

Sustainable Consumption and Production (SDG 12) in Kenya: *Current Status, Challenges and Way Forward to 2030*

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Abstract

This paper discusses the status of Sustainable Consumption and Production (SCP) in Kenya in four key areas, namely: land-use and food systems; water resources and use; coastal and marine environment; and energy resources. Kenya is lagging behind in analysis of her current practices of consumption and production, and lacks a national blueprint to guide realization of SCP. Secondary data and the authors' experiences of the study area revealed that the country has made progress towards sustainable production and consumption in each of the areas. Decoupling well-being from environmental degradation remains a major challenge to be surmounted. The paper recommends investment in agricultural research, tapping into the knowledge of farmers and facilitating their access into the market, balancing urban and rural water supply, addressing technological challenges in rural water supply systems, easing pressure on coastal resources by providing alternative employment streams, connecting all domestic households to electricity and intensifying clean energy production. For sustainability to be achieved in the above areas by the year 2030, it is recommended that a concerted effort of all stakeholders, each playing the rightful role, is necessary.

Keywords: Kenya, SDG 12, Sustainable consumption and production, Sustainable development.

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INTRODUCTION

In the year 2015, the UN general assembly adopted a resolution known as '2030 Agenda for Sustainable Development'. The resolution included 17 Sustainable Development Goals (SDGs), whose purpose was to foster sustainable development in the areas of economy, society and environment by the year 2030 (UN General Assembly, 2015). Since then, much research has focused on how to advance the agenda.

The challenge of sustainable consumption and production crystalized during the lead-up period preceding the United Nations Conference on Environment and Development, popularly known as the Earth Summit, in Rio de Janeiro in 1992 (Cohen, 2019). Agenda 21, the flagship document of the event, observed that:

'While poverty results in certain kinds of environmental stress, the major cause of the continued deterioration of the global environment is the

unsustainable pattern of consumption and production, particularly in industrialized countries, which is a matter of grave concern, aggravating poverty and imbalances,' (United Nations, 1992).

This paper focused on SDG 12 which is on sustainable consumption and production patterns. The SDG aims at realizing human well-being without causing environmental degradation. In particular, it calls for action in eight areas: implementation of the 10-Year Framework of Programmes on Sustainable Consumption and Production (SCP), efficient use of natural resources, cutting food waste, responsible management of chemicals, substantial reduction of other waste, sustainable public procurement, companies to adopt more sustainable practices, and for people everywhere to have the relevant information and awareness for sustainable development (Chan et al., 2018).

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In view of this, the study is designed to: (a) analyze the current status of consumption and production practices in Kenya in the following four key areas: land-use and food systems, water resources and use, coastal and marine environment, and energy resources; (b) identify challenges to sustainable consumption and production practices under each of the key issues in part (a); and (c) recommend the way forward for sustainable consumption and production that will promote sustainable living in Kenya.

THEORY

Research on advancing SDG 12 is scanty given that it is a relatively new research field that is not yet very well structured, and its boundaries are still fluid (Chan et al., 2018). Some of the studies interrogating the subject have focused on various aspects. For instance, Shibin et al. (2016), look at the need, challenges and further research directions in the area of SCP. Shibin et al. (2016), underscore that SCP is one of the key constituents of sustainable development where the customer is the key player. Majid (2018), examines the role ICT can play to promote sustainable consumption and production patterns in Bangladesh, whereas Kimiywe (2015), illuminates challenges of post-harvest handling in Kenya as an area of concern for the country's food and nutrition security. Were et al. (2019), in a study of food security through food waste and loss control mechanisms in Kenya, underscore that food waste within the hospitality's restaurant operations contributes immensely to the global food waste. Lukman et al. (2016), in their paper on 'Sustainable consumption and production - Research, experience, and development - The Europe we want', observe that production processes and consumption patterns towards sustainability have improved since publication of the Brundtland report. However, they point out that challenges exist in areas such as resource efficiency, sustainable water systems, sustainable management, cleaner production, and sustainable urban development.

The United Nations Commission on Sustainable Development, in 1994, mandated the Oslo Ministerial Roundtable to prepare elements for an international work programme on sustainable production and consumption. The symposium underscored that:

'Many of today's trends in consumption and

production patterns continue towards an unsustainable direction. Total energy consumption is growing despite efficiency improvements in industry and end-use appliances. The generation of solid waste has yet to be decoupled from economic growth, while the projected increase in transportation poses one of the most serious consumption challenges for industrialized countries,' (Oslo Symposium, 1994).

