



Country Update

Leveraging International Support Mechanisms to Tackle Climate Change: Views from Tanzanian Agro-Industries

Provided by



Economic and Social Research Foundation (ESRF)

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Introduction

Agricultural sector in Tanzania is vital to the success of the economy, accounting for 25% of GDP and 24% of exports. Nearly 75-80% of Tanzanians earn their living through smallholder agriculture, making it important to mainstream climate change adaptation measures within agricultural development strategies.

The average annual temperature in Tanzania has increased by 1.0°C since 1960 and is projected to increase by 1.0°C to 2.7°C by the 2060s. In the last 40 years Tanzania has experienced severe and recurring droughts with devastating effects to water and energy and most importantly the agricultural sector. Currently, more than 70% of all natural disasters in Tanzania are climate change related and are linked to recurrent droughts and floods.

In the most recent Paris Agreement under the

UNFCCC auspice, member states recognized and discussed the mechanisms to help LDCs and developing countries in coping with climate change. Similarly, besides being a member of the LDCs, Tanzania has adopted and implements various policies, legislations, strategies, plans and programs in the course of addressing climate change. Some of these are: the National Communications (2003 and 2015); the National Adaptation Program of Action (2007); Natural Gas Policy (2013); the Zanzibar Environmental Policy (2014); the Renewable Energy Strategy (2014); the Natural Gas Act (2015); the National Forestry Policy 2 (1998); the National Transport Master Plan (2013); the National Environmental Policy (1997); the Zanzibar Environmental Policy (2013); the National Environmental Action Plan (2012 – 2017); the National REDD+ Strategy and Action Plan (2013) and the National Environment Management Act (2004).

This note sought to obtain the views of Tanzanian agro-industries, especially Small and Medium Enterprises (SMEs), on the

impacts of climate change on their businesses, and if they are aware and use available international support mechanisms to face the challenges posed by climate change.

Methodology

Views from SMEs working on agro-industry were collected through field visits, phone calls and surveys. In data presentation, quotes are used to illustrate respondents' views on climate change adaptation /mitigation at their enterprise level.

Impacts of Climate Change on Agro-industries

Fluctuating raw materials supplies to industries: The main challenge reported by the interviewed ago-industrialists was finding stable agricultural commodity supplies. As this owner of tomato processing industry in Dar es Salaam explained, "Ten years ago there was plenty tomatoes supplied by farmers from Morogoro, Njombe and Mbeya regions throughout the year but with climatic change these regions are increasingly reducing their supplies and one cannot even predict the supply pattern". These changes are solely attributed to seasonal changes in rainfall and temperature, which impact agro-climatic conditions, altering growing seasons, planting and harvesting calendars, water availability, pest, weed and disease populations (Anete and Amusa 2010).

Floods damages on water infrastructure: One of the devastating impacts of climate change on agro-industry is destruction of water infrastructures. One of the agribusiness owners interviewed reported that Makambako used to be one of the most stable supplier region of tomatoes to Dar es Salaam but in 2013, floods damaged main dam infrastructures in the area causing decline in tomato production. According to SAGCOT (2011), Tanzania is currently poorly prepared for existing extreme climate events (floods and droughts) For

instance the Kilombero Floodplain in the Kilombero Cluster Usangu Flats in the Mbarali Cluster and the Rufiji Delta in the Rufiji cluster are wetter regions often hit by frequent and severe flooding.

Increasing costs of production: The cost of production in severely drought affected areas is reported to have increased dramatically, which in turn have diverse impacts on agricultural value chain including rising food prices, inadequate raw material supplies to agro processing industries. One mill owner explained,

"With climatic change one cannot have reliable stocks of maize in the mill, the price for maize has become so high and unmanageable for small mill owners, it is so expensive to manage an inventory during low seasons or when there are severe droughts. Moreover, when there are inadequate supplies of maize in the market customers prefer to buy raw maize and grind on their own".

Climate change rigorously increases operational costs of agro-processing industries as well as shrink the market for value added products.

