



# Status of the Transition to a Nature-Positive Green Economy in Tanzania

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## 1. Introduction

This paper assesses the status of the transition to a nature-positive green economy with respect to energy transition and green economy initiatives in Tanzania. Nature positive green economy refers to natural resources and biodiversity, mainly renewable resources, and ecosystems. Owing to increasing climate change effects, countries have shifted from using fossil fuels including oil, natural gas and coal — to renewable energy sources like hydro, wind, geo-thermal and solar etc. Renewable energies are eco-friendly because they emit less Greenhouses Gases (GHGs) such as carbon dioxide and methane, that exacerbate climate change. Moreover, Tanzania is a resource rich country, endowed with valuable natural resources<sup>1</sup> such as equatorial-thick forests, salty and fresh waters with exotic species of fish, wildlife, mineral, and metal deposits. Approximately, 32 percent of the total land area is a wildlife protected area that provides enough space for biodiversity and the protection of watersheds and ecosystems (Ministry of Natural Resources and Tourism 2022). Furthermore, the country has fertile red-soils suitable for arable agriculture from Kagera region in northwestern Tanzania to Ruvuma and Mbeya regions in the southern highlands. Natural resources are crucial in the transition to cleaner and sustainable energy since they are the main source of raw materials used in producing renewable energy appliances like wind turbines, solar panels, and batteries (Ullah et al. 2023). Furthermore, manufacturing solar panels requires minerals like silicon, glass, and aluminum, while wind turbines use steel and rare earth metals.

During the transitioning processes, it is crucial to sustainably manage the utilization of natural resources' in maximizing their benefits. The transition from fossil fuels encounters its own challenges. One of the major challenges is the costly purchase of renewable energy compared to fossil fuels and the predominance of counterfeit solar appliances making it hard to differentiate genuine solar appliances from the counterfeits. On the other hand, some of the green transition initiatives include the use of electric vehicles (EVs), clean cooking energies, waste recycling, while market-based instruments like tax incentives and subsidies are introduced to stimulate the transition rate (Sadiq et al. 2023 and Feng et al. 2022). The green transition is obtained

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<sup>1</sup> In development theories, natural resources are often associated with stunted economic growth in most of the LDCs due to limited enabling environment (Auty 1993 and Cappelen et al. 2021). This phenomena of low economic growth in resource-abundant countries is commonly termed as a resource-curse hypothesis. According to Natural Resource Governance Institute (NRGI), good governance of resources attributed to strong policies, governance institutions, legal and regulatory frameworks categorically prevent resource-curse hypothesis. In Africa, resource-curse scenarios are present in resource-rich countries like Nigeria, Angola, and Equatorial Guinea.

by calibrating a multi-dimensional index comprised of technology, society, energy, and environment.

However, despite the abundant endowment of natural resources, there are still challenges facing the country. As highlighted by various reports and the Household Budget Surveys (HBS), the country is still having a high proportion of people living in poverty. Although, multidimensional poverty fell significantly from 64 percent in 2010 to 47.4 percent in 2015, extreme poverty declined from 31.3 percent in 2010 to 17.7 percent in 2015 (Tanzania Human Development Report - THDR 2017). The latest HBS of 2018 showed that 26.4 percent of the population still lives below the poverty line. Given the rapidly growing population from 34,463,704.00 in 2000 to 65,497,748.00 in 2020, the World Bank's Development Indicators, reveal that over the past two decades, the forest area as a percentage of total land area has been depleted by 9 percent from 60 percent to 51 percent while methane emissions stemming from human activities such as agriculture and from industrial methane production have increased from 25,861 to 46,481. In light of these growing challenges like many countries in East Africa, Tanzania is dealing with the impacts of climate change manifested in frequent and severe droughts and floods (El-Nino) and the resultant drying out of key water bodies leading to low agricultural yields and often heavy livestock losses. In recent years, climate change and the resulting adverse effects of global warming have gained unequivocal attention among policymakers globally.

In response, Tanzania signed the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC) in 2002 to limit its greenhouse gases (GHG) emissions. This protocol was followed by the 2015 Paris agreement that aimed at maintaining global temperatures between 1.5 °C and 2 °C. Article 4 of the agreement commits all involved Parties to develop country specific Nationally Determined Contributions (NDCs)<sup>2</sup> that describe several national interventions to tackle climate change effects in reducing GHGs (Kannan et al. 2022 and Rehman et al. 2023). Almost all sectors of the economy such as agriculture, energy, forestry, Water, Sanitation and Hygiene (WASH) and transport are among the most affected by climate change and the most emitters of GHGs. For instance, paddy farming emits more than 10 percent of the agricultural GHGs globally (Maraseni et al. 2018) while the transport sector is

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<sup>2</sup> These NDCs are also in line with the National Climate Change Response Strategy (NCCRS) of 2021. The specific objectives of the strategy are to mainstream climate change issues into national development plans and budgets; monitoring the Nationally Determined Contribution (NDCs) and mobilizing climate finances to support climate change adaptation and mitigation interventions.

responsible for about 15 percent of the GHGs and 23 percent of carbon dioxide gas emissions (Lau et al. 2023).

This paper is divided into five Sections. Section 1 presents the introduction. Section 2 reviews the literature. Section 3 provides the approach and methodology used in the study. Section 4 analyses the findings of the study. Section 5 concludes with policy recommendations.

## 2.0 Literature review

Most of the studies have focused on the green economy transition in developed and emerging market economies. For instance, Fang and Wang (2022), examined whether natural resource efficiency affects the growth of green economy in BRICS countries covering the periods 1990- 2021 using continuously updated fully modified (CUP-FM) and bias-corrected (CUP-BC) estimators. Their results show that sustainable consumption and production patterns enhances the growth of green economy. More studies focused on the relationship between carbon emissions and green economy in China (Sun et al., 2023). While Hua et al., (2023) and Houssam et al., (2023), investigated the nexus between green economy and sustainable development in developed countries and Zheng et al., (2022), assert that green credits have an impact on the green economy especially in areas with high economic development level. Other studies investigated the causality between digital economy and green economy in China (Li et al., 2023). However, relatively few studies have been done in Tanzania. For instance, Buseth (2017) examined the green transitioning from a global discursive level to institutionalisation at the national level in Tanzania. Another study by Rweyendela and Kombe (2021), argued that the shift towards a circular economy is strongly linked to institutions and Malima and Moyo (2023), analysed the downside of owning Electric Vehicles (EVs) in the Tanzanian context.

Therefore, this study focusses on the transitioning processes to a nature-positive green economy in Tanzania in terms of enabling environment – legislations, policies and regulations and the status of the transition. Legislation is regarded as one of the three pillars of the government classified under the separation of powers as per the constitution of the United Republic of Tanzania. Tanzania has deliberately taken concerted measures to realign the legal framework with national priorities to minimize loopholes in transitioning to a green economy. Remarkable legislative and institutional developments include the establishment of the National Environment Management Council (NEMC) in 1983 when the Government of Tanzania enacted the National Environment Management Act No. 19 of 1983. NEMC was established with a broad mandate to oversee environmental management issues.

The enactment of the Environmental Management Act No. 20 of 2004 (EMA, 2004) by Parliament in October 2004, expanded the breadth and depth of NEMC's mandate. The EMA (2004) calls for the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources. In 2017, the legal and institutional frameworks

governing natural resources specifically oil, gas and mineral extraction were revised, and the Natural Wealth and Resources (Permanent Sovereignty) Act 2017 ("Sovereignty Act") and the Natural Wealth and Resources (Review and Re-Negotiation of Unconscionable Terms) Act 2017 ("Contract Review Act") were enacted. Section 5 of the Sovereignty Act states that the country's natural resources are held in trust by the president on behalf of its citizens. Local Content Policy spearheaded by the National Economic Empowerment Council (NEEC) also insists on localizing the benefits of these resources to the people and communities. The Act provides legal and institutional framework for sustainable management of the environment and natural resources in terms of waste and pollution; environmental impact assessments; and enforcement of the Act.

The regulatory landscape for a green economy also extends to ad hoc legislation governing specific sub sectors such as forestry, fisheries, land, and wildlife conservation. These include the Forest Act No. 7 of 2002 that provides for management of forests and Environmental Impact Assessment (EIA) of specific projects. It also provides for designation of Community Forest Reserves and Mangrove Forest Reserves. The Wildlife Conservation Act No. 5 of 2009 ensures that wildlife resources are sustainably managed and protected. Marine Parks and Reserves Act No. 29 of 1994 sustainably protect and conserve marine resources. Fisheries Act No. 22 of 2003 Act regulates fishing activities in both fresh and marine waters. It also underscores the protection of fisheries resources, the endangered species. Meanwhile, Land Act No. 4 of 1999 and Village Land Act No. 5 of 1999 ensures that land is used productively and prohibits any development activities in wetlands and swamps and 60m from the shoreline and riverbanks. On the other hand, Water Resource Management Act No. 11 of 2009 provides the legal framework for the management of water resources to prevent water pollution by protecting water works and storage facilities. In addition, Local Government (Urban Authorities) Act No. 8 of 1982 assigns responsibility to urban councils to conserve natural resources in the urban areas.