The symposium identified some themes as being critical for further action: improving analysis and raising public awareness; providing incentives for sustainable consumption; making energy use more sustainable and efficient; implementing new strategies for transportation and cities; and accelerating the use of more efficient and cleaner technologies.

Various countries have put in place guidelines on how to achieve SCP. For example, the Swedish government, in 2016, presented a strategy for SCP focused on what the state can do, in collaboration with municipalities, businesses and civil society, to help consumers consume more sustainably (Chan et al., 2018). In Jordan, a national strategy and action plan for sustainable consumption and production for the period 2016 – 2025 is in place (Jordan, 2016).

Whereas various countries have made strides to analyze their current practices of consumption and production, and translated the same into national blueprints to guide realization of SCP, Kenya is lagging behind. However, the country is in support of SCP as declared in the Eighteenth Session of the Commission on Sustainable Development (Republic of Kenya (ROK), 2010a). There is, therefore, need to comprehensively assess the country's position in regard to the practice of SCP and suggest measures that can be scaled up into a national blueprint to guide realization of sustainable living in the country's cities and communities. Cities are the urban areas, whereas communities cover both urban and rural areas.

RESEARCH METHODS

This study is a culmination of a desk research. It depends on existing data, the main task entailing compilation, analysis and interpretation to yield valid conclusions and recommendations.

Data for this paper is derived from various secondary sources including, United Nations documents, research papers in peer reviewed journals, books, newspapers and government websites. Further, the researchers' experiences, based on observations of the study area over a long period of time, were a useful source of information.

The paper employs qualitative methods in generation and analysis of data for the study. This technique, as pointed out in Bryman (2004), comprises searching out of underlying themes and categories that will guide the collection and analysis data. Narrative analysis is applied under each theme to ensure that data is not fragmented. Key areas of focus in the study include land-use and food systems, water resources and use, coastal and marine environment and energy resources. Themes under the key areas, for which narrative analysis is applied, include current status, challenges and way forward.

RESULTS AND DISCUSSION

The Sustainable Consumption and Sustainable Production Nexus

Sustainable consumption

Sustainable consumption has been defined as the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations (Oslo Symposium, 1994).

The Ministerial Roundtable pointed out that SCP is a system made up of a number of key components, such as meeting needs, enhancing the quality of life, improving resource efficiency, increasing the use of renewable energy sources, minimizing waste, taking a life cycle perspective, and taking into account the equity dimension. According to Majid (2018), sustainable consumption is generally tied to the retailer and consumer end of the supply chain, and focuses more on efficient distribution of goods and services as opposed to 'using little'.

Sustainable production

According to Majid (2018), sustainable production is associated with producers and suppliers of goods and services in the supply chain. Majid (2018), further points out that objectives of sustainable production patterns include responsible and sustained use of natural resources, and factors of production along with waste minimization and reduction of pollution.

Linking production to consumption

To achieve SCP, it is important to act on the production and consumption ends of the supply chain together, rather than separating them. According to the Oslo Symposium (1994), considerable efforts have already been expended by governments, labour and business, and Non-Governmental Organizations to achieve more sustainable patterns of production. Thus, a lot more focus is on new opportunities for environmental improvement, provided by targeting the consumption side of the equation.

Current Status of Consumption and Production Practices in Kenya

Land-Use and Food Systems

Current status

The study established that Kenya's population, based on 2019 census, stood at 47.6 million, and had grown by 2.2 percent annually from 2009 (ROK, 2020). With this high and rapid growth in population, there is enormous pressure to increase food production to meet consumption demand. Food production is a big challenge given that approximately 89 percent of Kenya's land mass is either arid or semi-arid (ROK, 2012). Despite this, the Government and private sector players are committed to improving food production through establishment of large-scale irrigation schemes, use of chemical fertilizers and invention of high-growth hybrid seeds.

Challenges

However, Kenya is facing various challenges in regard to land-use and food systems. These include: insufficiency of food, whereby hunger and starvation are not new issues; destruction of forests and wetlands and other ecologically sensitive areas for settlement of the increasing population and farming; flooding in

urban and rural areas; landslides due to disturbance of fragile landscapes; reduced soil fertility due to poor farming practices; increased water pollution leading to reduced fish in water bodies; postharvest loss, a crucial component of the food security agenda, has not been given much attention; food preservation challenges that lead to farmers disposing their harvest at low prices; and waste of food at the consumer end of the food system (Obi, 2017).

