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AfriAlliance
MOOC#2
Final
Assignment

Title: State of Irrigation for Food Security in Kenya

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DESCRIPTION AND BACKGROUND

The agricultural sector for a long time has been the backbone of the Kenyan economy, funding about 31% of the gross domestic product (GDP). This sector was among the very first to be entirely devolved function of the County Governments. This is a good reason enough to highlight the importance of the County Governments' in helping ensure there is food security. The sector employs more than 40% of the total population with more than 70% of this population being drawn from Kenya's rural people.

The speedy growth and broadening of development activities have caused much-desired expansion of employment opportunities, nonetheless initiating rural to urban migration. This progress has given rise to a shift from on-farm employment to formal employment sectors.

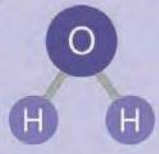
Food security is one of the governments big four Agenda, it is of great significance to inspire the farmers to carry on with agriculture. Due to unpredictable weather patterns, rain-fed agriculture has become unrealizable. This calls for massive investment in the development of irrigation systems. Irrigation is the artificial application of water in controlled amounts to crops at specified intervals for their growth and development. Irrigation water can be obtained from various sources such as rivers, lakes and underground water sources that is then conveyed to the irrigation fields through suitable conveyance channels depending on the type of irrigation. Irrigation is essential if as a country would want to meet food security and exploit opportunities to export the agricultural products. It also provides an opportunity to produce raw material for the industries. Development of the agro-based industries will help in the growth of the manufacturing sector.

Scarcity of water has become a key challenge in the development of irrigation in Kenya. Generally, Kenya is a water deficit country, and this is credited to insufficient surface and groundwater resources that can be tapped for irrigation use. Major water towers including Mt Kenya, Mau Forest Complex, Aberdares Ranges, Mt Elgon and Cherengany have continued to face deforestation. Inefficient irrigation schemes have higher water losses characterized by low water use efficiency. Inadequate transport and communication structures, agro-processing, and value addition, as well as relatively high costs, incurred installing irrigation infrastructure has led to over-reliance on rain-fed agriculture. Weak farmers' organizations and participation in sustainable irrigation and drainage development and management. Land fragmentation into smaller units.

Development of policy framework that will help curb the gaps influenced by water deficit will help in the development of irrigation. The policy should focus on Promotion of groundwater development Promotion of efficient water management systems. Since irrigation accounts for a large proportion of water use. Acceleration of the development of irrigation and drainage through financing, rehabilitation, modernization and construction of major irrigation, drainage and flood control infrastructure. Facilitate irrigation management transfer to Irrigation Water Users Associations (IWUAs). In the medium term, the management of major irrigation and drainage infrastructure will be the responsibility of the public sector institutions or a water undertaker. Negotiation of agreements regarding trans-boundary waters to take into account the country's need for irrigation. Development and implementation of supportive land tenure system including; lease mechanisms, way-leaves and reserves, land subdivision.

Abstract

Agriculture is a major sector that contributes significantly to the Gross Domestic Produce of Kenya and the overall economy of the country. It is because of this fact that the country has developed a long-term blueprint known as vision 2030, which has the food security aspect as a vital one in its achievement. Food security can only be achieved through the efficient use of the available land for farming together with the employment of the right methods of farming. Water scarcity proves to be a hindrance in many parts of the country that can easily be turned into productive zones. Hence, this case study has a focus on highlighting the stated situation in the country and all the aspects related to it including the classification of the country into different basins, the management of the water resources, water planning, the supply chain and the expansion of the crop market.



TECHNOLOGICAL SOLUTIONS

Climate change has resulted in a deficiency in water and thereby affecting the growth of irrigated agriculture. Technology is, therefore, an important aspect that can be integrated to curb the spread of impacts of climate change and consequently improve food production through irrigation. Adoption of technology in the irrigation practice will aid the farmers in making timely decisions in the activities to be carried out the farms—some of how technology can be assimilated into irrigation to improve food production.

Planning water use – Different irrigation systems have varying efficiency levels in terms of water use with surface irrigation having the least efficiency level. In Kenya, individual farmers carry irrigation out both on a commercial scale and small scale. Small-scale farmers use mainly surface irrigation and a bit of localized irrigation system. In commercial irrigation, Centre pivot and pressurized drip technologies are used. Adoption of the new technologies is critical in managing the already scarce water resource to increase the diminishing food output.

Management of Water Resources – Management of water resources and mitigation of floods in Kenya are carried out by the Water Resources Authority (WRA). The role of WRA is anchored in the Sustainable Development Goal 6 (SDG 6), which is to ensure availability and sustainable management of water and sanitation for all. Well-managed water-related ecosystems contribute to the mitigating the risks posed by climate change, help to foster peace, and trust among the communities. To ensure that proper planning is achieved, up to date data should be collected from the different gauging stations. Therefore, the WRA should focus on the present monitoring stations by upgrading them, and this includes the use of current technologies in recording the water levels in the open surface water.

CAPACITY DEVELOPMENT



Capacity development is critical in ensuring the growth of irrigation sector. Public, private partnerships are important in this sector as it helps the farmers access the financial services. Advisory services have in recent years evolved to accommodate the private sector, NGOs and civil society players. For example, NGOs and farmer groups are key potential partners for the upscaling of technical assistance in irrigated agriculture. Some NGOs are already collaborating with irrigation equipment distributors offering agronomic support to communities and accompanying the development of the projects.

