Zambia's Transition to a Green Economy

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Abstract

In the last ten to fifteen years, Zambia has been on a road to transition from a 'brown economy' to a'green economy'. The key aim for such a transition is to eliminate the trade-offs between economic growth and investment and gains in environmental quality and social inclusiveness. This paper describes the events and activities done and implemented in the country leading to making Zambia a clean, green and healthy nation as well as addressing social and economic challenges. It looks at the global origins of the green initiative and its development in Zambia through policies and activities of both government and its cooperating partners. The paper also examines the evidence of green growth in Zambia and the support the country is receiving in the implementation of the green initiatives. Finally, it analyses the linkages between green growth and sustainable development, as well as the challenges faced by the transition to green economy.

Keywords: Zambia,Green economy, green growth, sustainable development, transition and sustainability.

Introduction

The concept of 'green economy' or 'green growth', as it is variously called, was declared a priority theme for the United Nations Conference on Sustainable Development in 2012 (Rio+20) (Banda &Bass, 2014:3). Over the last few years, theconcepthas gained priority in various intergovernmental fora such as the United Nations Environment Programme (UNEP),the Green Economy

Initiative (GEI), the Organization for Economic Co-operation and Development (OECD), the Green Growth Strategy and in discussions among G20 leaders. The concept has also moved into the mainstream of policy discourse; variousgovernments and intergovernmental organisations are making it a priority and are coming up with policies and programmes related to it, though with different approaches and priorities.

The upsurge in the use of the concept is quite understandable. Today, the world is beset by various environmental and socio-economic concerns which need solving. Of note are prolonged global energy, food, financial and environmental crises. Governments world over are seeking effective ways to take their nations out of these crises while also taking stock of the ecological limits of the earth. According to Kanianska (2017), green economy has been proposed as a means for bringing aboutnational development and international cooperation as well as support for sustainable development without leaving tell-tale impacts on the environment.Green initiatives have the potential to address economic and environmental challenges and open up new sources of growth. Zambia is pursuing an ambitious programme of economic development to improve the quality of life of its citizens and stands to benefit from changing its development trajectory to green growth. Against this backdrop, this paper discusses Zambia's transition from a 'brown' model of economic development to 'green growth', interrogating the role of green growth in national development, and its impacts on the livelihoods of people, the environment and resource management.

Origins of the green economy concept

The term 'green economy'has its roots in a pioneering 1989 report for the Government of the United Kingdom (UK) by a group of leading environmental economists, entitled *Blueprint*

for a Green Economy (Pearce, Markandya and Barbier, 1989). The report was commissioned to inform the UK Government on a consensus definition of the term 'sustainable development', its implications for the measurement of economic progress and the appraisal of projects and policies. Since then, the term has gained significant international attention andgreen economy policies and strategies have been discussed and analysed by renowned economists and academics, the World Bank, United Nations agencies and Green Growth leaders, particularly in the field of environmental and ecological economics (UN, 2012). Green economy policy measures have also been discussed and analysed at length in key international negotiations, including the United Nations Conference on Environment and Development (UNCED) in Rio in 1992. For example,the Rio Declaration included principles promoting the internalisation of environmental costs and the use of economic instruments (Principle 16) as well as advocating for good governance as a necessary prerequisite for achieving sustainable development (OECD, 1995). According to the United Nations Development Programme (UNDP, 2017), it is important to have a stable and predictable macroeconomic environmentin order to encourage local and foreign investment. Such an environment needs to be transparent and accountable. In the absence of a good and strong governance structure, the likelihood of moving onto a sustainable development path would be meagre. Efficient institutions and governance structures are critical in ensuring effective implementation of policies, plans and programmes.

According to UNEP (2011), transitioning to a green economy has more economic and social benefits, coming from a redoubling of efforts by both governments as well as the private sector to engage in such an economic transformation. UNEP explains that greening the economy has the capacity to increase natural capital, such as forests, fisheries and water resources that have

been depleted or degraded as well as to create economic growth and jobs and to raise the standard of living for poor people. UNEP further states that for governments, this would include leveling of the playing field for greener products by phasing out antiquated subsidies, revising policies and providing new incentives, strengthening market infrastructure and market-based mechanisms, redirecting public investment, and greening public procurement. Furthermore, for the private sector, this would involve understanding the major opportunity represented by green economy transitions across a number of key sectors, and responding to policy reforms and price signals through higher levels of financing and investment (UNEP, 2011).