Climate change has created considerable uncertainty about the future of dairy industry. Persistent droughts and water shortage are said to cripple the contribution of dairy industry to the economy. Grazing areas have been hit hard by severe droughts and water shortage forcing many pastoralists to migrate from one area to another as a result escalating land conflicts between them and farmers who perceive pastoralist as invaders. Pastoralist and milk vendor explained, "Some 20 years back we had consistent and reliable rainfall, plenty of food, water and pasture for livestock. My grandfather created a lot of riches from livestock keeping but nowadays finding reliable grazing areas is a struggle between human being and nature as well as pastoralists vs. farmers; it is chaos. On the dairy business, I have orders from Tanga Fresh Industry that exceed my supplying capacity due to shortage of milk from local farmers".

Dealing with Climate Change

Majority of agro-industry businesses have very limited knowledge about climate change mitigation/adaptation strategies. But for those who are educated they are utilizing a range of mitigation methods including diversifying their businesses, contracting farming strategies for securing sources of raw materials, and improving water harvesting techniques.

Diversifying businesses: Agro-business dealers tend to engage in multiple businesses when profits margins for buying and processing crops from farmers are very low and unpredictable. As the food trader explained;

"I used to buy large quantities of grains from the southern agricultural regions, selling them profitably to markets in Kenya but with prolonged food shortages the governments banned food exports in 2014. I decided to refocus my attention toward diverse agribusiness ventures including fish farming and agricultural input dealing; since with climate change, farmers are forced to buy modified seeds and apply fertilizers thus increasing my profits".

For agricultural commodity exporters they often switch to most profitable and available high quality crops supplied by local farmers for instance favoring horticulture exports at the expense of grain exports.

Contract farming: This is particularly very common in cash crop production such as tobacco, wheat and cotton. The arrangement involves the purchaser in providing a degree of production support through the supply of inputs and the provision of technical advice. The basis of such arrangements is a commitment on the part of the farmer to provide a specific commodity in quantities and at quality standards determined by the purchaser and a commitment on the part of the company to support the farmer's production and to purchase the commodity. These arrangements are very useful for farmers when mitigating climate change impacts as they give them required technology and capacity to produce more crops while reducing climate distress on their production. On the other hand, they ensure stable and reliable supplies of raw materials to agro-industry owners. For instance

one ginnery owner stated that; "Contractual farming can help to reduce distress on the part of ginnery owners as it enhance constant supplies quality cotton while enabling the farmer to have reliable markets for his products".

Other strategies to cope with climate change effects: Farmers are applying water harvesting and management strategies. Some agro-processing industries have established their own farms that are highly mechanized and apply irrigation technologies to curb effects of drought on production threatening small holder farmers. For instance the rice mill owner interviewed believed that climate change and unstable rice supplies from local farmers enabled him to restructure his own business by effectively engaging in rice farming activities himself. With the use of modern technology including irrigation and fertilizer application, he managed to increase business efficiency and profit by two fold.

International Support Mechanisms

A significant majority of the agro-industry SME's are not aware of international support mechanisms/programmes that are established to help East African countries cope with climate change. This was more obvious to small agro-industrial enterprises who acknowledged to have heard of climate change initiatives in the media but they were not aware of how to benefit from them. However probing SME's awareness of specific climate change programs, it was revealed that Donors' support to The Southern Agricultural Growth Corridor of Tanzania (SAGCOT) is well appreciated. Other appreciated initiatives include: The World Bank farmers link to agri-business, Norway promoting Climate Smart Agriculture initiatives in Mbeya, USAID Feed the Future initiatives and Private Agricultural sector support (PASS) by the Royal Danish government.

There are various programs that have benefitted agro-industry SME's ranging from

financial assistance, research and capacity building, and marketing strategies.

Financing support: There have been programs by developed countries such as Private Agricultural Sector Support by the Danish government which provide credit guarantee to small and medium agribusiness to access cheap loan from financial institution. As one farmer accounted "*I started rice farming many years ago but with very meager output*", Through PASS Support he was able to access credit from the local bank, CRDB Bank under Jikwamue Dakawa farmers group which enabled him to utilize better farming technology which increased farm output from 4 bags per acre to 14 bags per acre.