The irrigation technologies uptake is limited by the inadequate technical capacity of both the farmers and the technical staff. The areas that call for a lot of investment from the various stakeholders regarding capacity building include on-farm water management, water-saving technologies and business management. The high-tech irrigation systems are complex, and this calls for intense training of the local technicians regarding installation, operation and maintenance of the systems to ensure a high service benefit for the farmer.

SOCIAL INNOVATION



GOVERNANCE STRUCTURES

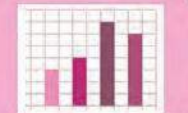
The government of Kenya has a key responsibility in ensuring that the water-related challenges that have affected food production are tackled adequately. This is evident through the creation of the Water Resources Authority that is a state corporation under the Ministry of Water and Sanitation. After the elapse of the first Strategic plan 2012-2017, that was an evaluation of the Strategic Plan, which resulted in a new Strategic Plan 2018-2022. Therefore, to achieve one of the big four Agenda of the country that is Food security and nutrition, water is a key enabler in such a way that it will be required to support irrigated agriculture that will help increase food production. The government, through the corporation, has then put measures in place that are vital for protecting the water resources while increasing food production.

Water Basins – Kenya is categorized into basins. Still, the existing Catchment Management Strategies are not harmonized into the basin management plans. As a result, the development of the basin management plans and the subsequent sub-catchment plans were not systematically assimilated at the basin level. Therefore, under the Water Act 2016, Basin Water Resources Committees were established and whose mandate will be instrumental in ensuring there is a basin-level water resource governance.

Water Rights – The water rights will be administered with strict adherence to the existing law, rules, regulations and guidelines. Some of the rights include water permits, effluent discharge permits, and to ensure there is compliance, Environmental Impact Assessment (EIA) will be mandatory before such permits are issued. Development of an Environmental Management Plan was instituted to mitigate adverse effects to the catchment areas and the water resource. To ensure equity in allocating the water resources, and before abstraction rights are granted, there will be full participation of the Water Resources Users Associations (WRUAs) in the said basin. Besides, the vulnerable members of society and the women will be protected as they play a critical role in access to water for households. Although measures are put in place, the challenges posed by illegal abstractions of water continues to rise steadily due to the limited enforcement capacity.

Stakeholder participation – the water sector has many stakeholders ranging from the farmer to the national government. Creation of the County governments by the current Constitution of 2010 has resulted in the division of the functions of the Authority. The functions carried out by the WRA are those allocated to the National Government under the Part I to the Fourth Schedule of the Constitution while those to be undertaken by the County Governments are under Part II of the Fourth Schedule. To ensure that catchment area degradation and protection of the riparian lands, integrated land use and water resources management planning, alongside water resources basin planning, should be mainstreamed to include players at the national, county, cross-county and the community level.

BUSINESS ROAD MAP



In Kenya, less than 50% of the irrigation potential is currently developed. Lack of motivation to venture into the irrigation sector has been attributed to limited irrigation equipment supply chain and service market, mainly in areas out of Nairobi. Besides, lack of investment in extension, marketing, and logistics contribute to the bottlenecks for crop outflow and poor profitability, predominantly the fruit and vegetable farming. Development of a business roadmap that will guarantee higher returns for those willing to invest in irrigated agriculture is timely, as it will result in increased productivity as well as huge profits.

Expanding the crop market – Expanding the irrigated crop market in Kenya will create more opportunities for the private sector to invest. It is necessary to assess whether the market size constraints are likely to impact the expansion of the irrigated crop areas, the main consideration should be to inspect if there will be a higher demand for the Kenyan produce at the national, regional and world markets. Kenya continues to be a large importer of wheat, maize, rice and sugar while it is self-sufficient and a net exporter of vegetables, coffee, flowers and fruit. Kenya should, therefore, focus on tapping the ever-growing local market as well as the European, American and other emerging markets. Key emphasis should be put into the flower industry, which has established itself and has better prospects of contributing to the growth of the irrigation sector.

Supply chain – development of a robust supply chain is critical for the growth of the irrigation sector. Demand for irrigation equipment, especially among the small-scale farmers, has risen steadily over the past few years. The small-scale farmers face a challenge in accessing the supply chain and the service markets that have been centralized in the urban centers, especially Nairobi. The farmers are also affected by the lack of access to credit facilities from banks at a lower competitive rate. The Kenyan government should introduce incentives such as exemptions from duty and value-added tax (VAT) on capital equipment and machinery to be used in the investment project. Importing a complete irrigation system should also be exempted from the duty and VAT.

In conclusion, as water continues to be a vital but scarce resource, the management of water resources should be aimed at ensuring national water security that strengthens both social and economic development. Conservation and protection of the available water resources should be prioritized to warranty water availability for future use. The emerging water crisis attributed to factors such as population growth, urbanization, global warming and degradation of the catchment areas should be mitigated using appropriate approaches. To realize growth in irrigation, sustainable management and development of water resources is a crucial challenge and a fundamental requirement for effective and sustainable food production.

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