

Sustainable agriculture for economic development - case of East Africa -

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Summary

Agriculture plays a vital role in economic development for developing countries and several parameters related to agricultural productivities are often used as measures of country's economic status and the degree of poverty severity. In sub-Saharan African region, these parameters remain very low and the number of people living under the poverty line continues to increase and the intensity of poverty level seems to be worsening. It is, therefore, urgently necessary to support these countries for developing economic systems through sustainable agricultural production by conquering severe weather conditions. One of the solutions may lay in their own survival methods and culture in the region. Once peace and political stabilities are realized, these countries have attractive nature and resources for foreign investors such as tourism and low cost labor forces. Thus, peace and stability with sufficient food production are essential for sustainable economic development in the sub-Sahara Africa.

Keywords: sustainable agriculture, sub-Sahara Africa, economic development, poverty reduction

Introduction

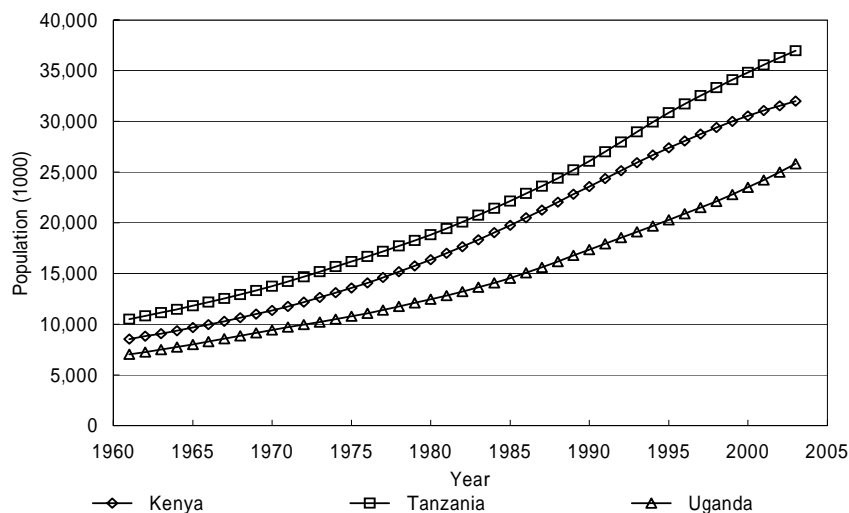
Economic development strategies for sub-Sahara African countries were the major agenda discussed in the G-8 summit meeting recently held in Gleneagles, Scotland, 2005 and the major problems, that these countries are facing, are considered to be their fast growing population and worsening poverty situation among others. These problems are associated with slump in economic growth, due mainly to low agricultural productivity and very scarce foreign investments, and the situation is noted to be worsening rather than improving. Although the United Nations set up "Millennium Development Goals" in 2000, which targeted to achieve the eight important goals by 2015 as shown in Table 1, and one of the most prioritized global issue is on poverty reduction, it is realized that these goals can not be achieved within the time-frame set by the United Nations in Africa. Asian countries, on the other side, with their fast growing economy and success in industrialization, see very rapid improvement on poverty situation, while sub-Saharan African countries increased their poverty ratio against world population from 18% in 1987 to 24% in 1998 (World Bank, 2001). It is recognized in the G-8 summit that an important progressive step has been made through the African Union by designing the New Partnership for Africa's Development (NEPAD) as well as individual nation's efforts, particularly on promotion of good governance, peace and security and economic development. By drawing national development strategies such as "Poverty Reduction Strategic Paper" with the consultation provided by donor countries, new approaches and efforts have been just started towards the Millennium Development Goals.

Table 1. Main Millennium Development Goals set by the United Nations.