In recent years, the Vice President's Office (VPO) developed mainly four environmental management regulations, which are the Environmental Management (Control and management of carbon trading) regulations 2022; the Environment Management (Prohibition of plastic carrier bags) regulations 2019; the Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations 2018, and the Environmental Management (Hazardous Waste Control and Management) Regulations 2019. The Environmental Impact Assessment and Audit (Amendment) Regulations, 2018 is issued upon showing evidence of owning land and proper location of the proposed project. This regulation incorporates the project screening

criteria which has several socio-economic issues that should be met prior to executing the project. These criteria include assessing the project's environmental impacts such as air, soil and water pollution, compensation for displaced people or communities and the sustainable use of natural resources by the proposed project in the sense that the project will in no way tamper with the nationally reserved areas to conserve nature like national parks; wetlands; cultural or historical sites etc.

Another regulation is the hazardous waste control and management) regulations, 2019 which are applicable to all categories of hazardous waste handling from collection, storage, transportation, treatment to recycling, reuse and recovery. In line with the modern practices of handling hazardous waste, these regulations are guided by precautionary principle, polluter pays principle and producer extended responsibility. The latter oblige producers rather than the end-users to internalize their environmental costs during the whole life cycle of their products from production to consumption. Essentially, under the cleaner production principle, the regulation aims at minimizing hazardous wastes to the acceptable levels by monitoring producers to carry out eco-friendly production for instance, using cleaner energies to reduce toxic gas emissions and promoting the reuse, recycle and recovery of products. Lastly, prohibition of plastic carrier bags regulation, 2019 is aimed at discouraging the use of plastic bags. As a response to the regulation, a total ban on the import, export, manufacturing, sale, and use of plastic bags carriers was imposed in 2019. Additionally, the environmental management (control and management of carbon trading) regulations, 2022 stipulates that entities implementing a carbon project will ensure the project considers environmental sustainability, adheres to international standards, as well as incorporating socio-economic and eco-benefits. This regulation aims at controlling and managing carbon trading projects.

Despite all these efforts, adverse effects of climate change are still felt in the country due to the absence of comprehensive and revised policy to address climate change. This policy gap called for an urgent need to integrate the emerging socio-economic development realities. Furthermore, as climate change is evidenced in Tanzania in the form of floods, droughts and rising sea levels along the coastal line, policymakers have increasingly underscored the urgent need for action to mitigate and adapt to climate change in a concerted manner. These eco-challenges call for concerted actions that include provision of a specific and clear comprehensive policy directive to explicitly address them. The identified gaps from the previous environmental policy, include inadequate policy guidance in addressing emerging environmental challenges, particularly climate change impacts; e-waste management; prevention, control, and

management of invasive species; environmental pollution from oil and gas operations; sound management of chemicals and application of modern biotechnology. These policy gaps were addressed in the subsequent policies with the current environmental policy identifying five key challenges which are: land degradation; lack of accessible good quality water for rural and urban inhabitants; loss of wildlife habitats and biodiversity; deterioration of aquatic systems; deforestation; and environmental pollution. Considering these gaps, the recently revised NEP of 2021 that aim to cope with the climate change and ecological complexities has incorporated key socio-economic components such as proper land use planning, alternative cleaner energies, climate finance, proper management of water resources; strengthening public awareness and education on ecosystems and biodiversity; managing losses and damages; deterioration of aquatic systems; waste management. The new policy has also integrated cross-cutting issues of governance and gender equality for inclusivity. These efforts will in turn, speed up the transitioning<sup>3</sup> processes to a low-carbon or green economy. Therefore, this revised policy serves as a directive or rather, a national framework for planning to achieve sustainable environmental management in a coordinated, holistic, and adaptive manner taking into consideration the prevailing and emerging environmental challenges at the country and global levels. It is worth noting that, effective implementation of this policy requires mainstreaming of environmental issues at all levels, strengthening institutional governance and public participation in environmental matters.

Tanzania, like many other developing countries, has so far made efforts toward transitioning to a green economy. However, Tanzania does not have a specific policy or even strategy on green economy. There have been different, direct, and indirect actions and initiatives implemented in the country that support the transition such as the promotion of renewable energies (clean cooking energies, solar, hydropower, wind, geothermal, biogas), use of energy-efficient appliances and equipment and efficient mass transit systems. One of the most notable initiatives is Southern Agricultural Growth Corridor of Tanzania's (SAGCOT) green growth initiative which is a Public-Private Partnership (PPP), an agricultural-based programmes involving the government, smallholder farmers, agribusinesses, and development partners. The initiative started as an Agricultural Sector Development Programme (ASDP) with the main goal of increasing private-sector investment in agriculture while ensuring farmers

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<sup>3</sup> The transitioning to a green economy has gained pace in recent years due to the increasingly adverse effects of climate change and the resulting greenhouse gas emissions (GHGs). The harmful emission of Greenhouses gases especially methane is exacerbated by human activities such as agriculture (paddy farming), deforestation, industrial activities, and fossil fuels (natural gas, coal, petroleum etc). Owing to these environmental dilemmas, there are ongoing adaptation and mitigation measures to tackle the adverse effects of climate change under the country specific Nationally Determined Contributions (NDCs) that targets at attaining the 1.5°C pre-industrial levels.

have access to technology and markets. In response, a new strategy, 'Kilimo Kwanza' (agriculture first) was launched in 2009.

Other related initiatives embarked on by Tanzania include participation in the Reducing Emissions from Deforestation and forest Degradation (REDD+), an international framework aiming at climate change mitigation through reductions of greenhouse gas (GHG) emissions and increases in GHG removals. This initiative began in 2008 following the UNFCCC's Conference of Parties with the support of the Government of Norway. In a sad turn of events, several REDD+ related activities ended in 2014, because of limited funds. However, the country is currently engaged in a range of global and multilateral international agreements, which govern forest management such as decentralization in forest management which has advanced with Participatory Forest Management (PFM) through Community-Based Forest Management (CBFM). Tanzania has managed to access different climate change funds. Consistent with the FYDP II (2016/17 -2020/21), the country's aim was mobilising around USD 304 million<sup>4</sup> from various climate financing sources such as Green Climate Fund (GCF), Global Environment Facility (GEF), Least Developed Countries Fund (LDCF) and Adaptation Fund (AF). However, in 2020, USD 10.7 million were mobilised. During the ten years period (2013-2023), Development Partners have committed USD 230 million as climate finance and USD 540m to support natural resource management.

## **2.1 Status of the Natural Capital Accounting (NCA)**

Natural capital concept refers to "capital", "stocks", and "flows" that describe the environment, its functions, outputs, and benefits to the surrounding community (Jones et al. 2016). The concept has since shifted to environmental sustainability practices e.g. its integration within national accounting standards where it advocates for monetization or valuation of natural resources (Neill et al. 2020). In practice, countries have so far agreed to mainstream natural capital accounts into their policies, plans, and strategies. Since 1992, when the System of Environmental-Economic Accounting (SEEA) was introduced by the United Nations Statistics Division (UNSD), its implementation remains a challenge to the country's National Bureau of Statistics (NBS). One of the challenges may be attributed to limited skills in measuring natural capital and lack of adequate funds to carry out the exercise, among others. Natural Capital is curated in terms of the total wealth in the new approach is calculated by summing up estimates of each component of wealth: produced capital, natural capital, human capital, and net foreign assets (Lange et al. 2018) as shown in Table 1.

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<sup>4</sup> MoFP. 2021a. Tanzania Finance Development Assessment Report 2021. National Five Year Development Plan 2021/22-2025/26.

**Table 1: Total wealth in 2018 (Estimated in 2014 U.S. dollars per capita at market exchange rates)**

Country	Total wealth	Produced capital	Natural capital	Forest Timber	Protected areas	Cropland	Pastureland	Human capital	Net foreign assets	Population
Tanzania	17,451	3,199	8,039	813	1,789	3,389	1,514	6,706	-494	51,822,621
Sub-Saharan Africa	25,562	4,017	9,225	525	1,138	2,824	1,735	12,680	-360	867,222,259

**Source:** Calculations by Lange et al. (2018)

The NBS generated the Mineral, Water, and Forest accounts (MWF) under the Resource Accounting Network for Eastern and Southern Africa projects (Maes et al. 2020). Natural Capital Accounting (NCA) entails measuring national wealth and changes in wealth to determine a country’s economic welfare. In earlier approaches, supposedly these were comprehensive approaches, total wealth was calibrated by summing up all the components of wealth that included produced capital, natural capital, human capital, and net foreign assets (Azad and Ancev 2020). For instance, human capital was proxied by type of employment and by gender using household surveys. With the support of the Gaborone Declaration, Tanzania posited building capacity in natural capital accounting as its main priority.