What is a green economy?

Several definitions of green economy have been given. UNEP (2010:16) defines a green economy as one that results in "improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities". OECD (2011: 9) states that "green economy means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our wellbeing relies." The definition of green growth adopted by Zambia is "development that makes sustainable and equitable use of Zambia's natural resources within ecological limits through reinforcing the three cornerstones of sustainable development" (UNCSD, 2012: 46). The cornerstones or pillars of sustainable development are the economy, social welfare and environment. In its simplest expression, a green economy is low-carbon, resource efficient and socially inclusive. It is based on a model which underscores both economic growth and social and natural resources development as opposed to the 'brown' economic model which emphasises economic growth over social and natural

resources development (UNEP, 2011).According to OECD (2012: 1), inclusive green growth offers an optimistic, realistic alternative to countries looking for new sources of growth that make economic, environmental and social sense. In this sense, UNEP (2011) explains that:

> *growth in income and employment in a green economy are driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency and prevent the loss of biodiversity and ecosystem services. These investments need to be catalysed and supported by targeted public expenditure, policy reforms and regulation changes. The development path should maintain, enhance and, where necessary, rebuild natural capital as a critical economic asset and as a source of public benefits. This is especially important for poor people whose livelihoods and security depend on nature.*

The concept of a green economy does notusurp sustainable development,although there is a growing recognition that achieving sustainability rests almost entirely on getting the economy right (OECD, 2012; Weick, 2016). As Newell and Roberts (2017) put it, decades of creating new wealth through a 'brown' economy model based on fossil fuels have not substantially addressed social marginalisation, environmental degradation and resource depletion. Weick also argues that green growth has addressed the bottlenecks which confounded sustainable development. For example, under sustainable development, environmental protection was seen as a cost factor slowing down economic development. Conversely, green growthis perceived as a way to bring the environment and the economy into a positive relationship, in which the environment becomes an opportunity

rather than a constraint, and a new driving force for economic development. Basically, the development process should not surpass the resources that the earth can provideor wreck the environment (DESA, 2013).Thus, green growth is seen as a path of economic growth which uses natural resources in a sustainable manner.

Zambia's involvement in green economy

One outcome of the 2012 Rio+20 Summit was the consensus that green growth is best defined and tailored according to an individual country's context. UNCTAD (2011a: 2) notes that "It is difficult to identify a single productive capacity development strategy for all LDCs [Least Developed Countries] owing to the heterogeneity of their economies." It was in this light that Zambia sought to develop her own coherent Inclusive Green Growth Strategy under its Sixth National Development Plan.Assisted by the Organisation for Economic Co-operation (OEC)andthe International Institute for Environment and Development(IIED), Zambia held a consultative workshop on 'Inclusive Green Growth' on 4-5 July 2013 at the Protea Safari Lodge in Chisamba,near Lusaka, Zambia's national capital. The workshop had three important objectives:

- to improve the knowledge base that will allow Zambia to make an inclusive green economy transition.
- to support Zambian strategic decisions under the Sixth National Development Plan revision.
- to help attendees from the development community (IIED, OECD and AfDB) to understand and showcase green growth progress and potential in Zambia. (Banda and Bass, 2014).

The workshop, which brought together 26 selected participants from government, private sector, civil society, academic/ research institutions and representatives from the international development community, covered the changing international policy and financial scene on Inclusive Green Growth(IGG), the enabling environment for IGG in Zambia, four case studies of existing green activities, sector best bets and entry points for action, and the tasks needed to develop a Zambian IGG strategy under the National Development Plan. (For details, see Banda & Bass, 2014).

According to Banda and Bass (2014: 4), the participants in the IIED conference agreed that IGG can be a good and coherent way to achieve progressive policies on economic growth and diversification, inclusion and poverty reduction as well as profitable environmental stewardship in ways that attract long-term finance. The workshop produced draft elements for developing Zambian IGG principles and defined inclusive green growth.