According to Birch (2018), the principal barriers to agricultural productivity in Kenya fall into six areas:

(i) Land and population pressures: Average farm size is falling and land distribution is becoming more concentrated, leading to significant constraints on production, particularly for small landholders.

(ii) Agricultural research and development, and agricultural extension: The proportion of farmers accessing extension advice is low, while extension services tend to favour wealthier farmers. Government spending on agricultural research has fallen steadily over the past decade.

(iii) Markets: Government intervention in cereal markets distorts production and diverts resources from investments that might be more effective and efficient in improving productivity. While physical access to markets has generally improved, farmers report a number of institutional barriers and transaction costs related to market information and marketing processes. Access to credit is a constraint across the sector.

(iv) Climate change: Changes in temperature and in the variability of rainfall are likely to have significant effects on agricultural production, but impacts may be different for different crops.

(v) Soil fertility and land degradation: Adoption of sustainable land management practices is low, and land degradation is increasing.

(vi) Public expenditure: Kenya is not meeting African Union commitments on public spending in agriculture, and spends less than its immediate neighbours. Its subsidy schemes are regressive and distortionary.

Way forward

Birch (2018), outlines three opportunities available to

the Government to increase agricultural productivity. These include: re-orienting public expenditure from private to public goods, particularly to agricultural research and development, extension and training, and measures that reduce market transaction costs; farmer-centred approach whereby the knowledge of farmers themselves should not be overlooked. There is need to tap into the association between women's empowerment and productivity, and explore new forms of farmer organization; farmer services, such as insurance, in the agriculture sector and digital technologies that facilitate market access should be availed to the farmer. Measures to bring financial and agricultural markets closer together could improve productivity.

Further to the opportunities outlined by Birch (2018), this study recommends that the Government and other stakeholders undertake the following measures to realize sustainability in land-use and food systems: intensify food production through rain-fed agriculture and irrigation programmes; invest in technologies and infrastructure that will significantly minimize postharvest losses; sensitize and support farmers on sustainable land-use and food production practices; increase awareness in communities not to subdivide land into sizes that are not economically viable for farming; promote recycling of farm waste into other products; and promote lifestyle change whereby consumers cultivate a habit of not wasting food.

Water Resources and Use

Current status

According to the joint monitoring programme report by United Nations Children's Fund (UNICEF) and World Health Organization (2019) and Water Services Regulatory Board (WASREB) (2019), only 59 percent of Kenyans have access to basic water services. Kenya's development blue print, Vision 2030, sets a national target to ensure availability and access to improved water and sanitation to all by 2030 (ROK, 2007). The blueprint further underscores that water, in adequate quantity and sufficient quality, is a critical input in realization of the Vision. The National Water Master Plan 2030 estimates that an annual investment of 100 billion Kenya shillings is required in order to attain these national targets (ROK, 2013).

Whereas Kenya is home to some of the great water towers of East Africa, about 89 percent of the country is either arid or semi-arid (ROK, 2012). This implies that for the economy, water stress is already a factor. Water demand in the country is expected to grow very rapidly, especially in the context of ambitious agribusiness development plans (2030 Water Resources Group, 2015).

Kenya's natural renewable water resources heavily depend on the few and fragile catchments in the country's highland areas (Chepyegon and Kamiya, 2018). These catchments are the sources of Kenya's main rivers that make up the five basin areas in the country, namely: Lake Victoria, Rift Valley, Athi, Tana and Ewaso Ng'iro North. It is estimated that the catchments contribute over 75 percent of the nation's surface water resources (United Nations Environmental Programme (UNEP), 2012). The dilemma facing the government has been to balance between the expanding agriculture, which thrives in the region of the catchments and supports the country's economy, vis-a-vis conserving the forests (ROK, 2010b).

Approximately 56 percent of rural water sources are unimproved, with over half of the rural population depending on natural processes and homemade solutions to treat water for drinking (Chepyegon and Kamiya, 2018). Chepyegon and Kamiya (2018), underscore that facilities developed in rural areas are normally handed over to the management committees of concerned community groups after installation and are expected to meet operational and maintenance costs from water sales. Water service connections for almost all rural consumers are not metered; billing is on a flat rate every month. The revenues collected by the managing committee, therefore, barely cover operation costs, thus requiring the Water Services Board's periodical assistance, especially during major maintenances.

