

Fostering Environmental Democracy and Biodiversity Conservation

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Dedication

Dedicated to that child
Who went through hunger, poverty,
Neglect, pain and suffering

That child
Who never, ever gave up
That child
Who dreamt big dreams

That child
Who knew
That if one's dream is big enough
Nobody can take it away

That child who eventually knew
That one can create
Their own luck
and that we
Ultimately become
What we think of most
That what a mind can conceive
Is ultimately achievable

To that child that learnt
To rise above adversity
To rise above loss
To rise above pain
Grief and tears

To
The child that learnt
To keep hope alive
To uphold the thought
That there will always be
A better tomorrow

And that darkness
Gives way to light
And a bright warm
Tomorrow

Dedicated also to the adult
Who was once
This child
And is still this child
This resilient child
Who learnt the wisdom of Old
From the sages

And to those who know
That we must sustain
The environment,
Effect Environmental Democracy
and
Conserve biodiversity

That we must foster and nurture
Nature
For in the end
The planet and the people
Must live together
As one indivisible whole

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overcome pain and grief. My family consistently reminds me that life is worth living and that there is a better tomorrow. A tomorrow where the sun shines, warms the heart and dries the tears of yesterday and today.

Author's Note

The United Nations 2030 Agenda for Sustainable Development Goals (SDGs) envisages a world where human lives will be improved alongside environmental conservation as much of the resources expected to achieve this are natural resources. However, to achieve this, the SDGs acknowledge that this will also require the concerted efforts of all players including, public, private as well as communities. Trade and investments are also expected to play a huge role in raising revenue as well as generating the relevant resources for development.

This, however, comes with reported cases of these international corporations disregarding human rights law which is expected to bind all persons in Kenya and the rest of the world. Communities are expected to be impacted upon by the development and investment projects and activities but they are often sidelined by these investors where they are either not involved through public participation as provided for under the national laws or they suffer human rights violations. This is arguably counterproductive as far as Sustainable Development is concerned. This book argues that if human rights of communities and their right to public participation in development projects as guaranteed under international law regime are not protected, then there is not only the risk of failure of the particular projects but also emergence of conflicts. The book offers some recommendations on how such eventualities may be avoided.

The book covers the thematic issues of Environmental Democracy, Biodiversity Conservation and Human Rights that are mostly dependent on the health of the environment for their fulfillment, Social Justice, and procedural and substantive rights in matters of biodiversity conservation, among others. The book then discusses select natural resources that are not only the most relevant to biodiversity conservation but also key in achieving certain human rights. These include water resources, land and agriculture, forest resources, among others. The thread through all these is established through the theme of Fostering Environmental Democracy and Biological Diversity.

This discourse is relevant to the academia, students, government agencies, professionals in environmental and public policy matters, conservation,

environmental law, environmental ethics, and civil rights groups involved in environmental advocacy.

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List of Abbreviations

List of Abbreviations

ABS	Access and Benefit Sharing
ASALs	Arid and Semi-Arid Lands
BIA	Biodiversity Impact Assessment
CBD	United Nations Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COP	Conference of Parties
COVID-19	Coronavirus Disease
CSA	Climate-Smart Agriculture
CSR	Corporate Social Responsibility
EA	Environmental Assessment
EIAs	Environmental Impact Assessments
EMCA	Environmental Management and Co-ordination Act, 1999
ESA	Ecosystem Services Approach
ETI	Energy Translation Index
FPIC	Free, Prior and Informed Consent
HIV & AIDS	Human Immunodeficiency Virus & Acquired Immunodeficiency Syndrome