As a way to scope the needs and potentials for IGG in Zambia,the Chisamba workshop laid out a set of IGG policy options for cataloguing,exploration and development (Banda and Bass, 2014). In this policy, top priorities includedwaste to energy; a diversity of clean energy suppliesand suppliers; green infrastructure and services andmainstreaming sustainable agriculture approaches. Theworkshop also emphasized the importance of generating new green asset classes toattract significant, long-term and 'quality' investmenttowards them.It was felt that aone-year periodwould be needed to operationalisethe Zambian Inclusive Green Growth Strategy (ZIGGS), which should include preparing a strategy.

Enabling conditions for a green economy in Zambia

For Zambia to make a smooth transition to a green economy, specific enabling conditions will be required. Newell and Roberts

(2016: 417)explain that these"conditions consist of an intricate array of enabling measures including national regulations, policies, subsidies and incentives, as well as international market and legal infrastructure, trade and technical assistance."According to Newelland Roberts,the current scenario in many countries is that enabling conditions heavily encourage the prevailing brown economy, which depends excessively on resource depletion and environmental degradation. The lessons for Zambia then are that,instead of subsidisingactivities in the traditional or brown economywhich can adversely affect the adoption of green economic growth, focus should shift to subsidising enabling conditions for a green economy (IEA, 2009). According to Newelland Roberts(2016: 418), "examples of such enabling conditions are: changes to fiscal policy, reform and reduction of environmentally harmful subsidies, employing new market-based instruments, targeting public investments to green key sectors, greening public procurement and improving environmental rules and regulations, as well as their enforcement." In this regard, government is encouraged to put in place policy measures that willinspire innovation and growth.

IIED'S assessment of green growth in Zambia in

According to the United Nations Economic Commission for Africa and the Regional Office for Africa of the United Nations Environment Programme (UNECA & UNEP/ROA, n.d.), national assessments are usually carried out to identify the costs and benefits, and green growth opportunities from a wide range of renewable and non-renewable resources of countries. In the case of Zambia, an assessment byIIED observed that the country's high economic growth rates are heavily dependent on its environment-based sectors, such asagriculture, tourism, forestry and mining(Banda and Bass, 2014). The mining sector

(mostly copper and cobalt) alone contributed70%of export earnings while agriculture,forestry and fishing contribute only16.6%. Yet,agriculture, forestry and fishing supported 70% of all livelihoods.The report also showed that construction was one of the fastest growing sectorsin 2012, increasing at 15.3% from residential and commercial developments as well as mining infrastructure.

The IIED country report showed that, in spite ofhigh growth rates of 7.3% in 2012, the benefitswere not widely shared and poverty remained stubbornly entrenched. Zambia was still one of the world's poorest countrieswith a per capita GDP of $1,457. With a highpopulation growth rate of 2.9% per annum, thecountry struggled to provide for the needs of anever-growing population. Banda and Bass (2014) noted that implications of a highpopulation growth rate tied with an undevelopedeconomy had created a deficit in employmentopportunities which was illustrated by the high povertyrate of 64% as of 2013 and the high unemploymentrate of 14% in 2012. Since the 1990's, the government has been promoting amarket economy, liberalising sectors, opening up theeconomy and promoting foreign direct investment(FDI). Zambia aspires to become a middle-incomecountry by the year 2030. This demandsthe issue of long-term management of its portfolioof development assets (including natural assets) andrisks (including climate risks) to be properlythought through (Banda and Bass, 2014).

The assessment further noted that, the challenges noted above, there were already some solid institutional foundations for green growth in Zambia. For example, theNational Conservation Strategy and Fifth NationalDevelopment Plan emphasised cross-sectoral linksbetween major development sectors (agriculture,livestock and fisheries, tourism, manufacturing, mining and commerce and trade) in making the bestuse of Zambia's natural resources. Later nationalstrategies such as the National Climate ChangeResponse

Strategy strengthened prospectsfor synergies and informed trade-offs betweenenvironmental, social and economic objectives. Environmental Impact Assessment (EIA) legislationformed a firm basis for ensuring good environmentalintegration in development while the Sixth National Development Plan (SNDP) offeredto balance economic growth and povertyreduction, and employed principles of accountability,decentralisation and efficient resource allocation.The National Climate Change Response Strategy(NCCRS) addressed the climate vulnerability of priority sectors, andpointed to the importance of building the resilience ofsuch sectors so that growth was sustainable. A componentof that resilience was the development of low-carbon approaches.