However, Tanzania was one of the signatories to the Natural Capital Accounting and participated in the Wealth Accounting and Valuation of Ecosystem Services (WAVES) Global Partnership along with Kenya and Rwanda at the Rio+20 in August 2012 (WAVES, 2013). Before this partnership, an inventory of greenhouse gases (GHGs) was developed in 1993 and 1994 addressing energy, agriculture, industry, waste management, forestry, and land-use sectors. In the Eastern Arc Mountains, the Natural Capital Project (NatCap) was started in 2007 to improve knowledge of the area’s ecosystem services and their contribution to human well-being. The Department of Statistics at the University of Dar es Salaam demonstrated its capacity in natural capital accounting through its Natural Resource Accounting Study that focused on the contribution of forests to the national economy.

## 2.2 The role of stakeholders in the green transition

Various stakeholders, both State and Non-State Actors (NSAs) have been engaged in the transitioning to a green economy as shown in Table 2. Inclusivity is vital for scaling up the transition to a nature-positive green economy. A just and fair transition requires all stakeholders to participate in attaining the green economy with the main stakeholder being the government and others - the private sector, Civil Society organizations (CSOs), Development Partners and the academia – research institutions (Sokoine University of Agriculture (SUA), University of Dar es Salaam, Tanzania Wildlife Institute of Research, Tanzania Agricultural Research Institute (TARI), Tanzania Fisheries Research Institute (TAFIRI), Tanzania Forestry Research Institute (TAFORI), Tanzania Livestock Research Institute (TALIRI) etc.).

The government is the main stakeholder in natural resource management through the Vice President's Office (VPO) that is the national coordinator for environmental matters. Other government institutions include the Ministry of Natural Resources and Tourism; Ministry of Industries, Trade, and Investment (MITI); President's Office-Regional Administration and Local Government Authorities (PO-RALGs); Ministry of Education, Science and Technology (MoEST); Ministry of Energy; Ministry of Water (MoW); Ministry of Finance (MOF); Parliamentary Committee on Natural Resources and Agriculture; National Environment Management Council (NEMC); National Bureau of Statistics (NBS); Ministry of Agriculture (MoA); Ministry of Livestock and Fisheries (MoLF); Ministry of Land, Housing and Human Settlements (MLHHS)

**Table 2: Roles of the stakeholders**

The Vice President's Office (VPO) - Minister Responsible for Environment and Union Matters	Issues guidelines and regulations relating to the environment, including the articulation of policy guidelines for its promotion, protection and sustainable management, and designate duties to relevant entities.
President's Office-Regional Administration and Local Government Authorities (PO-RALGs)	Assumes its mandate of Management and Administration of Regional Secretariats and Local Government Authorities by coordinating environmental issues at the regional level.
National Environmental Advisory Committee (NEAC)	NEAC was established under EMA Section 11 to advise the Minister responsible for Environment and other sector ministries on environmental matters.
Ministry of Natural Resources and Tourism	The MNRT is responsible for the management and sustainable conservation of Tanzania's natural and cultural resources.
Tanzania Wildlife Management Authority (TAWA)	TAWA was established to undertake the administration and sustainable management of wildlife resources outside national parks and the Ngorongoro Conservation Area under the mandate of the Wildlife Conservation Act No. 5 (2009).
Tanzania Private Sector Foundation (TPSF)	Advocates for eco-friendly private sector-led approaches to Tanzania's economic and social transformation.
Tanzania Atomic Energy Commission (TAEC) (part of the Ministry of Education, Science and Technology)	Established under Atomic Energy Act (2003) with the responsibility to oversee safe and peaceful use of atomic energy and nuclear technology including radioactive materials and radiation devices.
Ministry of Energy	The Ministry is also responsible for managing energy and petroleum resources with the mission of providing safer and environment-friendly modern energy services to all while

	ensuring effective participation of Tanzanians in the sector.
Ministry of Minerals	Mandated to formulate and monitor implementation of mining policies.
Ministry of Water (MoW)	Responsible for developing and managing the country's water resources.
Ministry of Finance	Through the Ministry, the Government has continued to provide awareness and various guidelines to the public on the importance of environmental conservation for the benefit of present and future generations, and providing financial resources for the relevant interventions
National Environment Management Council (NEMC)	Undertakes the enforcement, compliance, review and monitoring of EIAs, including the facilitation of public participation in environmental decision making.
National Bureau of Statistics (NBS)	The Bureau has continued to provide National environment statistics
Tanzania Meteorological Agency	Responsible for the provision of Meteorological services, weather forecast, climate change services and warnings and advisories information in the country will assume its mandates entrusted in them.
Ministry of Agriculture (MoA);	The Ministry has a mandate of overall management and sustainable development of livestock, agriculture, and fisheries resources.
Ministry of Land, Housing and Human Settlements (MLHHS);	The Minister has sole authority over all land matters including policy formulation and implementation of the Land Act, 1999, Cap 113 and the Land (Amendment) Act 2004.
Development partners	Provides institutional support for Natural Resources Governance, financing for climate change adaptation and mitigation

The private sector and Civil Society Organisations (Forum CC also known as the Tanzanian Civil Society Forum on Climate Change which is an association of civil society organisations committed to work on climate change in their own programmes as well as through advocacy) have a critical role to play in the transition. From energy companies to individual firms like Coca-Cola companies, the private sector is a vital agent of change in the transition. Strong collaborations with the private sector under the auspice of umbrella organisation Tanzania Private Sector Foundation (TPSF) will speed up the pace of the transition.

### **2.3 Case study: Southern Agricultural Corridor of Tanzania (SAGCOT)**

The southern highlands have hosted large-scale green economy initiatives carried out by SAGCOT and the USAID-funded Alliance for Greener Revolution (AGRA) to improve agriculture productivity (Bergius et al. 2020). SAGCOT is a private sector-led initiative established in 2010 to boost agricultural productivity, improving food security, reducing poverty, and ensuring environmental sustainability through the commercialisation of smallholder farming. SAGCOT's aim of "fostering an inclusive, commercially successful agribusiness" corresponds with the country's 2009 national agenda on agriculture, commonly known as "Kilimo Kwanza" ('agriculture first'). The goal of Kilimo Kwanza was to commercialise and modernise the agricultural sector in Tanzania, in collaboration with the private sector (Buseth, 2017). SAGCOT's goals of poverty reduction, economic growth, and environmental conservation echo an important aspect of the green economy. From a practical point of view, the initiative's green growth approach is a hybrid of green economy and green revolution concepts.

It functions by innovatively engaging smallholder smart farmers to improve productivity along the value chain and ensure environmental sustainability through their investments. The key role of the initiative is to facilitate partners to deliver on inclusive, sustainable, and commercially viable agricultural value chains along the southern Corridor. SAGCOT managed to attract more than 80 partners in the first three years of its establishment. Partners, in this case, consist of agribusiness companies, farmer organisations/associations, financial institutions like TADB, NMB, etc; Civil Society Organisations (CSOs), and government MDAs. The current value chains established in the late 2016 are Soya, Tea, Dairy, Tomatoes, Sunflower, Avocado, and Potatoes.

In a nutshell, SAGCOT managed to attract a diverse pool of investors and partners from various sectors, namely, business enterprises, green-oriented companies, environmental organisations, and institutions. Initially, the initiative was coined as a "green growth investment" but its theme shifted towards "agriculture green growth". In recent years, the initiative prefers using "inclusive green growth". These dynamics

portray that the initiative has gone through a process of re-branding its role to fit in with the global green economy and green growth discourses, and this may indicate the institutionalisation of the initiative of green transition efforts over the years.

The Southern Highlands corridor is home to the country's most fertile red soils suitable for crop cultivation. For instance, Mufindi, Njombe, and Rungwe are the most significant tea-producing areas in this region. Tea is one of Tanzania's biggest export crops and a major crop for smallholder farmers, approximately a third of the country's crop is produced by small-scale farmers. In this context, SAGCOT has been working with its partners to improve the productivity of crops along the various value chains. Through its assessment of partner activities in the corridor, the initiative mapped key actors who have a zeal for establishing a viable value chain in Songea (Ludewa cluster) and Njombe (Ihemi Cluster). Smallholder yields are often low due to acidic soil, minimal use of fertilizers, limited availability of quality seeds, and poor crop management. Building a strong value chain was viewed to be critical to boosting production. From the practical point of view, the soya value chain incorporated a wide range of actors, from smallholders to large-scale producers, brokers, agents, processors, retailers, and consumers. As a result, the project further unveiled improved seed, mechanisation, and good agricultural practices to farmers.

