TEEB for Agriculture and Food in Africa;

Assessing policy options to improve livelihoods

A report prepared for the TEEBAgriFood (The Economics of Ecosystems and Biodiversity for Agriculture and Food)

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Executive Summary

Agriculture remains the most significant sector in African economy as it contributes on an average about 15% to its total Gross Domestic Product (GDP; OECD/FAO, 2016). It provides employment to about 60% of the workforce and able to feed half of the population with remaining half of the food demand met by food imports. Growing demand for food by increasing population in sub-Saharan Africa (SSA) is one of the key challenges of agriculture. It is estimated that global population will rise to about 9.7 billion by 2050 and about 1.3 billion will add to the existing African population. This will put enormous pressure on agriculture and food systems to respond in order to meet the food demand, reduce food imports and protect natural resources. At the same time, it provides an opportunity for African agriculture to respond more cohesively and improve value generated by this sector to society, environment and the economy. This can help achieve self-sufficiency in food, gainful employment to growing work force, protection of natural resources and contribution towards sustainable development goals (SDGs). A comprehensive action plan with carefully developed policies are required to achieve these outcomes. It is recognised that the global agriculture and food systems cause damages to environment and human health and these are not captured by the current economic system. This leads to perverse and pervasive outcomes for society and the environment. Therefore, this report aims to consider all social and environmental externalities – both negative and positive, in sub-Saharan African agriculture and food systems and reflect them in an economic system by evaluating comprehensive costs and benefits by adopting an innovative, universal, and inclusive framework (the 'TEEBAgriFood' framework). This assessment intends to stimulate appropriate policy responses so that sustainable agriculture and food systems can be developed to ensure food and nutritional security and economic prosperity for all in Africa.

The report provides a regional analysis and narrative on the economics of the agriculture and food sector by focusing on Sub-Saharan Africa, highlight key positive and negative externalities it generates, and the national and international policy context. These externalities are assessed in three case studies – agroforestry (coffee/cacao) in Ethiopia and Ghana, livestock in Tanzania and rice in Senegal, using the TEEBAgriFood Evaluation Framework.

Cocoa (Ghana) and coffee (Ethiopia) in Agroforestry systems

This study quantifies the biophysical and social impacts and dependencies along the cocoa and coffee value chains in Ghana and Ethiopia, respectively (ICRAF, 2019). Its aim is to assess key negative and positive impacts to health, ecosystems and the economy of the processes associated with the value chains of the two commodity crops. This is achieved by applying the TEEB for agriculture and food (TEEBAgriFood) framework (TEEB, 2018). Following this framework, several invisible and visible benefits and costs within these value chains are identified, quantified, monetised and /or described. Most of these benefits and costs are in monetary values except for biodiversity, vegetative diversity and aquatic life diversity which were measured using diversity indices such as Shannon-H index, Simpsons index, species richness index, Alpha index. Secondary data sourced from variety of sources including peer reviewed journal articles, technical reports etc. was used in the analysis.

Livestock systems in Tanzania

The study quantified socio-economic and ecological externalities of value chain activities related to three livestock sectors (Pastoralist cattle system, Backyard poultry system, and Smallholder dairy system) in Tanzania using the TEEBAgriFood evaluation framework. The livestock described here have local value chains which are also examined in each case. Different actors exist in the pastoralists' cattle value chain in Arusha region. The major actors in the chain are producers (farmers), middlemen, traders, abattoirs, butchers, supermarkets, hotels and individual consumers (final consumers). However, middlemen dominated the market and reported to be the major means of market information. Backyard poultry production in Tanzania is a traditional sector at smallholder level, and has an important position in the rural household economy, supplying high quality meat and eggs, and increasing income, for rural farmers. The bulk of milk produced originates from the traditional small holder dairy system and form over 90% of the cattle population and is consumed at household level, with only about 3% of the milk filtering through to the formal market

Rice in Senegal

There are strong imperatives facing the rice sector in Senegal: to increase domestic production and processing of rice. Several substantial donors have proposed that investment should be made in However, there are a number of alternative pathways to that goal. For example, increasing rice production by conventional high-input methods could ramp up yields, but there are increased costs related to greater fertilizer, pesticide and water use. Large-scale rice value chain projects may propose equally large rice mills, but the opportunity to process rice in smaller units may enable greater use of rice by-products such as for livestock feed and promote greater equity through community ownership. Different pathways have different implications for employment in the agriculture and food sector. By using a holistic framework to review the possible pathways, many diverse aspects can be brought into focus at the same time, looking at impacts on not just economic/produced capital but also social, human and natural. The application of TEEBAgriFood framework and system modelling has shown that alternative systems based on FAO's principles of agroecology can guide further development of rice policies in Senegal to provide insights into policy opportunities and recommendations for capturing externalities in decision-making for better livelihood outcomes

Three case studies clearly examined key aspects of the value chains of coffee, cocoa, livestock and rice. This analysis also recommended also some alternative systems and scenarios for policy makers to consider in respective countries. For example, shaded coffee and cocoa systems promote several public benefits and can be incentivised through markets and also by providing subsidies by government. Livestock system in Tanzania provide food demand for millions of rural dwellers and need further support from training and quality inputs in order to realise their full potential. Rice in Senegal can be produced by using the principles of agroecology thereby saving inputs cost. These savings can then be provided directly to farmers and R&D sector to support these multi-dimensional farming systems. Such approached can lead to develop self-sufficient system in these countries. Further analysis is required at continent scale including key cereal crops that are essential for food security in SSA, in order to generate evidence for shifting agriculture and food policies towards long term sustainability, achievement of SDGs and well-being for all.

Recommendations

Based on the analysis presented in earlier sections, some recommendations are suggested as below.

- Subsidies for inputs can be carefully investigated to target desired outcomes for society rather than narrow focus of per hectare productivity.
- FDI can be further channelized to invest in infrastructure that is required to support agriculture sector – roads, ports, storage, transport, finance, processing, regulated markets.
- Extension services can be further improved by training about the multidimensional aspects of farming and move away from the per ha productivity.
- There is need to improve HDI by investing in education, children and women health, environmental sustainability, so that the society is healthy, better educated and can make informed decisions about their food choices.
- R&D sector needs investment and reforms as the current global agriculture is geared towards single narrow focus that has to change and this research should trickle down to African continent and SSA region for transformation of ag and food systems.
- Agriculture is vital for 9 out of 17 SDGs and also a prominent sector in Africa agenda 2063, therefore needs further attention with policy makers in terms of investment and national and regional policies.
- There is need to identify change agents to bring this transformation.
- Producing more, in a more sustainable manner, while absorbing a growing labour force
- Promoting diversification based on high quality processed products
- Promoting efficient and more equitable value chains
- Making farms and agricultural systems more resilient
- Developing regional markets and controlling international integration
- Designing and implementing structural policies and instruments
- Reforming development aid aimed at facilitating the structural reform process
- A clearly articulated objective and a shared vision