Evidence of green growth in Zambia

Several green growth initiatives have been undertaken in Zambia. This section describes some of these initiatives. Concerning the building sector, the launching of the Zambia Green Building Association (ZGBA) is a milestone in going green in the construction industry. It has motivated public and private housing investors and developers who are catching up on green building, for example,Lafarge, BarrickLumwana, Kalumbila Town Development Cooperation, and People's Process on Housing and Poverty in Zambia. According to the International Labour Organisation (ILO, 2012),green building refers to the construction and use of processes that are environmentally responsible and resource-efficient throughout a building process, from the stage of starting to designing, construction, operation, maintenance, renovation and demolition. It involves the construction of buildings sustainably such that they are durable, comfortable and usable. It also involves using materials which are renewable, rather than non-renewable ones, thereby reducing pressure on the non-renewable resources and encouraging conservation of natural resources.

In the mining sector, green growth has included new health and environmental standards and low-energy/low-polluting machinery as well as smelting equipment that meets international requirements. In agriculture, greening has been done by way of promoting conservation agriculture, organic farming and agroforestry activities. For tourism, the country has embarked on the promotion of ecotourism. According to Banda and Bass (2014), Zambia's community-based ecotourism is world-renowned; it can sustain natural heritage, build and operate in a 'low-footprint' way and support local livelihoods and well-being. The energy sector in Zambia has seen innumerable green growth initiatives. To begin with, the Zambian government is encouraging manufacturing and importation of CFC free electrical appliances, through the waiving of import duty and value added tax for green equipment and products. In addition, several Zambian energy companies are implementing the efficiency, renewability and diversification/resilience energy strategy. The sale of unleaded fuel at all filling stations throughout the country is one such strategy. The introduction of energy-saving bulbs and the generation of zero-carbon electricity, such as hydroelectricity, thermal energy and solar energy which save on fossil fuel costs and produce little environmental impactare other strategies. Other initiatives include funding thenational tree planting initiative (plant a million trees campaign which was launched in 2018 in Chinsali District of Muchinga Province) and putting a stop to intentions to mine copper in the Lower Zambezi.

Water is fundamental to human health, wellbeing, productivity, and livelihoods (IBRD/World Bank, 2007). Therefore, theZambian government has paid attention to parameters which are important in the provision of water, such as water quality and water stress; water quantity and water expenditure; and equity and disaster vulnerability. In this venture, the government has partnered with organisations such as UNICEF Zambia and the

Millennium Challenge Corporation (MCC) to improve provision of water and sanitation to communities in the country. UNICEF Zambia's WASH programme contributes to improved and equitable access to safe drinking water and the use of adequate sanitation and hygiene practices by children and women in Zambia, especially in rural and peri-urban areas. The Millennium Challenge Corporation (a US state agency) worked on a five-year $355 million project to improve water and sanitation in Zambia. This is expected to translate into Improved livelihoods and health of the people: reduction in water-borne diseases, higher productivity, higher school attendance.

In the area of waste management, government wants toinstitutionalise a culture of cleanliness and good health, which must be practiced by all Zambians and contribute to personal and national well-being. Along this line, the presidential decree of 'Make Zambia Clean, Green, and Health Campaign' has led to positive developments, such as the banning of use of plastic bags bythe Zambia Environmental Management Agency (ZEMA) in major supermarkets (Shoprite, Food Lovers, Spar and Pick n Pay). Further, the government has put in place statutes to govern the management of waste, for example, the Solid Waste Regulation and Management Act of 2018.