On the other hand, SAGCOT initiated the Tomato Partnership with the Darsh factory in the Ihemi cluster (Iringa and Njombe regions) to process tomatoes into finished and semi-finished goods including tomato paste in cans and aseptic bags, tomato sauce, and ketchup. Meanwhile, the Ihemi Cluster has already established two avocado processing factories – Zalacado in Iringa and Olivado in Njombe. These value chains are important steps into assisting the farmers to grow crops in a sustainable manner, which is an essential step into the green economy concept.

### 3.0 Approach and Methodology

A mixed approach was used to collect data. Primary data were obtained from 11 in-depth interviews. The primary data were triangulated with secondary data obtained from documentary reviews of various reports, national policies, and laws.

#### 3.1 Study Area

Dar es Salaam and Dodoma regions were selected for the study to capture the varying regional transitional processes to a green economy. Specifically, Kinondoni, Ubungo and Ilala District Councils in Dar es Salaam region while Dodoma Urban District Council in Dodoma region were sampled for the study. Table 3 presents the districts and wards covered in the study. A case study of the Southern Agricultural Growth Corridor programme (SAGCOT) implemented in the Southern Highlands was selected.

**Table 3: Districts and wards covered**

		<b>Ward 1</b>	<b>Ward 2</b>
Dar es Salaam region	Kinondoni Municipal Council	Kinondoni	Mikocheni
Dar es Salaam region	Ubungo Municipal Council	Ubungo	Sinza
Dar es Salaam region	Ilala District Council	Ilala	
Dodoma region	Dodoma Urban District Council	Mtumba	

#### 3.2 Sample and sampling technique

##### 3.2.1 Sample size

A sample size of 20 Key Informants were purposively drawn as shown in Table 4. The sampling targeted respondents from the age group of 18 and above. Sampled respondents were sourced from 12 institutions based in Dar es Salaam (66%) and Dodoma (33%) regions. Institutions were represented as follows: government Ministries (30%); government Agencies (30%); private sector (15%); development partners (20%); research and academia (5%) participated in the study.

**Table 4: Sample size**

<b>District name</b>	<b>KIIs</b>	<b>Total sample</b>
Kinondoni Municipal Council	7	
Ubungo Municipal Council	3	
Ilala District Council	1	
Dodoma Urban District Council	9	
<b>Total sample</b>	<b>20</b>	<b>20</b>

### **3.2.2 Sampling techniques**

#### **3.2.2.1 Purposive sampling technique**

Multiple sampling techniques were used for the study. Respondents were purposively selected targeting the age groups of 18 and above. Purposive sampling or judgmental sampling is a type of non-probability sampling in which the researchers/interviewers select the representation for the whole population based on their judgement. The technique is considered as one of the most efficient techniques in terms of cost and time relatively to other sampling methods. It allows field planning in advance due to the priori selection of the respondents. On the other hand, it can lead to biased results since researchers are prone to making biased assumptions when selecting respondents.

#### **3.2.2.2 Snowball sampling technique**

Snowballing is a non-probability sampling technique where the selected key informants recommend or refer another informant to participate in the study. The sampled respondents recommended other well-versed individuals to supplement their responses. The advantage of this sampling technique is that it enabled the interviewer to access knowledgeable individuals who enriched the research findings.

### **3.3 Data collection methods**

The study involved three main methods of collecting data, namely, physical interviews with key informants; phone interviews; and documentary review. These are described below:

#### **i) Key Informant Interviews (KIIs)**

KIIs are an in-depth interview that targets respondents who are knowledgeable or rather, have first-hand knowledge about the study area of interest. It has an advantage on the information shared coming directly from knowledgeable

people and usually offers confidential data/information that cannot be obtained using other data collection methods. The interviews were administered on key informants such as the government officials, development partners and the private sector. Among other things, the interview was centred on the status of the transition at the sectoral level, enabling environment, institutional green initiatives taken and the capacity building, gender mainstreaming in the transition as well as the access to green funds etc. This information will assist to assess the progress made in terms of green transition.

**ii) Phone interviews**

In a changing world of emerging modern technologies, virtual interviews are becoming popular in carrying out research compared to face-to-face interviewing methods. A growing plethora of studies done on the advantages of using phone interviews attributed them to logistical conveniences, offers flexibility, safer and more economical in terms of costs incurred. In addition, other studies perceive that phone interviews offer anonymity, less distraction and increased privacy for respondents (Cachia and Millward 2011).

**iii) Documentary review**

In-depth review of existing literature on transitioning processes to green economy was carried out. This included: cross-cutting national policy, action plans, strategies, initiatives, legal and regulatory frameworks on the environment to identify legal and policy gaps; Ministerial and sectoral reports; environmental assessment reports; and regional reports. Other sources of information/data included official publications and annual reports from key stakeholders' organisations/Institutions, refereed journals, and the National Bureau of Statistics. Secondary data was sourced from the World Bank Development Indicator's database. In addition, there were monthly online meetings to review and discuss the status of progress.

### **3.4 Ethical issues**

The study was undertaken with the approval of relevant institutions. Respondents were informed about the objectives of the study. Their informed consent was obtained before starting the interviews. Participants were assured of anonymity in data analysis and in the presentation of the findings in any form.

### **3.5 Limitations of the study**

A major limitation of the study was the unavailability of targeted respondents in some of the key institutions of interest. This challenge was addressed by triangulating with secondary information. Another limitation of the study was limited data on the transitioning processes to greener economy in Tanzania, given that the concept of green economy has not gained much traction and not widely known, so there are no specific indicators and targets which could have allowed for data to be collected.

## 4.0 Findings of the study

### 4.1 Descriptive statistics

Figure 1 summarizes the descriptive statistics of the respondents. A sample of sixty percent (60%) respondents were men, while 40% of the respondents were women. The mean age of sample was 15.5 years. Middle aged (35-49 years) dominated by 65% followed by the older respondents (30%) aged between 50-64 years and youths (5%) aged between 18-34 years. There was no respondent above 64 years old. This indicates that more efforts should be done to include the youths in the transition. Majority of the respondents (95%) had post-graduate education and are married in a monogamous marriage. Meanwhile, the remaining 5% have a university degree and have never been married. Larger proportion of respondents came from the government MDAs (60%), CSOs were 5%, private sector was 15% and development partners were 20% of respondents, respectively. Most of the interviewed respondents were holding senior positions by 75% compared to the 25% of the respondents who are in their mid-careers.

**Figure 1: Demographic characteristics of the study**

<b>Age</b>	<b>Position</b>
18-34 years	<b>1</b>
35-49 years	<b>13</b>
50-64 years	<b>6</b>
65+ years	
Gender	
Female	<b>8</b>
Male	<b>12</b>
Marital status	
Married monogamous	<b>19</b>
Married polygamous	
Never married	<b>1</b>
Separated/Divorced	
Widowed	
Other (specify)	
Education	

No formal schooling	
Some primary school	
Primary school	
Secondary school	
University degree completed	<b>1</b>
Postgraduate education	<b>19</b>
Position	
Senior level	<b>15</b>
Mid-level	<b>5</b>
Junior level	
Other (specify)	

Source: Author's field data calibration/curation, April 2023

#### 4.2 Perceived status of the transition to a green economy

The continued sustainable macroeconomic stability that has been experienced for the past two decades should go hand in hand with the sustainable use and governance of natural resources. The latter should be supported by an enabling environment that will nurture the growth of green economy. Over the years, the country has made some progress on enabling the transitioning processes in terms of the enabling environment. For instance, the energy policy of 2015 promotes energy efficiency and waste management while the industrial policy emphasises on setting up industries for manufacturing solar power. The National Climate Change Strategy hints on the sustainable energy use for all (SE4All) agenda that ensures access to clean energies for all which is consistent Rural Electrification program implemented by the Rural Electrification Agency (REA). Most importantly, it is expected that the National Development Vision and Strategy 2033 will clearly stipulate that in 10 years to come, 80 percent of the individual households will abandon the use of charcoal and firewood.

In recent years, the increasing climate change-related challenges have led to countries opting for less for fossil fuels (gas, oil, and coal) that emit the most harmful GHGs (carbon dioxide, methane, and nitrous oxide). As an alternative to fossil fuels, countries under the Paris Agreement were obliged to keep global warming below 1.5°C by transiting to using clean renewable energies. Due to this increasing threat of climate change, NEMC's mandate was extended to focus on the Adaptation fund – Green Climate Fund. Tanzania has been a recipient of several climate funds including the

Global Environmental Facility, the Green Climate Fund worthy of USD 100 million, LDCF amounting to USD 20 Millions, Adaptation Fund worthy USD 10 million, Kihansi mercury –GLF worthy USD 34 million and through the accredited CRDB Bank's Tanzania Agriculture Climate Adaptation Technology Deployment Programme (TACATDP) amounting to USD 250 million.