List of Abbreviations

IPM	Integrated Pest Management
IPM	Integrated Pest Management
IPPC	International Plant Protection Convention
IRBM	Integrated River Basin Management
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IWRM	Integrated Water Resource Management
MEAs	Multilateral Environmental Agreements
NBSAPs	National Biodiversity Strategic Action Plans
NDC	Nationally Determined Contribution
NEMA	National Environment Management Authority
OECD	Organization for Economic Cooperation and Development
PES	Payment for Environmental Services
PGRFA	Plant Genetic Resources for Food and Agriculture
Ramsar	Convention on Wetlands of International Importance
REDD	Reducing emissions from deforestation and forest degradation in developing countries
REDD+	Reducing emissions from deforestation and forest degradation in developing countries, and forest conservation, sustainable forest management and enhancement of forest carbon stocks

List of Abbreviations

RETs	Renewable Energy Technologies
Rio+20	UN Conference on Sustainable Development June 2012
SDGs	Sustainable Development Goals
SEA	Strategic Environmental Assessment
UNCCD	United Nations Convention to Combat Desertification
UNCTAD	United Nations Conference on Trade and Development
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPOV	International Union for the Protection of New Varieties of Plants
WTO-TRIPs	World Trade Organization Trade-Related Aspects of Intellectual Property Rights Agreement

CHAPTER ONE

General Introduction to Human Rights, Environmental Democracy and Biodiversity Conservation

1.1. Introduction

Biological diversity is a term used to refer to the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems. These resources play a huge role in not only environmental processes but also in provision of ecosystem resources for all living organisms, including human beings.¹ Arguably, if the world is to achieve the sustainable development goals, then the conservation of these resources must be treated with urgency and it also calls for the concerted efforts of all stakeholders and cooperation from all countries, at least at the international level. The world must address the human activities that have been contributing to the degradation of these resources.²

The need for this cooperation was born out of the fact that 'the responsibility for biodiversity conservation has traditionally been seen as a function of government and, particularly, of its environment departments and conservation agencies, where Non-governmental organisations, local communities and other interest groups have supported this role by championing specific environmental issues and conversely, business and industry are typically regarded as competitors to environmental causes, needing land and resources for production'.³ However, it is now a non-contentious position that 'biodiversity is considered to be an essential component for sustainable development and human well-being, which

¹United Nations Development Programme. "The future we want: Biodiversity and ecosystems – driving sustainable development." (2012),1.

² *Ibid.*

³Ginsburg, A., Stephens, A., Tau, M., Botts, E., & Holness, S., 'Biodiversity Mainstreaming in South Africa's Production Landscapes: Lessons and Achievements' [2020] International Grassland Congress Proceedings
<<https://uknowledge.uky.edu/igc/22/2-15/1>> accessed 24 July 2021.

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underpins the provision of food and water; mitigates and provides resilience to climate change; supports human health, and provides jobs in agriculture, fisheries, and forestry, among other sectors.⁴ This, therefore, not only affirms the need for biodiversity conservation for sustainable development but also the need for participation of all persons and players, especially citizens through enhanced Environmental Democracy. Indeed, the Constitution of Kenya 2010 creates an opportunity for the participation of all citizens in environmental management and conservation by providing that ‘every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources’.⁵ While the wording of the above provision maybe debatable in creating a right to participate in environmental decision-making processes, the same can borrow credence from other provisions on the principles of public participation and it is a commendable step towards promoting Environmental Democracy in biodiversity conservation.

It is worth pointing out that globally, early environmental conservation and natural resource management initiatives concentrated on improving water and land management, by the 1980s, there had been a shift in country-level’s environmental focus to integrate biodiversity conservation into mainstream development processes, with an emphasis on production sector projects, national and sub-national policy and planning, institutional development, and disaster risk reduction.⁶

This chapter adopts a holistic approach and offers a general introduction, in the context of Kenya, on the linkages between Environmental Democracy and biodiversity conservation, some of the challenges affecting the environment with a bias on biodiversity conservation, and offers recommendations on effective conservation of biodiversity resources for a better future for both the

⁴ United Nations, “Biodiversity at the Heart of Sustainable Development”, *Input to the 2018 High-level Political Forum on Sustainable Development (HLPF)*, Secretariat of the Convention on Biological Diversity (CBD), 27 April 2018, 1.