The Water Resource Management Authority (WRMA) is the national lead organization that manages allocation of water resources to various users, determines conditions for water use permit and related charges, plans for conservation of water resources and maintains water resources data (ROK,

2002). Water services in urban areas are provided by urban Water Services Providers (WSPs). All urban WSPs are under formal regulation by the Water Services Regulatory Board (WASREB). In rural areas, settlements are dispersed, thus making it costly to invest in piped water systems. Majority of the water sources are, therefore, point sources (Chepyegon and Kamiya, 2018).

Challenges

Chepyegon and Kamiya (2018), outline the following challenges facing the Kenyan water sector management:

(i) For rural water supply, in most instances, there are no adequate skills within the community to manage the facilities professionally, and this may be coupled with the unavailability of spare parts within the locality. The technologies used are not sustainable.

(ii) Community-managed projects are also prone to mismanagement by management committees because they are less monitored by WASREB.

(iii) Relative high cost of operation and maintenance compared to revenue makes it difficult for water service providers to carry out routine maintenance and to hire and retain competent staff due to insufficient revenue. This leads to slow decay of infrastructure and, consequently, a decrease in the number of consumers served and a decline in quality of services, which then results in a fall in revenue generation.

(iv) The funding allocated to the water sector is below the level required to meet the growing demand for water.

(v) There is low social acceptance of water projects in rural water supplies coupled with low stakeholder involvement during water resources development.

(vi) Competing interests in water use as seen, for instance, in the Tana River Basin, where there are sporadic conflicts between upstream (irrigation and hydropower) and downstream (irrigation and livestock watering) uses.

(vii) There is imbalance in the development of urban and rural water supply systems.

Way forward

To realize sustainability in development and use of water resources, the following recommendations are made: review the legislation governing the sector to introduce a mechanism for balancing urban and rural water supply; establish a monitoring strategy which would help the sector to rightly diagnose the challenges it faces and provide apt solutions; establish minimum technical standards for water facilities to be implemented in the country, lack of this has occasionally resulted in failure of rural water projects; involve beneficiary communities in overcoming, to a good degree, technical and social challenges in water development; and the Government Ministry responsible for water development and supply should explore legislative and/or political approaches to secure more funding for water services.

Coastal and Marine Environment

Current status

Kenya has a coastline of about 650 kilometres and a coastal land area of about 32,447 square kilometres (Ruwa, 2011). Whereas oceans provide a substantial portion of the global population with food and livelihoods, and are the means of transport for 80 percent of global trade, arguably, Kenya cannot boast of as much benefits from its related resources (Muigua, 2017). The country's coastal ecosystem is characterized by coral reefs, seagrass beds, mangroves, sandy beaches, archipelagos, coral islands, intertidal reef platforms, cliffs, sand dunes, creeks, estuaries and bays (ASCLME, 2012).

According to ASCLME (2012), mangroves have been impacted by human activities, particularly through removal of wood products, land clearing and conversion to other uses and pollution. The marine fishing industry is small scale and only accounts for six percent of the total fish production in the country (Aloo et al., 2014).

The country's tourism sector is an important source of livelihood in the coastal region of Kenya, despite the fact that only between two and five percent of tourism receipts actually trickle down to local communities (ASCLME, 2012). The major tourism attractions are beautiful sandy beaches, wildlife, historical sites and

local culture.

Challenges

Environmental degradation and over-exploitation of natural resources are key challenges that Kenya is facing with regard to the management of coastal and marine environment (ASCLME, 2012). Other challenges include; use of destructive fishing techniques, poverty and rapid population growth and lack of capacity for effective management and enforcement of regulations.

Way forward

In order to sustainably use the coastal and marine environment, this study recommends that the local communities should be engaged in alternative streams of employment so as to reduce strain placed on coastal ecosystems. Further, the Government of Kenya should improve the capacity towards implementation of its policies, strategies and plans for integrated coastal zone and fisheries management.

Energy Resources

Current status

The main generation sources of energy in Kenya include: hydro, oil, geothermal, biofuels, wind and solar. These are briefly discussed in the sections below:

(a) Renewable Energy

According to the Africa Energy Series Report (2020), a mix of solar, wind, hydro and geothermal energy provide for approximately 93 percent of the country's energy needs. The report points out that the majority of its approximately 2.7 GW installed capacity is derived from hydropower (677 MW) and geothermal energy (690 MW). The peak demand stands at approximately 1,900 MW. Kenya is currently the largest producer of geothermal energy in Africa. By 2030, the country aims to achieve a 100 percent energy mix.