A female respondent from NEMC argued that

"...As a nation, we were ambitious to set high National targets to reducing GHGs emissions. It is impractical to suggest that the country is now ready to completely stop the use of fossil fuels given the recent offshore discoveries of gas in Mtwara and Lindi regions. We ought to revisit our national commitments and rectify the set targets. Transition should reflect our own developmental needs first and foremost..."

In principle, the just transition should be defined in a country's own way given the contrasting priorities between developing and advanced economies. While most of the LDCs are still grappling with their long-term harsh realities in terms of the increasing financing gap for development, they are now required to transition to green economy which requires huge amounts of climate finance to mitigate climate challenges. Given these financial obstacles, the transition in Tanzanian is still slow just as is the case for many developing countries.

... "As we transition, we should not do away with the existing resources. Investors will ask for available power. The West is way ahead than developing countries like Tanzania in tackling climate change. They advocate issues for their own benefits and interests. While our experts were taken abroad for exploration studies, that is when we were told to transition. As a country, we need to have our OWN stand in a wise way. We don't have the high carbon emitting industries that they have. We are least emitters but most impacted by climate change effects"... a middle-aged male key informant from the Ministry of Energy.

### 5.3 Awareness on the transition to a green economy

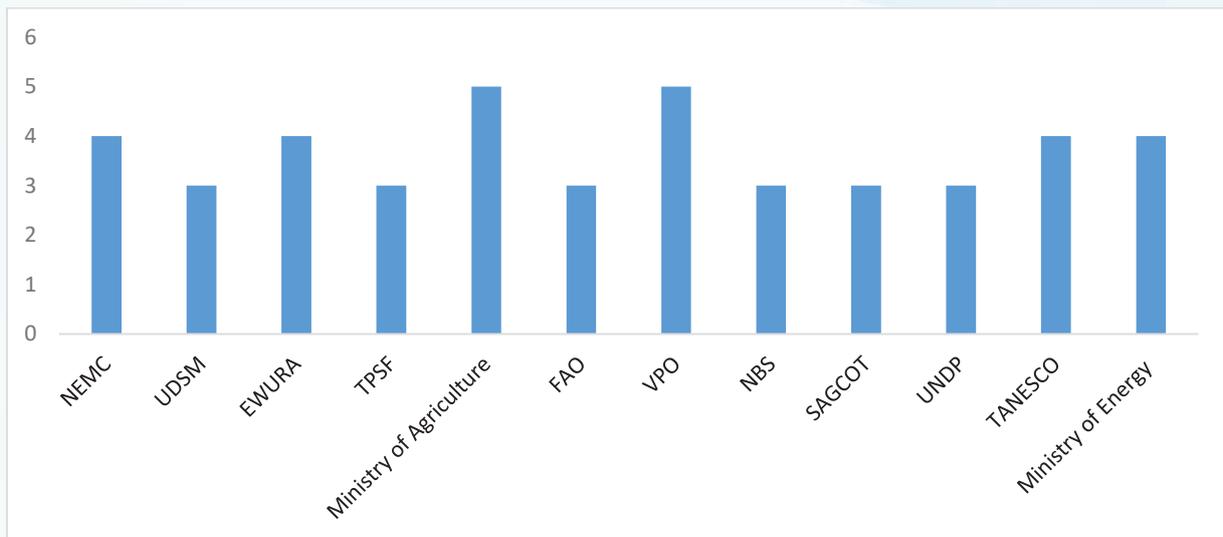
Awareness on the transition is still low. On a scale of 1 being the lowest to 10 being the highest, the transition to green energy was ranked low, mostly ranging between 3 and 4 except for the VPO and the Ministry of Agriculture as shown in Figure 2. This low awareness might be attributed to the fact that fossil fuels are still playing an important role to the country's economic growth by approximately 60 percent.

Moreover, in 2017, 90 percent of all households are heavily relying on charcoal (21 percent) and firewood (69 percent) for domestic purposes ( (Doggart, et al., 2020)).

This is even though the National Energy Policy has addressed the role of renewables as an alternative to fossil fuels that emits the harmful GHGs.

Given the low awareness on the green transition, the government through the Local Government Authorities (LGAs) in collaboration with the private sector and development partners should carry out awareness-raising campaigns using a bottom-up approach that start at the grassroots. These campaigns will arouse the public on the importance of going green. Everyone is a stakeholder in the transition.

**Figure 2: Awareness rate on Nature Positive green Transition in Tanzania**



#### 5.4 Governance institutions and Policies

At the Ministerial level, the country has designated the Vice President’s Office to coordinate environmental matters that integrates climate change into the National Environment Policy. However, some sections in the environmental policies and policy instruments – enforcement and regulations should be reviewed to capture the ever-changing environment. So far, NEMC has reviewed the National Environment Research Agenda 2017-2022, National Integrated Coastal Environment Management strategy, the National Environment Policy (NEP 2021) and the National Environmental Masterplan for strategic development (reviewed 2022 – 2032). On the other hand, some of the regulations and guidelines directly and indirectly related to the green economy transition include Management and Control of GHGs, Control and Management of Carbon Trading regulations, 2022, Prohibition of Plastic Carrier bags and Plastic bottle Cap seals, Hazardous Waste Control and Management regulations, 2019, National Carbon Trading regulations and guidelines and Registration and Practice of Environmental Experts, Amendment, 3Rs Guideline (Reuse, Reduce (the number of plastic bags) and Recycle waste.

In terms of awareness on the Natural Capital Accounting (NCA), most of the respondents are not aware of the NCA except for VPO and NEMC. In this case, the VPO did a Western Indian Ocean Marine Highway Development and Coastal and Marine Contamination project as well as evaluated pollution done on the coral reefs and mangroves. Essentially, they assessed whether the coral reefs and mangroves are polluted by oil spillage. On the other hand, NEMC were taught by the Institute of Resource Assessment (IRA) but have not yet implemented the NCA practices. Although NEMC and UNEP developed Ocean Health Index (Health of Marine Resources- HMR), NEMC has not yet established the guidelines on green economy (Man and Biosphere Reserve project).

From the policy and strategy perspective, there is no stand-alone climate change policy or a green economy policy but rather, there is the National Climate Change and Response Strategy 2021-2026 (NCCRS). The strategy has been integrated into sector-specific and there are NDCs that identifies key sectors to reduce GHGs with the priority sectors being energy, transport, forestry, and waste management. The Vice President's Office consider green economy and climate change to fall under the broader environmental matters. However, if there was green economy and climate change policies, then it would have led to the preparation of its budget and laws for effective implementation of the transition. Furthermore, there are taxes, fees and charges imposed for discouraging environmental pollution such as excise duty on used motor vehicles aged more than 10 years, industrial pollution taxes, waste disposal taxes and sewage taxes, although data on how much is collected or how effective these taxes are were not readily available.

On legal frameworks, a respondent from NEMC underscored the notion that for a speedy transition to take place, the government should strengthen enforcement.

## **5.5 Sector-specific green transition measures**

### **5.5.1 Agriculture sector**

In line with the Nationally Determined Contributions, the Ministry of Agriculture has made some significant efforts towards adopting Climate-Smart Agriculture (CSA) practices to keenly mitigate climate change challenges. Some of the climate change mitigation measures in the agriculture sector are:

### 5.5.1.2 Afforestation

Tanzania is experiencing the effects of climate change. The increasing temperatures have led to heavy rainfall that cause flooding (El-Nino) especially in the unplanned Jangwani area; prolonged droughts in central semi-arid areas in Singida, Dodoma, Tabora, Shinyanga, etc; sea level rise leading to submerging of small Islands in Dar-es-Salaam, beach erosion and invasive species in Zanzibar. Additionally, rising of water levels in major lakes e.g. Lake Victoria in Mwanza seems to claim part of the land (buffer zones in the lakes 60m from the highest watermarks).

A male respondent added that "...Inadequate, unpredictable seasons are a problem, and also increases in temperatures have resulted in unexpected pest and disease pressure on people, plants and livestock..."

The MoA significantly promote CSA which incorporates key aspects of green economy e.g. landscape approaches, agroforest, production usage, the use of alternative energy like rice husk briquettes, tree planting campaigns in 6 regions including Dar (Kigamboni ward). Moreover, the government's directive under the VPO instructed every district to plant 1,500,000 trees every year. There are other initiatives such as planting 50,000 tree seedlings in every district which is equivalent to 300,000 seedlings in 6 districts of Dodoma region.

"...To get building permit, you have to plant trees (PO-RALG implemented under their jurisdiction..."