⁵ Article 69(2), Constitution of Kenya 2010.

⁶ United Nations Development Programme, ‘The Future We Want: Biodiversity and Ecosystems – Driving Sustainable Development.’ (Biodiversity and ecosystems global framework 2012–2020, 2012), 9-10.

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human community and the environment. It also discusses the place of Environmental Democracy as a tool for promoting active and meaningful participation of communities in the conservation efforts, in a bid to strike a balance between ecocentric and anthropocentric approaches in biodiversity conservation.

1.2. Defining Environmental Democracy and Biodiversity Conservation

Environmental Democracy is an important component in realisation of environmental rights in that it seeks to ensure that environmental and natural resources management decisions take into consideration and equitably address the concerns of citizens in relation to those resources, through promoting free access to meaningful information on environmental quality and problems by affected people, to enable their meaningful participation in decision-making, and empowering them to seek enforcement of environmental laws or compensation for damages.⁷ Notably, the concept of Environmental Democracy is informed by the idea ‘that an informed and legally empowered citizen is the most important aspect of environmental democratisation’.⁸ The concept of Environmental Democracy thus emerged to promote and ensure public engagement in governmental environmental decision-making.⁹ Arguably, people have a right to obtain information upon request, and to be informed of planned projects, developments or other initiatives which will affect them, their environment or their natural resources through Free, Prior And Informed Consent (FPIC), under which duty bearers are expected to obtain the agreement for specific activities from an appropriate entity (rights holders), following a consultative process involving full disclosure of all relevant information, sufficiently in advance of the activities commencing, and without coercion or manipulation.¹⁰ The principle of FPIC

⁷ Peeters M, ‘Judicial Enforcement of Environmental Democracy: Critical Analysis of Case Law on Access to Environmental Information in the European Union’ (2020) 4 Chinese Journal of Environmental Law 13.

⁸ See Parola G, *Environmental Democracy at the Global Level: Rights and Duties for a New Citizenship* (Walter de Gruyter 2013), 50.

⁹ Peeters M, ‘Judicial Enforcement of Environmental Democracy: Critical Analysis of Case Law on Access to Environmental Information in the European Union’ (2020) 4 Chinese Journal of Environmental Law 13, 14.

¹⁰ BirdLife International, International B, ‘An Introduction to Conservation and Human Rights for BirdLife Partners’, 8.

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also extends to the use of indigenous knowledge and practices relating to the environment, and the sharing of any resulting benefits.¹¹

The idea finds credence in Article 1 of the *Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters* and Principle 10 of the 1992 *Rio Declaration on Environment and Development* which provides that: “environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.”¹²

It has, however, been argued that while concepts of ecological and Environmental Democracy seek to reconcile two normative ideals: ensuring environmental sustainability while safeguarding democracy, these ideals are frequently conceived as being in conflict, as democracy is perceived as too slow and cumbersome to deliver the urgent large-scale collective action needed to tackle environmental problems.¹³ The perceived conflict is based on the assertion that, on the one hand, if citizens accord low priority to ecological values, efforts to strengthen environmental protection and sustainability through democratic processes may falter, and on the other hand, securing environmental values through authoritarian rule comes at a high democratic price.¹⁴ The Convention on Biological Diversity (CBD) Aichi Target 1 requires

¹¹ *Ibid*,8.

¹² Peeters M, ‘Judicial Enforcement of Environmental Democracy: A Critical Analysis of Case Law on Access to Environmental Information in the European Union’ (2020) 4 Chinese Journal of Environmental Law 13

¹³ Pickering J, Bäckstrand K and Schlosberg D, ‘Between Environmental and Ecological Democracy: Theory and Practice at the Democracy-Environment Nexus’ (2020) 22 Journal of Environmental Policy & Planning 1.

¹⁴ *Ibid*, 1.