In the employment sector, government is promoting green jobs. One of the fundamental challenges that developing countrieslike Zambia face is that of creating sufficient and decent employment opportunities for all (UNCTAD, 2011b). UNCTAD explains that, with the rapidly expanding populations, developing countries have young and growing populations (on average, about 70% of the population is below 30 years of age) that need productive and decent employment.The idea of Green Jobs, led by the International Labour Organisation (ILO) and supported by the Finish Government, aims at promoting more and better jobs in sectors where goods and services can be produced with an

environmental benefit (Kachingwe, 2015). It also means increased rural employment and opportunities for women and youth.

Commerce and trade play a central role in the diffusion of green goods, services, technologies and production methods among countries (UNCTAD, 2011b). In order to ensure export and import of green goods and services, the government has put in place stringent measures. For example, the government has curtailed the illegal export of logs of *mukula*tree (*Pterocarpus chrysothrix*) and has regulated the importation of genetically modified organisms (GMOs). UNCTAD explains that the major problem in commerce and trade for developing countries is the low competitiveness in most of their goods and services. They compete on the world market mostly with commodities they produce or with products that are characterised by very low value added and by the labour-intensive production processes. This is the scenario which should be turned around by green growth.

Benefits and concerns of the green economy

The concept of green economy offers competitive advantages to those countries that commit to policy innovations. The IIED report has suggested a range of potential benefits that can accruefromputting moreattention to green growth (Banda & Bass, 2014).These include wellbeing in termsof the creation of decent jobs accessible to poorgroups, improved incomes and livelihoods, improved health,freedoms and culture,and equity among stakeholders. Green growth can also lead toeconomic growth in needy sectors and areas thatmight disproportionately be reliant on natural assetsor vulnerable to environmental hazards.In addition, Bhardwaj and Neelam (2015: 1959) state that, “in applying green technology, the biggest benefit is in terms of enhancing the quality of life [of people] by ensuring the quality of the environment more sustainable… When we use green technology, the negative impact on the environment is least.”

The IIED report notes that green growth also has concerns that need to beaddressed.According to Banda and Bass (2014), stakeholders, such as Zambia Electricity Supply Company (ZESCO) and Zambia Environmental Management Agency (ZEMA)have suggested arange of concerns around costs and who benefits. For example, who would bear thecost of transitioning from a brown (business as usual)towards green (low-carbon) economic activities, the undesirability of runninginto big debts in the process of transitioning and ofadopting a western version of green growth in Zambia; a worrythat green growth ideas could be co-opted and misused andnot benefit the poor. Undoubtedly, green growth policies willneed to address these concerns. There are also problems withthe enabling framework, in spite of the progress identifiedabove.For instance, there are currently few incentives in Zambia to recycle,sometimesthere are subsidies for fossil fuels, there are political challengesrelated toZESCO's energy supply, high import dutieson solar technologies and restrictions on gameproducers.

Accelerating and expanding the green economy

The growth of the green economy can be accelerated and expanded in many ways. Currently, Zambia is implementing the Seventh National Development Plan (SNDP). Including elements of green growth in the Planrepresents, perhaps, the best and most immediatecross-sectoral opportunity (Banda & Bass, 2014). But there are others approaches that can also be included, namely:

- the current review of many acts related to thetourism industry and policies to attract ecotourismdevelopment.
- the current harmonization of local government policies and legislation.
- recent realisation by some manufacturers of theneed to meet the requirements of internationalbuyers who preferentially demand environmentallyand socially friendly products.

- several national scientific, academic and researchbodies which have the potential to meet theinformation-intensive nature of green growth in monitoring levels of environmental assets, potentialsand hazards and in developing and / improving inclusivegreen technologies.

More attention might now be given to market driversof development, and finding entry points into thedecision-making processes of policy actors involving the following aspects:

- the rise of the consumer class as Zambia movestowards middle-income status, which presentsboth powerful opportunities to shape green and inclusive aspirations and market demands threats if the products demanded have heavyenvironmental and social impacts as well as.
- the private sector with potentials to lead green growth is yet to form a critical mass and suitable organisations for inclusive green issues.
- finance and investment mechanisms that support long-term cost-savings and resilience conferred by green growth investments, such as equipment which may be a bit more expensive but saves on energy bills later.