In principle, LGAs have raised awareness on planting trees to create more carbon sinks that will absorb carbon dioxide to mitigate climate change. For instance, Kagera's Regional Commissioner campaigned that every household should plant a minimum of 5 trees for carbon trading purposes and 5 avocado seedlings for commercial purposes as part of improving their welfare and eradicating poverty. On the other hand, in Dodoma region, the capital city, one of its key priority is to plant trees commonly referred to as greening Dodoma city "*Kijanisha Dodoma*". Generally, a key informant from NEMC highlighted that NEMC plans to raise environmental management campaigns targeting to reach 1.5 million trees per year per LGA. Tabora's Regional Commissioner said that every member of the family should plant their own tree.

Institutional initiatives include NEMC's WIO Lab Initiative examining the Vertiva plant (Western Indian Ocean Land Initiative). Vertiva plant absorbs the solid waste in Msimbazi river from Vingunguti. UNDP's green practices such as the use of paper

shredder, no use of plastic bottles, waste dispenser, designed lunch hour seminar, energy-saving bulbs, sorting solid waste, and switching off electronic appliances are good examples that are worth emulating.

NEMC's media (NEMC Online TV) uses soft cartoons/fliers and seminars for instance, the 6<sup>th</sup> Conference focused on Science and the Wetland Management for Sustainable Development to disseminate information on environmental conservation. World Environment Day 5<sup>th</sup> June is a platform for raising awareness on conserving the environment "*Hifadhi na Usafi wa mazingira flagship campaign*". Environmental officers at LGA level are capacitated to carry out the campaigns on going green. Planting of bamboo trees, pine trees, and eucalyptus campaigns on the catchment areas, water sources and along the roads in a designated plan to attract rainfall and minimize droughts. UNDP campaigned for reduction of import duties on solar, supported briquettes and electric vehicles. EWURA helped private sectors to generate power using renewables in rural areas. Swedish company (SWED fund) collaborate with NEMC to use solid waste to convert into biogas, as part of the efforts to reduce deforestation.

### **5.5.2 Carbon trading initiative**

Carbon trading is a mechanism for offsetting carbon emissions in forestry. Some NGOs have started carbon trading whereby 60% of the carbon credit will go to the community and 40 % goes to the investor. The Sokoine University of Agriculture (SUA) in collaboration with the Vice President's Office established a National Carbon Monitoring Centre (NCMC) that is mandated to report on any fluctuations in carbon stocks and co-ordination of the national Monitoring, Reporting and Verification systems. Tanzania Wildlife Management Authority (TAWA) has signed (MoU) to do carbon trading business with GreenCop Development PTE LTD in Selous, Msanjesi na Kilombero forests that will involve trading carbon credits. There is political will from leaders who have made it clear that one will plant trees prior to building their properties. One notable challenge in implementing green transition is the Article 6 of the Paris Agreement has not been effectively mainstreamed into the recently published carbon trade guidelines and regulations that addresses Voluntary Carbon Markets (VCM) and Non-Voluntary Carbon Markets (NVCM). This challenge calls for technical capacity building on the implementation of Articles 6.2, 6.4 and 6.8 of the Paris Agreement.

“...Carbon trading guideline has highlighted several priority sectors to be considered. So far, these sectors have prioritized the detailed actions of the NDCs that will be followed by developing NDCs Sectoral outcomes, outputs, baseline, activities, targets, and pipeline projects. If these aspects are ready a revised NDC implementation plan will be subjected to National Stakeholders' Validation workshop and finally launching of the final NDC implementation plan...”

### **5.5.3 Energy sector**

The sector is rapidly transforming from using traditional fossil fuels to cleaner energies. Moreover, both the government and the private sector have shown laudable efforts towards the transition in recent years. In a bid to increase the generation of hydro power, the government has constructed Mwalimu Nyerere hydro power dam that will generate 2,000 Megawatts, low-carb Standard Gauge railway and the Rapid Bus Transit.

On the other hand, depending on solar is not a reliable solution. In response, TANESCO tackled the inadequacy of relying on solar power by opting for an energy mix that is solar and hydro energy mix or hydro and natural gas energy mix. EWURA's female respondent noted that:

“...They will install a smart meter to solar clients such that when their solar power is low, the user can shift to using the national grid power on one hand. On the other hand, when the solar power is in excess, the user can resell the excess power to the national grid operator – TANESCO. Finally, the user will be paid by TANESCO at the end of every month. Currently, with respect to this net metering practice, the user will be compensated in terms of units not in cash...”

One of the existing challenges with using solar is that there are a lot of counterfeit solar appliances in the country. It is hard to differentiate between counterfeit and genuine solar products, as they look almost similar although the price tags are different. Thus, both the users and sellers are misled. Another downside of solar power is that during the rainy season, the output is sub-optimal.

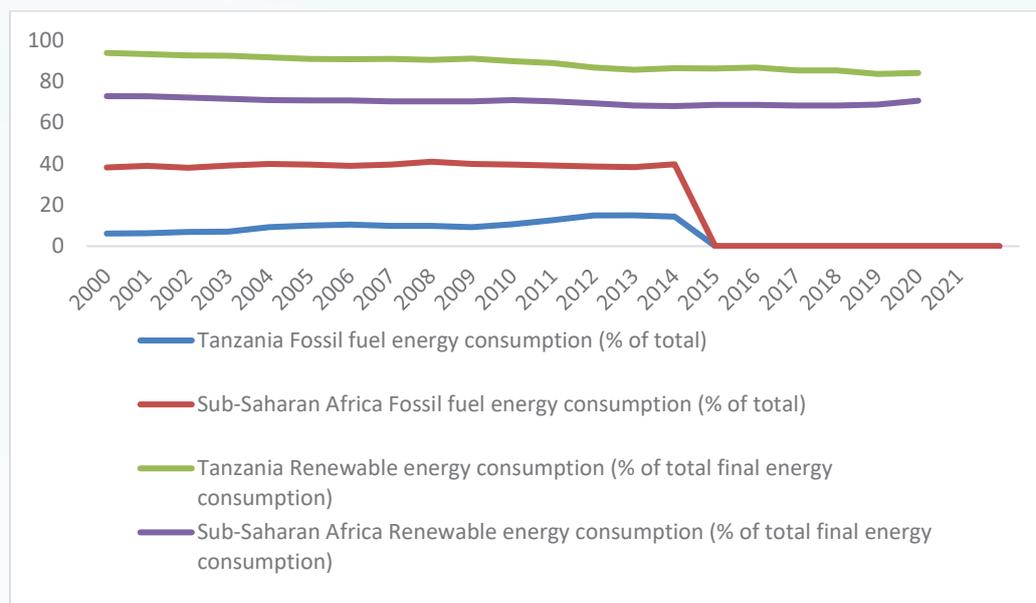
Other challenges to solar users include high initial costs of buying and installing solar equipment, and the short-lived energy production during unfriendly rain weather. In this context, the old-age storage technology for solar power is replaced by either Lithium or Nickel batteries to allow long-term power storage. The type and positioning of the roof matters. It must be positioned directly in the sun's direction otherwise the solar panels will not be able to capture enough solar power during the day. Nowadays,

there are energy-efficient roofs that effectively support solar panels. Solar batteries are expensive to purchase and require keen maintenance to lengthen their storage of power. As a result, some households use both solar and wind power to supplement each other.

Further findings from a young male key informant in Kinondoni ward reveals that “...The key reason for preferring clean cooking energy is that it emits less carbon than charcoal and firewood on one hand and will discourage deforestation activities on the other hand...”

As shown in Figure 3, the fossil fuel energy consumption in Tanzania is relatively lower compared to that of sub-Saharan Africa. On the other hand, the use of renewables in Tanzania is higher than most countries in sub-Saharan Africa. This shows that the country’s economy is going green in terms of the existing energy transition and other green economy measures albeit at a slow pace.

**Figure 3: Energy use (2000 -2021)**



**Source:** World Bank Development Indicators

Last year in 2022, the Ministry of Energy (MoE) organised a 2-day Clean Cooking Conference in Dar es Salaam with the aim of promoting the transition to clean cooking in Tanzania. This Conference focused on addressing the challenges of using existing cooking energies, promoting the transitioning to clean cooking energies and provided a way forward to achieving affordable, clean and reliable cooking solutions. Additionally, the Conference examined and identified ideal strategies for achieving

affordable, clean and reliable cooking solutions in line with the country's Sustainable Energy For All (SE4ALL) Action Agenda (2015), National Wood fuels Action Plan (2009), National Strategy for Gender Development (2008), Health and Pollution Action Plan (2019). Currently, statistics according to the MoE indicate that the current energy mix includes firewood and charcoal comprising of 65 percent and 26 percent (Doggart et al. 2020).

While, the remaining energies are a combination of Liquefied Petroleum Gas (LPG), electricity, and other sources. The continued use of biomass as cooking energy is harmful to human health and the environment due to the fact that it leads to acute respiratory diseases and premature deaths. Nearly 33,024 people die prematurely annually in Tanzania from illnesses that are attributable to indoor air pollution. Essentially, women and girls are mostly affected because they spend most of their time in the kitchen when cooking in turns, it exposes them to the high levels of air pollutants. In light of this, the promotion of clean cooking practices is in line with the National Energy Policy (NEP) 2015 that underscores the transitioning of energy use to a low-carbon or renewable energies to minimise the emission of Green House Gases (GHGs). Thus, the conference paved the way for much-needed action to mobilise the necessary funding, partnerships, and policies to achieve clean cooking for all and accelerate progress towards global climate and development goals.