(b) Lake Turkana Wind Power (LTWP)

In July 2019, Kenya inaugurated its Lake Turkana Wind Power Plant (LTWP), representing the largest wind power plant in Africa. The plant consists of 365

turbines capable of rendering 310 MW of reliable, low-cost energy to Kenya's electrical grid (Africa Energy Series, 2020).

(c) Nuclear Energy

Currently, there is no generation of electricity in the country from nuclear power. However, there is in place The Nuclear Power and Energy Agency (NuPEA), formerly Kenya Nuclear Electricity Board (KNEB), a state corporation established under the Energy Act, 2019. It is charged with the responsibility of promoting and implementing Kenya's Nuclear Power Programme, and carrying out research and development for the energy sector. The agency is mandated to develop policies and legislation, undertake public education and awareness, identify suitable sites for the construction of nuclear power plants, and carry out research, development and innovation on energy technologies, as well as capacity building for the energy sector (ROK, 2019).

(d) Fossil Fuel

Kenya is still dependent on fossil fuels despite the fact that it has alternatives that are clean and sustainable. The high fossil fuel costs, arising from burning of diesel and coal to generate electricity, are usually transferred to the consumers (Institute for Energy Economics and Financial Analysis (IEEFA), 2020).

Due to a high level of poverty in the country, there is a significant shift to non-traded traditional biomass fuels, that is, firewood, charcoal and agricultural wastes, accounting for almost 90% of rural household energy needs (Energypedia, 2021). According to the 2019 Kenya Population and Housing Census, 55.1% of Kenyan households use firewood for cooking, and 23.9% use liquefied petroleum gas (LPG). The study observed that car ownership in the country is on the increase, implying an increase in consumption of petroleum products. With this, comes a bigger impact of environmental degradation due to increased emission of pollutants into the atmosphere.

Challenges

Power Africa (2021), identifies the following four key challenges in the production side of energy resources

in Kenya: inadequate access to project financing, especially early stage risk capital, land risks, right-of-way and community engagement (both Generation & Transmission), long procedures and inconsistency in approval of Power Purchase Agreements (PPAs), and lack of clear off-grid regulatory framework. At the Consumption end, salient challenges include low per capita consumption of electricity in domestic households and wide use of fossil fuels, which are an unclean form of energy.

Way forward

To realize sustainability in production and use of energy resources, the following interventions are necessary:

(i) The Government should put in place programmes to have all domestic households connected to electricity by 2030. Whereas energy access programmes involve one-off investment, those supporting energy use require recurring support.

(ii) Decarbonization: the country should intensify clean energy production work towards reaching 100 percent green energy by 2030.

(iii) Transport sector: invest in reliable public transport system in the country's urban areas. This will motivate reduction in private car usage.

CONCLUSION

This study has interrogated four key issues that are fundamental to realization of sustainable consumption and production in Kenya. The paper discusses each key issue in regard to the current status, challenges being experienced and the way forward to surmounting the challenges. The paper notes that despite the various challenges, the country is committed towards realizing sustainable consumption and production of its resources, and by extension, sustainable living in cities and communities by 2030. To achieve and sustain this spirit, a concerted effort of all stakeholders, each playing the rightful role, is necessary.

Human well-being should, at all times, be decoupled from environmental degradation. Use of energy, water and coastal and marine resources should be more sustainable and efficient and decoupled from social and economic progress.

RECOMMENDATIONS

To realize sustainable consumption and production in Kenya by 2030, a concerted effort of all players – the Government, private sector organizations and the general populace – is necessary; nobody should be left behind. Specifically, this paper roots for the following actions in each of the four key areas:

Land-use and food systems

The Government and other stakeholders should invest in agricultural research in order to realize sustainability in land use and food systems. The research should focus on how to intensify food production, minimize postharvest losses, and build the capacity of farmers, develop sustainable farming practices and promote lifestyle change to minimize food waste.

Water resources and use

The Government and water service providers should strive to balance urban and rural water supply in order to realize sustainability in development and use of water resources. This calls for review of the legislation governing the sector, addressing technological challenges in rural water supply systems, and working closely with the beneficiary communities.

Coastal and marine environment

To assure sustainability of the coastal and marine environment, all players should work towards easing pressure on the resources by creating alternative employment streams. The Government should also improve the capacity towards implementation of the integrated coastal zone and fisheries management.

Energy resources

The Government of Kenya, with the support of all stakeholders, should facilitate access to clean energy resources by the year 2030. This is by ensuring that all households are connected to electricity, intensifying clean energy production and investing in mass transit systems in urban areas to minimize the high usage of private cars.

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