Goal 1:	Eradication of extreme poverty and hunger.
Goal 2:	Achievement of universal primary education
Goal 3:	Promotion of gender equality and empowerment of women
Goal 4:	Reduction of child mortality
Goal 5:	Improvement of maternal health
Goal 6:	Combat with HIV/AIDS, malaria and other diseases
Goal 7:	Environmental sustainability
Goal 8:	Development of a global partnership for development

These African countries have economic backbone in agricultural sector without notable natural resources such as petrol and minerals, and the performance of the agriculture sector has not been stable or steadily growing. For example, figures 1, 2 and 3 show the changes in population of East African countries, Kenya, Tanzania and Uganda, their production of staple food, maize, and their dependency on food aid as indicated in statistical data by Food and Agriculture Organization (2005^{a, b, c}). Although the production of staple food, maize, has almost tripled that of 1960, the population also increased, by the beginning of 2000, more than three times as much as that of 1960. Making the situation worse, the production of the staple food does not show a stable production trend but, instead, it shows rather a wide fluctuation and reveals unstable situations in production of foods. This is the clear indication of complexity of the problems associated with the national basic foundation of the country, such as “feeding own nation” or free of hunger status.

Simple comparison with Asian countries, African countries generally have smaller populations with wider land areas. However, it should be noted that most of the land areas are classified as non-productive areas such as arid and semi-arid regions, and that agricultural productivities remain too low to support their population. In addition to the limited availability of arable land, the continent is generally known as dry and hot weather region. Such severe weather conditions without adequate water resources force the countries heavily depend on food aid, when long heat or dry spell hits the region.

*Figure 1. Changes in population of East African countries. (Source: FAO, 2005^a)*

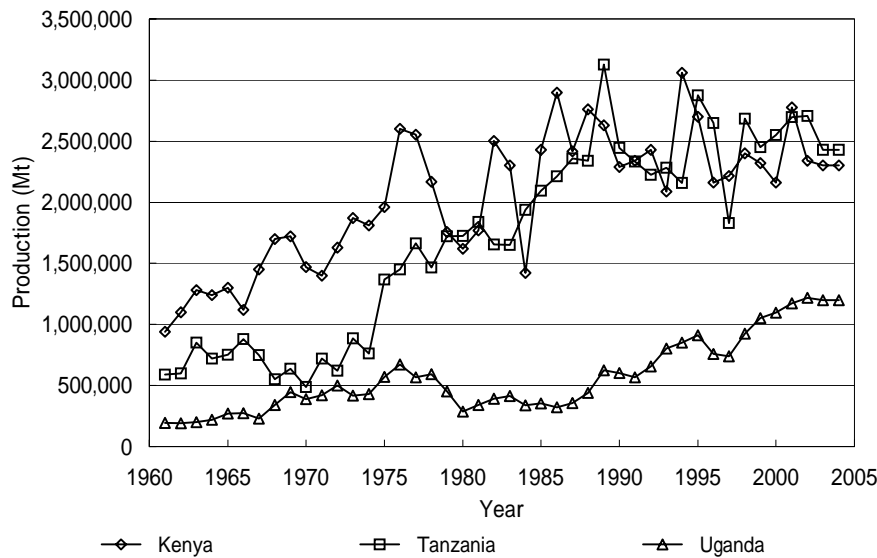


Figure 2. Changes in the production of maize. (Source: FAO, 2005^b)