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that “by 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably”.¹⁵

Notably, ecological democracy seeks environmentally sustainable ends through broad, active democratic participation.¹⁶ As a result, national political institutions constitute an important arena for biodiversity conservation.¹⁷ It has been observed that while the proximate drivers of biodiversity loss such as habitat loss, climate change, overexploitation, and invasive species are relatively well-mapped, one of the causes to those triggers is countries’ institutional set-ups and thus, the formal and informal rules shaping the decision-making and the implementation of biodiversity management are considered to be paramount.¹⁸

The right to participation refers to the procedural right to have a say in the decisions that are made, where there exists a gradient in the level of participation in decision-making, from simple ‘consultation’ to active partnership of stakeholders in project conception, design, implementation, monitoring and evaluation; and from ‘limited’ participation to ‘full and effective participation’ of ‘all relevant stakeholders’ with special attention given to the most vulnerable groups, minorities and those sectors of society that are underrepresented.¹⁹ The participation of the people in biodiversity conservation is important considering that actions to conserve nature and natural resources are closely related to the rights of people to secure their livelihoods, enjoy healthy and productive environments and live with dignity and as a result, the pursuit of conservation goals can contribute positively to

¹⁵ Unit B, ‘Aichi Biodiversity Targets’ (18 September 2020) <<https://www.cbd.int/sp/targets/>> accessed 8 September 2021.

¹⁶ Takacs D, ‘Whose Voices Count in Biodiversity Conservation? Ecological Democracy in Biodiversity Offsetting, REDD+, and Rewilding’ (2020) 22 *Journal of Environmental Policy & Planning* 43.

¹⁷ Rydén O and others, ‘Linking Democracy and Biodiversity Conservation: Empirical Evidence and Research Gaps’ (2020) 49 *Ambio* 419.

¹⁸ *Ibid*, 419.

¹⁹ BirdLife International, International B, ‘An Introduction to Conservation and Human Rights for BirdLife Partners’, 8.

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the realization of many fundamental human rights.²⁰ There is thus, a need for States to continue establishing effective legal and institutional frameworks to protect biodiversity, and to conduct social and environmental assessments of projects and policies and to facilitate public participation in conservation decisions.²¹ Environmental Democracy is associated with on transparency, participation, and justice and as a result, it is considered to be more participatory and inclusive and provides opportunities for everyone, including those in the most marginalised positions to participate in decision-making.²²

1.3. A Human Rights Approach to Biodiversity Conservation

Due to the increasingly important role of the environment and its resources in the realization of international human rights, the connection between human rights and environmental law has received increasing attention at the international and regional legal frameworks.²³

As such, there has been an increased call for adoption of a rights-based approach to environmental conservation in order to strike a balance between environmental protection and realization of basic human rights.²⁴ Indeed, this

²⁰ Springer J, Campese J and Painter M, 'Conservation and Human Rights: Key Issues and Contexts. Scoping Paper for the Conservation Initiative on Human Rights' [2011] Unpublished report. Conservation Initiative on Human Rights Working Group, 5.

²¹ See Bigard C, Pioch S and Thompson JD, 'The Inclusion of Biodiversity in Environmental Impact Assessment: Policy-Related Progress Limited by Gaps and Semantic Confusion' (2017) 200 *Journal of environmental management* 35.

²² 'Will Democracy Save Us from the Biodiversity Crisis?' (*Demo Finland*, 27 November 2020) <<https://demofinland.org/en/will-democracy-save-us-from-the-biodiversity-crisis/>> accessed 9 September 2021.

²³ Philippe Cullet, 'Definition of an Environmental Right in a Human Rights Context' (1995) 13 *Netherlands Quarterly of Human Rights* 25; Osmani SR, 'The Human Rights Approach to Poverty Reduction' [2010] *Freedom from Poverty as a Human Right* 85; Clark C, 'Does the Human Right to Water Address the Gendered Nature of Water Poverty' (2015) 24 *Hum. Rts. Defender* 31; Prior TL and Heinämäki L, 'The Rights and Role of Indigenous Women in Climate Change Regime' (2017) 8 *Arctic Review*.