Insights from beneficiaries of the green jobs programme in Zambia

According to Kachingwe (2015), one of the interesting stories in the Green Jobs Programme was that of Omba Lacey, a dynamic entrepreneur from Lusaka (Zambia), who had been running a house construction business since 2007. Lacey was given an opportunity to take part an ILO training course in eco-friendly building techniques in 2014. After the training, Lacey stated that

> *I had never even considered using sustainable materials in my work before. Now I know I can use local materials*

> *such as clay and earth bricks and timber in construction. We recently constructed a house where I could put what I learned into practice. I saved a lot of time and money.*

Lacey, together with other 15 men and women who also attended the same training, decided to establish a green consortium to deliver green goods and services. She further explained that:

> *I saved a lot of time and money by using locally-sourced materials such as timber for roofing, door and window frames, compressed earth bricks for the walls, rainwater harvesting for water and solar panels for energy. The cost of building a house can be slashed by up to 70 per cent, which also makes houses more affordable for everyone.*

Through the training, Lacey had also learnt not to cut down all the trees at a construction site, and to use the timber of the trees she had cut at the building site. Before the training, she would import materials like aluminium and steel from countries like South Africa and China, which was not only costly but also bad for the environment.

Linkages between greeneconomy and Sustainable Development

As stated earlier, the concept of a green economy does not replace sustainable development. The UN General Assembly in its two summits held in 2009 and 2012 has clarified the two concepts and the linkages between them. According to Newell and Roberts (2017: 410), most interpretations of sustainability take as a starting point the consensus reached by the World Commission on Environment and Development (WCED) in 1987, which defined sustainable development as'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. This broad definition is suitable for a

lot of purposes, although Barbier and Burgess (2017: 2) point out that opinions still diverge on how this goal can be attained. For economists, it implies that an increase in wellbeing today should not result in reducing wellbeing tomorrow, or simply put, per capita welfare should not be declining over time (Pezzey, 1989). This entails that the earth's total stock of capital should be available to both the current and future generations (Pearce et al. 1989). This stock should not only be available in terms of quantity but also in terms of quality (composition or variety). The systems approach, attributed to Barbier (1987), theorises that for this kind of development to be achieved, the goals of the three systems basic to any process of development (the environmental or ecological system, the economic system and the social system) should be maximised through an adaptive process of trade-offs. The major concern is that by irreversibly depleting the world's stock of natural wealth, today's development path will have detrimental implications for the well-being of future generations (Pearce&Barbier, 2000;Dasgupta, 2010).

One of the first economic studies to make the connection between this capital approach to sustainable development and a green economy was Pearce, Markandya, & Barbier's (1989) book *Blueprint for a Green Economy*(Georgeson, Maslin &Poessinouw, 2017). The authors of that book argued that because today's economies are biased towards depleting natural capital to secure growth, sustainable development is unachievable. On the contrary, "a green economy that values environmental assets, employs pricing policies and regulatory changes to translate these values into market incentives, and adjusts the economy's measure of GDP for environmental losses, is essential to ensuring the well-being of current and future generations" (Newell & Roberts, 2016). Pearce, Markandya, & Barbier's (1989 cited by Newell & Roberts, 2016: 411) point out that:

> *a major issue in the capital approach to sustainable development is whether substitution among different forms of capital - human capital, physical capital and natural capital - is possible.For example, a strong conservationist perspective might maintain that the natural component of the total capital stock must be kept intact, as measured in physical terms. However, this may be questioned in practice, especially in the context of developing countries, if natural capital is relatively abundant while physical and human capital needs to be developed to meet other human demands.*

This is the predicament in which Zambia finds itself: does she conserve natural resources (natural capital) at the expense of building schools, hospitals and roads (physical capital) and providing employment and social amenities to people (human capital)? Unfortunately, the creation of physical capital often requires the conversion of natural capital which may lead to depletion or degradation. While substitution between natural capital and other forms of capital is often inevitable, there is often room for efficiency gains. According to Newell & Roberts (2016), there is also a growing recognition of environmental thresholds that would constrain substitution beyond minimum levels needed for human welfare. Newell & Roberts also assert that some forms of natural capital, particularly key ecological goods and services, are essential to human welfare and therefore may not be replaceable. They state that, "Uncertainty over the true value of these important assets to human welfare, in particular the value that future generations may place on them if they become increasingly scarce, further limits our ability to determine whether we can adequately compensate future generations for today's irreversible losses of such essential natural capital" (p. 411). This concern is reflected in other definitions of sustainable development. For example, in 1991, the World Wide