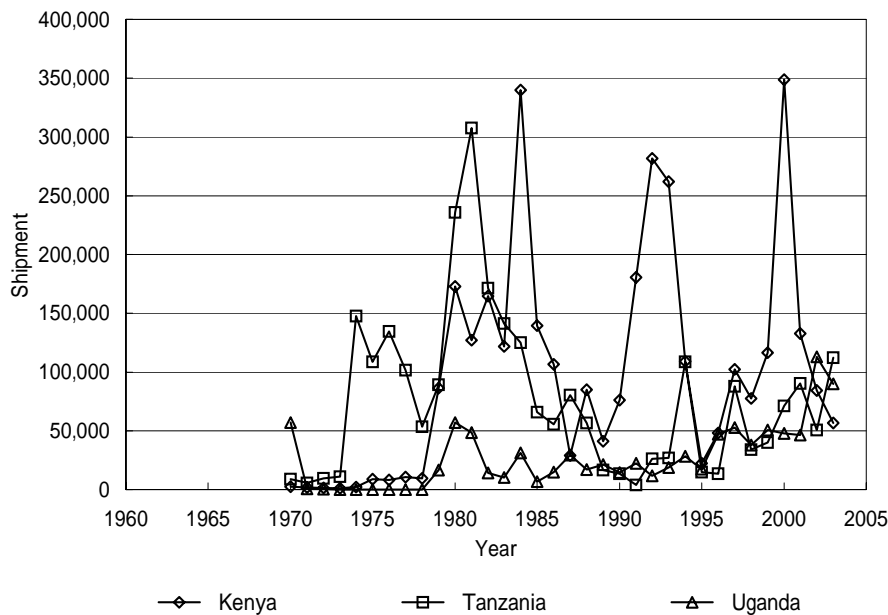


Figure 3. Amount of food aid provided to three countries. (Source: FAO, 2005^c)

It is a well known fact that the latest success in economic development attained by East and South East Asian countries such as Korea, Thailand and Malaysia, owe basically to stable production of their staple foods such as rice and these countries have achieved food security initially as well as sustainability of agricultural production. With secured food production, the nation could supply enough labor force to the manufacturing sector and attract foreign investors with political stability and cheaper labor force among other factors (Oono and Sakurai, 1997). Thus, the food security plays a very important role in the economic development for developing countries and the world leaders are concerned with the situation in the sub-Sahara African region.

Most of studies on postharvest handling of food crops have mainly focused on handling methods and losses of cereals such as maize, wheat and rice in developing countries and very few were conducted on perishables such as fruits and vegetables, although such produces play vital role in human diet as sources of vitamins and minerals, and they are popular commodities as fresh exports for private farmers and foreign investors without concerning about the national economic development. Since the horticultural crops such as fruits,

vegetables and flowers, are the major foreign currency earner, especially for Kenya and neighboring countries in East Africa, and these commodities can quickly lose quality, when they are not carefully handled or managed, leading to shortened shelf life in the intended markets of Europe and Middle East, the exporters and government authorities have realized the importance of postharvest handling systems for these export-oriented fresh commodities. Thus, the export business of horticultural produces has been playing an important role for economy of Kenya and its surrounding regions, in addition to traditionally valued permanent industrial crops such as coffee and tea. However, as mentioned above, most of sub-Saharan African countries often fail to secure foods for feeding their own nations and have to rely heavily on food aid. Thus, some questions arise if the current production of export-oriented agricultural crops is the most suitable economic policy for the development of the nation and eventual poverty reduction, especially in Kenya.

Agriculture in Kenya

Kenya is a tropical country with a total land area of 581,787 km² in the East African region and a population of almost 32 million. Most part of the country is classified as arid and semi-arid areas, which receive an annual rainfall around 600 mm or less and less than 20% of the total agricultural land receives more than 735 mm rainfall. The annual trends in daily minimum and maximum temperature and monthly rainfall are shown in figures 4 and 5. The country has a wide range of altitude for arable land from almost the sea level to as high as 2,000 m above the sea level and this influences the temperature of the area. The warm zone with adequate rainfall is extensively used for agricultural production and this zone stretches from the Eastern to the Western part through Rift Valley and the Central provinces, while arid and semi-arid zones, including vast majority of the North Eastern and a part of Rift Valley province, are utilized for animal production (Mwasaru *et al.*, 1998)

Agriculture in Kenya is recognized as the nation's economic backbone and the agriculture sector contributes almost 16% of the country's GDP as well as being the major foreign currency earner, following to tourism or the service sector. However, the land area suitable for agricultural production is limited to only about 8% of the total land area, while more than 74% of the national population are engaged in agriculture. Since the most productive areas are mainly allocated for export crops under large-scale farming systems, the national food basket is actually filled by small-scale farmers or backyard garden farming systems and the majority of such farmers live in arid and semi-arid land, which leads to poor crop production and low agricultural productivities. These small-scale farmers are therefore highly vulnerable against unpredictable weather conditions in the area, and this might be the main reason of occasional failure to attain sufficient crop production enough to feed the nation.

