

The overall evaluation of food supply for domestic and export purposes, thus provides, a strong argument for an integrated post-harvest technology research program. This is a critical concern in the existing Ethiopian agricultural system to ensure sustainable food security through reduction of post-harvest losses, improvement of food processing and preservation methods, development of appropriate technologies and equipment, production of value added food items and through minimizing work load, time and energy requirement in the post-harvest sector.

Given the current development strategy in the country of Agricultural Development Led Industrialization (ADLI), a lot is expected from the post-harvest sector.

Finally, in order to attain a high nutritional status, improved post-harvest management, reduced post-harvest losses, production of value added products, effective and efficient research programs on the post-harvest sector must be strengthened and promoted.

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