As a way forward, the following recommendations were made:

First, a national clean cooking taskforce should be formed that will be comprised of the key stakeholders – the government, private sector, development partners and Civil Society Organisations (CSOs). They will be tasked to develop a clean cooking comprehensive national roadmap and a 10-year strategy. The goal of this comprehensive and long-term strategy will be to promote by at least 80 percent clean cooking energy usage in Tanzania by 2032. Importantly, the strategy will incorporate the enabling environment for the clean cooking energy transition in terms of policy, legal and regulatory frameworks and will address issues on affordability, accessibility, and sustainability of clean cooking solutions. Second, the establishment of Clean Cooking Fund that will be used to promote the use of clean cooking. From a Public-Private Partnership perspective, the government being the main stakeholder, has set aside 500 million TZS. This move will definitely arouse the private sector and development partners alike to make their contributions to this Clean Cooking Fund. Establishment of a Clean Cook Fund with resources earmarked for research, innovations, and various efforts in support of the clean cooking transition in Tanzania.

Third, as part of ensuring an effective implementation of the energy transition, the government will direct all its MDAs and Institutions e.g. schools, prisons, hospitals, universities and training institutions etc. to use cleaner cooking energies by 2024.

#### 5.5.4 Transport sector

The shift to electric vehicles is gaining pace in Tanzania in a bid to promote cleaner energy use. The government through the Ministry of Transport has engaged relevant stakeholders to develop a strategy that will address vehicles that uses electricity and natural gas. Several stakeholders have started implementing e-vehicles (private and commercial cars – bolt and uber). These includes UNDP installed the first electric vehicle charging station in Dodoma as shown in Picture 1. Safari green energy powered vehicle in Serengeti Park; DARTS Rapid Bus Transit; UDSM's electric car project; and DARTS plans to procure 30 electric three wheelers (e-bajaji), among others. However, these electric vehicles encounter several hurdles such as high taxes on importing e-vehicles, few charging stations, limited knowledge by end-users and limited investment on e-vehicles. Furthermore, there is no EV assembly plant. Instead, there is retrofitting for tourist rental cars. "...I agree that moving to EVs is an important mitigation measure to embark on but our priority on poverty reduction strategies should not be overridden by going green measures..."

**Picture 1: UNDP Installation of the charging station in Dodoma region**



#### 5.6 The role of private sector

The private sector plays a vital role in supporting the government to transition but the sector is faced with limited enabling business-friendly environment in terms of policies,

legal and governance and institutional frameworks. However, the umbrella organisation for private sector, Tanzania Private Sector Foundation (TPSF) has done massive campaign on recycling from the private sector, use of solar and recycling of all products and conversion of shipping container to eco-friendly container materials, non-tax incentives like reducing fees/taxes, free inspection/monitoring regulation. On the other hand, private firms like Kisiki Hai have discouraged the local communities from cutting down trees in Tanzania; Soft drinks companies like Coca-Cola adhere to the Extended Producer Responsibility (EPR) where producers are responsible for their wastes after processing their products. Further, Coca-Cola, Pepsi and Sayona formed Petropak Limited which is a manufacturer, dealer and marketer of metal drums and plastic storage equipment dealing with waste generated from their products. Meanwhile, the VPO and Producers collaborate in reducing colored plastic bags/bottle pollution and Material Recovery Facility in Arusha segregate waste.

Additionally, SAGCOT has collected, synthesised, and published all legal and institutional requirements into a guideline known as Inclusive Green Growth (IGG) Tool, which is now used for capacity building to transition to a green economy and measure progress over time and where necessary allow the regulator to intervene at an informed position in case it is necessary. They also promoted Climate-Smart Agriculture practices in the Southern highlands' regions where soil acidity and alkalinity are now controlled, in turn doubling the level of crop production even for smallholder farmers. For instance, potato productivity for participating farmers has increased from an average of 7 mt/ha to 28 mt/ha whilst maize from below 3 mt/ha to 8 mt/ha.

### **5.7 Challenges in the green economy transition**

Despite the efforts towards green transition as highlighted in this paper, the transition rate is still low which is attributed to limited enabling environment (no standalone green economy policy and therefore, no budget for implementing the transition). Another challenge is that the use of charcoal is still predominant among poor households and most of the rural population. Other challenges pinpoint to the low confidence in using green energies. Some solar appliances are counterfeit and are not durable. They require regular maintenance. Renewables are costly, in the case of solar and unpredictable in the case of wind. In addition, there is no database for small power producers while TANESCO is still hesitating to implement net-metering and installing solar roofs.

## 6.0 Conclusion and recommendations

This study assessed the status of the transition to a nature positive green economy in Tanzania. Owing to the increasing adverse effects of climate change on socio-economic and environmental fronts, Tanzania developed strategies, plans and legislations for climate adaptation measures. As a result, Tanzania has implemented the NDCs agreement by focusing on several priority sectors for adaptation measures including agriculture (afforestation, waste recycling, climate-smart agriculture, carbon trading); industry (green industries), energy (renewables) and transport (Electric Vehicles). An important aspect of the transition to a green economy is to sustainably manage the available natural resources which are a source of raw materials for manufacturing renewable energy appliances.

As the findings suggests, despite the various efforts, findings shows that the transition rate is still slow. On a scale of 1 being the lowest to 10 being the highest, most of the institutions said that the rate is between 3 - 4 out of 10. One possible reason could be due to the lack of a standalone green economy policy that would prompt for the preparation of a budget allocated for green transition and the enforcement of laws. However, the transition will be unjust and unfair for a developing country like Tanzania that is still dependent on biofuels such as charcoal and firewood because of the structure of its population and income levels, and also the recently discovered offshore natural gas deposits<sup>5</sup> in the southern parts of Tanzania in Mtwara and Lindi regions. More findings reveal that climate change is still posing a problem in Tanzania despite the country being the least emitter of GHGs. In this case, Tanzania is unable to effectively tackle climate change due to limited climate funds to implement climate change adaptation and mitigation interventions. From the policy perspective, the government has made progress in implementing several policies to address environmental and the resulting climate change challenges since the formulation of the previous National Environmental Policy of 1997. Additionally, the government has ratified climate change-related multilateral agreements to join global efforts in addressing climate change. These agreements include the UN's Framework Convention on Climate Change (UNFCCC) in 1996, Kyoto Protocol (2002), and Paris Agreement (2018). Effective implementation of these policies and agreements has strengthened the country's resilience towards the transitioning to a nature-positive green or low-carbon economy. While Tanzania has made progress in environmental policy, challenges remain, including the need for increased funding, capacity building, and enforcement of existing regulations. However, the government's commitment to

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<sup>5</sup> REPOA has assessed the socio-economic impact of natural gas and the Liquefied Natural Gas (LNG) in Mtwara and Lindi using household and firms' perceptions.

sustainable development and environmental conservation provides a strong foundation for future progress in the transitioning to a nature positive green economy.

Therefore, these findings lead to the following policy recommendations: First and foremost, the government should formulate the green economy policy and strategies to enable the effective implementation of the transition in a just way given the local context and resource need to bridge the infrastructure gap, human skills gap, and promoting rapid inclusive growth. Second, awareness-raising campaigns that will lead to the scaling up of green initiatives like carbon trading, promotion of renewables, waste recycling – the 3Rs (Reduce, Reuse and Recycling) and planting of trees around the country should be initiated by VPO and NEMC in consultation with all the key stakeholders (sectoral Ministries, LGAs, local communities, and private sector). They should develop guidelines for policy formulation on scaling up the green economy initiatives. In addition, awareness-raising campaigns on the transition will be successful if there is political will at the higher levels of leadership to arouse all relevant stakeholders.

Third, the government should create an enabling business environment for the private sector given its crucial role in effecting development in terms of policies (Establishment of a Climate Financing Mechanism within the Ministry of Finance, reduction of taxes on the renewables and import duties while giving incentives to small-scale enterprises so that more investors can join in the energy transition or other green initiatives); governance institutions (governance institutions will be effective once there is a climate change policy and institutional frameworks), legislations and regulations.

Fourth, a participatory approach, specifically, a bottom-up approach should be used to engage the community at the grassroots so that everyone can own up the transitioning processes. This should go along with strengthening the coordination among key actors especially the VPO.

Fifth, the Local Government Authorities (LGAs) are mandated to work closely with the people. Therefore, green economy and climate change issues should be decentralised to allow an effective implementation of the circular economy<sup>6</sup>.