Since the production of fresh horticultural commodities are popular items for export business, together with historically important industrial permanent crops such as coffee and tea, as mentioned above, foreign as well as domestic investments pour into this sector and these commodities account for more than 50% of the total export values in Kenya and its neighboring countries (FAO, 2005^b). These are all primary agricultural produces without requiring extensive processing operations or value addition, which means that historical business relationships with former colonial powers have been maintained in the similar business structures as before. Since the quality requirements are much higher than those required by the local market, the farmers for export markets usually need to import seeds, fertilizer, agricultural chemicals and agricultural machineries and irrigation systems, which, in many cases, the local industries can not supply with the quality required. In this way, unfair trade seems to be maintained in the same way from the colonial era to the present time, whereby the countries like Kenya provide a few limited natural resources such as water and fertile soil with cheap labor force, while buying industrial goods such as fertilizers and

machineries from the industrialized countries. The productivities of these export commodities are, thus, maintained quite high, opposing to generally low productivities of essential commodities such as maize. Furthermore, the economic stagnation might be originated from this business structure, where all processed items required for export business are imported and thus, only a small portion of export profit falls into the nation for the exchange of valuable natural resources and labor.

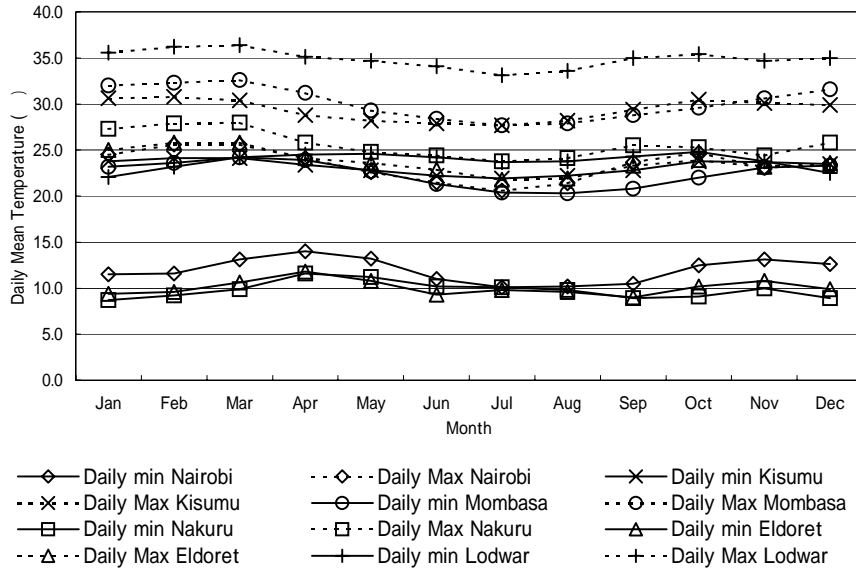


Figure 4. Changes in daily minimum and maximum temperature. (Source: World Weather Information Service)

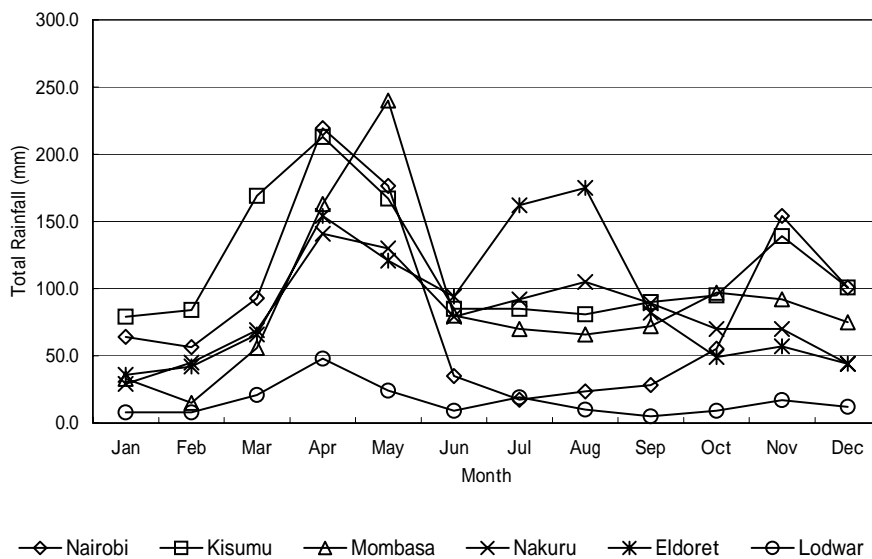


Figure 5. Annual rainfall pattern of selected cities in Kenya. (Source: World Weather Information Service)