Fund for Nature, the International Union for Conservation of Nature (IUCN), and UNEP interpreted the concept of sustainable development as "improving the quality of human life within the carrying capacity of supporting ecosystems" (WWF, IUCN & UNEP, 1991: 10).

Challenges faced in the transition to green economy in Zambia

As outlined above, Zambia has made commendable efforts in domesticating and implementing international environmental commitments as well as national environmental policies, legislation and strategies and has made progress towards the attainment of sustainable development. However, this effort has not been completely successful at times due to a number of constraints. The major constraints in implementingthe three Rio Conventions revolve around inadequate financial resources, insufficient technical expertise and lack of harmony in existing environment related policies and legislation leading to implementation and legal enforcement failures (Phiri, 2016). O'Brien and Gowan (2012)cite perennial lack of financial resources, unsatisfactory or inefficient systems or inability on the part of staff as factors that contribute to lack of implementation of programmes in many least developed countries. Anotherconstraint is inadequate information and environmental management awareness among members of the general public as well as insufficient information for effective planning (UNEP, 2013). Further challenges may include lack of renewable alternative sources of energy to reduce dependency on forest resources as the main source of household energy, inadequate awareness about sustainable agricultural practices and limited participation of local communities in the management of natural resources in their areas. Siyanga and Muyoyeta (2012) explain that "high poverty levels and lack of alternative sources of livelihoods exacerbate environmental degradation resulting from

the dependence of poor people on natural resources." Absence of an appropriate sustainability framework,which organises thinking about sustainability as well as informing planning, management, and evaluation of sustainability activities, is another challenge (Chofreh&Goni, 2017). Whereas a green economy integrates all the major economic and social players, whether they are private sector, civil society or government in production processes that benefit society while at the same time minimising environmental degradation, a framework to facilitate such integration does not exist in Zambia. As a matter of fact, a rigorous sensitisation campaign targeting green economy issues is yet to be undertaken. A culture and practice of relating to the cost of production of goods and services in the context of minimisingenvironmental pollution, degradation and the exploitation of natural resources to the greatest extent possible is still farfetched (UNEP, 2011).

Conclusion

In conclusion, the essence of this paper has been to describe green growth and how Zambia can benefit from this approach to economic development. Green growth has been defined as an approach to economic growth that puts human development at the centre while ensuring that natural assets continue to provide the resources and environmental services to support sustainable development (OECD, 2013). The United Nations Environment Programme describes a green economy as a clean, environmentally friendly economy that promotes health, wealth, and well-being. Dependent on sustainable development, a green economy is one that benefits, not sacrifices, social justice and equity as well as the environment.

The success of the transition from a brown to a green economy and the realisation of a smart Zambia as envisioned in the country's development goals will largely depend on the active participation of all stakeholders (Banda,October 4, 2017). The

process requires a fundamental shift in the way we think and act; it requires a new mindset of doing business, a mindset removed from business-as-usual (UN, 2011). According to UNEP (2012), the process also requires a new calibre of skilled labour and professionals that can work across sectors and be able to work as part of multi-disciplinary teams. Preparing these calibresrequires training and formal education. Bandy et al. (2008) explain that staff trainingat all levels is one of the core drivers of a successful programme implementation drive. UNEP notes that, in order to achieve this objective, vocational training packages should be developed with focus on greening various sectors. The education system also needs to be reviewed to integrate environmental and social considerations in the various disciplines. An example of such a consideration was the designing and implementation of a bachelor's degree in Environmental Education at the University of Zambia, whose aim was to provide environmental knowledge, skills and values to personnel serving or intending to join institutions which deal with the environment, to promote green skills in these institutions and among communities.

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