Sixth, capacity-building of both the government and the private sector should be considered to enable the preparation of competent-based proposals for climate funds. A collaboration with development partners like FAO who assist the government to

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<sup>6</sup> Circular economy and Green economy are used interchangeably.

access the Global Agriculture and Food Security Programme (GAFSP) Calls for Proposals among others should be considered.

Seventh, the government should restructure its innovation training institutions like VETA, SIDO, TAFORI, TARIRI, TARI etc. to promote green technologies used in the transition.

Eighth, SADC countries like Tanzania should also consider the adoption of international environmental standards (ISO series) on environmental management and GHGs to monitor its emissions.

Finally, as part of inclusivity, the special group comprising of women, youths and People with Disabilities – PWDs should be prioritized when transiting to the circular economy to achieve a sustainable and inclusive development. Generally, Tanzania should have its own stand when it comes to green transition. Given the increasing climate change vulnerabilities, we are obliged to transit. However, the transition can be localised to fit with our local situation without harming the poor who cannot afford to abruptly use alternative energies.

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## Annexes

### Annex 1: List of Respondents

	<b>Institution</b>	<b>Position</b>
1.	<b>NEMC</b>	Environmental coordinator
2.	<b>UDSM</b>	CCCS Coordinator
3.	<b>EWURA</b>	Senior Engineer
4.	<b>EWURA</b>	Senior Engineer
5.	<b>NEMC</b>	Environmental Research Manager
6.	<b>TPSF</b>	Project Coordinator
7.	<b>TPSF</b>	Communications Officer – Private sector
8.	<b>Ministry of Agriculture</b>	Environmental Officer
9.	<b>FAO</b>	Specific-Project Coordinator
10.	<b>VPO</b>	Assistant Director, Environmental Assessment and Climate Change
11.	<b>VPO</b>	Assistant Director – Environmental Pollution Management
12.	<b>VPO</b>	Principal Forest Officer and National Climate Change Focal Point
13.	<b>VPO</b>	Environmental Officer
14.	<b>NBS</b>	Principal Statistician
15.	<b>SAGCOT</b>	CEO
16.	<b>TANESCO</b>	Engineer
17.	<b>UNDP</b>	Project manager on Energy Efficiency
18.	<b>UNDP</b>	Programme Specialist on Natural resources, Environment
19.	<b>UNDP</b>	Climate change specialist, Energy and Disaster Risk Management
20.	<b>Ministry of Energy</b>	Head of Environmental Management Unit

## Annex 2: Data Collection Tool

Q1.1 Instruction: This instrument will capture ways in which the institutional plans and policies on transitioning to a green economy have been implemented while aligning with the national efforts. Issues to be investigated include the status of the transition to a green economy, renewables, recycling of wastes, green initiatives, effects of climate change, climate change adaptation and mitigation measures, green funds, capacity building on green economy, role of the private sector and the status of natural capital accounting.

Read out questions slowly and clearly, repeat if needed. All monetary values must be given in '000 TZS. For all questions, read back answers to respondent to confirm.

Q1.2 Respondent should be purposively selected targeting respondents from the age group of 18 and above. Each respondent aged 18 and above should be interviewed to investigate their welfare status, demographic characteristics in Dar es Salaam; their current economic activities, skills, and expected opportunities and challenges from the transitioning process to a green economy. The survey is carried to determine progress made to towards transitioning to a green economy in Tanzania.

<b>Interviewer: Select appropriate code for district</b>		Write names for constituency and town/village		
<b>Region</b>	Dar es Salaam	1	<b>Location</b>	
		2	<b>Constituency</b>	
		3	<b>Ward</b>	
			<b>Town/Village</b>	
<b>District</b>	Temeke			
	Ilala			
	Ubungo			
	Kigamboni			
	Kinondoni			

### A. Demographic information

2.1. How old are you?

**Interviewer: Enter three-digit numbers. Don't know = 999. If the respondent is less than 18, stop the interview and purposively select another respondent.**

<b>001</b>	18-34 Years (1)
	35-49 years (2)
	50-64 years (3)
	65+ years (4)

<b>2.2 What is your marital status?</b>	
Married monogamous	1
Married polygamous	2
Never married	3
Separated/Divorced	4
Widowed	5
Other (Specify _____)	6

<b>2.3 What is your highest level of education?</b>	
No formal schooling	0
Informal schooling only (including Koranic schooling)	1
Some primary schooling	2
Primary school completed	3
Intermediate school or some secondary school/High school	4
Secondary school/High school completed	5
Post-secondary qualifications, other than university e.g. a diploma or a degree from a polytechnic or college	6
Some university	7
University completed	8
Postgraduate	9
Apprenticeship e.g. on the job training	10
Don't know (Do not read)	99

<b>2.4 What is your gender?</b>	
Female	1
Male	2

<b>2.5 What is your position?</b>	
Senior	1
Mid-level	2
Junior	3
Other (Specify _____)	4

## **B. Transitioning processes**

Q3.1 Have you heard about the transitioning to a green economy? If yes, can you kindly explain briefly about your understanding on the transitioning to a green economy?

Transitioning to a green economy means shifting to renewable energy sources from unrenowable energy sources for power generation.

Q3.2 Tell us about the status of transitioning to a green economy? In a scale of 1 being the lowest and 10 being the highest, how would you rate the green transition in Tanzania?

Q3.3 Are there suggestions that would help the fair transitioning processes?

Q3.4 What do you think about the transitioning to green economy while Tanzania has made recent recoveries on offshore gas deposits?

Q3.5 What should be done to smoothly transition to renewables?

Q3.6 Are awareness-raising campaigns on the green transitioning effective in the country? Explain further.

Q3.7 At the institutional level, what greener measures have you taken to ensure the institution is going green? (e.g. Light-saving bulbs, use of solar power/wind power, rice husk briquettes, recycling of wastes, use of environment-friendly bags etc. )?

Q3.8 Is there any progress since your institution adopted greener measures? Please explain.

### **C. Climate change and the environment**

Q4.1 Could you please elaborate about whether there are clear indications that the country's natural resources are being depleted through degradation, increasing urbanization rate, and climate change?

Q4.2 How has climate change affected Tanzania?

Q4.3 Are there any climate change adaptation and mitigation efforts done by your institution?

Q4.4 At the national level, Tanzania established a full directorate of Environment Impact Assessment (EIA) within the National Environment Management Council (NEMC) in 1997. What is your opinion on the EIA so far in terms of progress on addressing environmental challenges?

Q4.5 In your opinion, what are the obstacles that undermine the formulation of climate change policy in Tanzania?

Q4.6 What type of capacity building should be given to the locals that will ensure their active participation in greening the environment?

### **D. Gender mainstreaming**

Q5.1 In your opinion, to what extent is your institution mainstreaming gender when addressing the green economy? Please elaborate.

Q5.2 How are women mainstreamed in the green transitioning processes?

### **E. Enabling environment**

Q6.1 How has your institution implemented national strategic development plans, policies, laws, and regulations that promote the green economy?

Q6.2 How many different programs or interventions on the green economy, that you know of, are currently active in the region?

Q6.3 To what extent is the existing enabling business environment conducive to speeding up the transitioning processes?

Q6.4 What institutional strengths and weaknesses exist that influence the transitioning process?

Q6.5 How can those weaknesses be removed?

Q6.6 What policy interventions do you advise the government to improve the transition?

Q6.7 To what extent can NEMC be held liable for environmental damage?

Q6.8 What taxes (direct and indirect) and/or royalties apply to green activities?

Q6.9 As a key stakeholder, are you satisfied with the pace of the green transitioning processes in the country?

Q6.10 Has your institution attempted to source green funds to finance the institution's green activities?

Q6.11 Are there capacity-specific challenges in developing competent-based technical proposals to access green climate funds? If no, could you propose on ways of increasing institutional access to these funds?

Q6.12 What are the opportunities and challenges in mainstreaming Natural Capital Accounting (NCA) in Tanzania's national policies, plans and strategies?

Q6.13 Tanzania is one of the signatories to the Natural Capital Accounting and participated in the Wealth Accounting and Valuation of Ecosystem Services (WAVES), how active is the country in the implementation of the aforesaid initiative?

Q6.14 Is there any need for the government, through NEMC, in consultation with key stakeholders to develop the guidelines for scaling up the green economy initiative, or formulating specific policy on green economy? Please explain.

Q6.15 What should the legal and governance institutions do to strengthen the mitigation of greenhouse gas emissions and other ecological-challenges?

Q6.16 What advantages do you think Tanzania would benefit from the adoption of international environmental standards like the ISO series on environmental management and monitoring of greenhouse gas emissions?

## **F. The role of the private sector**

Q7.1 The private sector has a critical role in supporting the government to transition to a net zero-carbon economy. In your view, how has the private sector aided the government in efforts towards a net-zero carbon economy?



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