Problems associated with agriculture in Sub-Sahara Africa

It may be controversial to mention only about the success side of so-called “green revolution”, but at least, it helped most of rice-growing Asian countries raise productivities drastically and the nations in the region became self-sufficient in terms of food production around 1950-60. This created availability of rural labor reserves and in fact, industrialization succeeded with this healthy labor power. Other factors, which may have contributed to the on-going success

of Asian industrialization, include regional cooperation for economic development. The regional cooperation of Asian countries may have been achieved by two dimensions of technical shifting within the region as explained by Oono and Sakurai (1997). One may have been taking place within the country, where target technology shifted from textile industry of lower technical level of manufacturing sector towards electronic via electric manufacturing industries with higher and more sophisticated technologies, in a steady manner of stepwise development. Second dimension has been seen within the region, where Thailand and Malaysia, for instance, had started industrialization with low technology textile industries and presently engage in production of electric or electronic appliances, while new textile industries have been constructed in Viet num. With the rising labor cost and living standards, one country must consider about the next stage of economic structures and most suitable manufacturing industries should be chosen for the continuous economic growth. In this region of Asia, the national policies and regional cooperation linkages have worked out very well and, consequently, the whole region enjoys the success of economic development. However, the seed of this type of success was originated from the stable agricultural production and free of hunger in the participating individual countries. Sub-Sahara African countries, therefore, need to have secure food resources and eventually healthy labor reserves. Without these fundamentals, the nation's economic development may not be achieved easily as pointed out by Hirano (2001).

Sub-Saharan Africa regions are known to be mostly very low in productivities of agricultural crops, due to severe hot and dry weather conditions and these conditions may have been the main preventive factors for stagnation of economic development. However, the regions are generally known to be the attractive tourist destinations in Europe and Middle East. The main attraction for tourists may include wild life habitat and very severe but quite exotic natural resources such as desert and rocky dry lands, as well as people and culture. Tourism can be a very important service sector to sustain the national economy, although it requires heavy investments such as infrastructure for communication and transportation and education for meeting the requirements. For visitors to enjoy their stay in the region, peace and stability are essential requirements and this can be achieved through the national food security. Wild life and domestic animals surviving in the dry regions may be a clue for better food production, although over grazing of cattle by nomads is often blamed for desertification effect. This still can be the important food resource and it is the government's duty to guide the nation for betterment in terms of food security and economic activities. One of such success can be seen in Botswana, where diamond and beef are the major export items from the mostly dry desert country. It should, therefore, be noted that animal agriculture in dry areas might be the most important player for food security and consequent sustainable economic development in this region of Africa. In order to avoid the low profitability of fresh commodity exports such as horticultural crops, the investment should focus on processed value-added products as well as safe and reliable quality certification. When one country experiences a success in one particular type of business, their strategies should be extended to the neighboring countries by investing into these countries and advancing, within the country, the business structure towards the upper stage of technologies in industrial manufacturing. Thus, a regional cooperation for economic development is also crucial for sub-Sahara African countries.

Conclusion

Food security is the first and foremost target for African development. This can be only achieved by good governance and well-designed agricultural policies within the country and the region, since the regional cooperation is also a key issue for economic development. With the successful achievement of food security and reduction of hunger, the country can secure labor force reserves and establish basic infrastructure for development, which will attract

foreign investors. However, these investors should not be invited for the production of primary products but should be encouraged into secondary products of manufactured goods as well as service sectors. The key approaches for achieving food security, the fundamental requirement for economic development and investment, may be associated with their weather conditions, which are known to be hot and dry with low agricultural productivities. Animal agriculture, therefore, may play a very important role in raising food availability with good political guidelines and supports. If there is a success in one country, such success can be extended to neighboring countries, when the regional cooperation exists. Regional economic cooperation is thus recognized as one of the most urgently required economic system for the region.

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