Market access: Most of the market access initiatives channeled to agro-industry SME's are coordinated by NGO's and related charitable organization such as Bill and Melinda Gates Foundation. For instance American NGO Technoserve is helping distressed farmers in Njombe region who did not have access to market. As the Magreth single family mother explained:

"Tomato markets were discouraging I almost abandoned tomato farming. Life was hard I could not afford to send my children to school, nor could I afford health care for my family. We only had two meals a day and could barely afford proper housing."

But, Technoserve trained her on better farming techniques and encouraged her to join farmers group in the village whereby she could sell her tomatoes to market collection point; Martha receives a price three times higher than what she earned previously.

Agricultural research and capacity building: Most of the Agro-industry SME's interviewed from SAGCOT region appreciated the role played by donor community such as NORAD and USAID in conducting research on climate change adaptation/mitigation in their localities. One of notable project was related to climate smart agriculture which was carried out by

NORAD and Alliance for Green Revolution in Africa (AGRA). The project provided an insight on how farmers could use modern farming techniques to conserve soil fertility and water resources. Most of these researches are often followed by comprehensive interventions that enable agro-industry SME's to engage in sustainable farming practices.

Regarding regional or national support mechanisms/programmes, interviewed SME's believe that the most comprehensive mechanism implemented by the East African governments to reduce adverse effects of climate change on their business is the current creation of reliable energy and water infrastructure. The Tanzanian national development plan 2016/2017 and 2019/2021 insist on increasing rural communities access to electricity and water in order to mitigate impacts of climate change in agro-industry. Agro-industry SME's are taking opportunities brought by electricity to establish processing industries such as sunflower processing mills for adding the value to rural agricultural commodities. Moreover improvement of water supplies in rural areas such as construction of dams and establishment of irrigation schemes are helping pastoralists and crop cultivators to mitigate effects of climate change.

On what kind of international support mechanisms / programs to be developed or reviewed to support agro-industries when coping with climate change, the followings were captured:

Subsidize farming inputs: Agro-industry SME's believe that providing subsidies to farmers can help them cope with increased production costs associated to climate changes. As this agro dealer explained; *Although farming costs have skyrocketed due to adverse climate, many small holder farmers are not financially capable of buying modern farming equipments. For instance, installing very cheaper solar powered irrigation system costs about 8,000,000 Tsh. while Pastoralists*

require more than ten million shillings to construct water harvesting dams. These costs are discouraging farmers' efforts to mitigate or adapt to climate change.

Local ownership: Many of the climate change intervention projects are nationally or internationally designed and owned, many local agro-industry enterprises would like to see local government leaders empowered to help farmers at the grassroots leverage international support for climate change. As many believe that internationally and nationally designed projects do not meet unique local farming needs, and are very unsustainable.

Needed support

Enhance Market Access: The rising production costs and agricultural commodity prices require agro-industry owners to have stable markets for their products. With climate change, agro-industry business owners can make profits only if there are opportunities for selling their commodities in local markets and regional markets at a reasonable price.

Educate agriculture stakeholders: Since many of the agro-industry SME's are not aware of international support mechanisms, they believe that the available mechanisms are designed to help central government curb its carbon emission at the policy level. Therefore many players in agro-industry should be trained

on how to utilize international support programs for their individual enterprises. Many agro dealers believe that the media can help in influencing their utilization of international climate mitigation and adaptation support.

Recommendations

1. Local agro-industry owners should be financially supported to cope with adverse climate changes which cause fluctuation in the supply of agricultural raw materials. This support can take some forms of credit guarantee, subsidies and tax incentives for commodity exporters.
2. Since many international bilateral agreements are tied hard to meet standards for local exporters, agro-industry dealers would like to see more preferential terms for environmental friendly value added commodities.
3. There should be continued development assistance to primary infrastructures. Often, many East African agro-industry climate change challenges are broadly linked to lack of or weak infrastructures such as transport, water and energy infrastructures. Therefore, supporting development of primary local infrastructures can help agro-industry deal with high production costs caused by climate changes.

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The PACT EAC2 project is undertaken with funding support from the Swedish International Development Cooperation Agency (Sida).