²⁴ Thomas Greiber, Melinda Janki and Marcos A Orellana, *Conservation with Justice: A Rights-Based Approach* (IUCN 2009); Sébastien Jodoin, Annalisa Savaresi and Margaretha Wewerinke-Singh, 'Rights-Based Approaches to Climate Decision-Making' (2021) 52 *Current Opinion in Environmental Sustainability* 45; Tauli-Corpuz, V., Alcorn, J., Molnar, A., Healy, C., & Barrow, E., 'Cornered by PAs: Adopting Rights-

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seems to be the approach adopted in the drafting and implementation of sustainable development goals which seek to strike a balance among environmental conservation, economic development and human rights protection.²⁵ For instance, people participation in natural resources management is seen as an important step towards eradicating absolute poverty, a sustainable development goal 1 (SDG 1), where some authors have argued that decentralised natural resource management is a potential way in which rural people can generate money and manage resources sustainably.²⁶ Poverty is a major contributing factor to insecurity and instability especially in the rural areas where communities mainly rely on scarce land based natural resources which are affected by climate change and population growth, among others. It has been observed that 'rural poverty can be caused by a combination of: living and farming in unfavourable conditions (climate, soils, access to markets, small land holdings); lack of resource access rights, legal protection or

Based Approaches to Enable Cost-Effective Conservation and Climate Action' (2020) 130 World Development; Willmann, R., Franz, N., Fuentevilla, C., McInerney, T. F., & Westlund, L., 'A In-situ Conservation to Securing Small-Scale Fisheries: A Quest for Development as Freedom' [2017] The small-scale fisheries guidelines 15; Gina Zheng, 'Human Rights for Conservation: A Rights-Based Approach to Fisheries Governance' (2018) 43 Alternative Law Journal 55; Mohamed Behnassi, 'Mainstreaming a Rights-Based Approach in the Global Climate Regime', *Human and Environmental Security in the Era of Global Risks* (Springer 2019); Sébastien Jodoin, Kathryn Hansen and Caylee Hong, 'Displacement Due to Responses to Climate Change: The Role of a Rights-Based Approach', *Research handbook on climate change, migration and the law* (Edward Elgar Publishing 2017); Khondokar H Kabir, Andrea Knierim and Ataharul Chowdhury, 'No Forest, No Dispute: The Rights-Based Approach to Creating an Enabling Environment for Participatory Forest Management Based on a Case from Madhupur Sal Forest, Bangladesh' (2021) 64 Journal of Environmental Planning and Management 22; Oluwabunmi Lucy Niyi-Gafar, 'Adopting a Human Rights-Based Approach to Access to Water in Nigeria: Lessons from Selected Jurisdictions' (PhD Thesis, University of Pretoria 2017).

²⁵ Daniela García Villamil, 'Indigenous Self-Determination and the Human-Rights Based Approach to Sustainable Development: Potentials and Limitations' (2021); Annelie de Man, 'The Sustainable Development Goals and the Rights-Based Approach to Development: Compatible or Missing the Point' (2019) 19 Afr. Hum. Rts. LJ 445; Patrick Toussaint and Adrian Martinez Blanco, 'A Human Rights-Based Approach to Loss and Damage under the Climate Change Regime' (2020) 20 Climate policy 743; UN General Assembly, *Transforming our world: the 2030 Agenda for Sustainable Development*, 21 October 2015, A/RES/70/1.

²⁶ Dan Brockington, Jim Igoe and KAI Schmidt-Soltau, 'Conservation, Human Rights, and Poverty Reduction' (2006) 20 Conservation Biology 250.

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recognition; lack of ecosystem services (provisioning, regulating, cultural/spiritual, regenerative); lack of income opportunities (on- or off-farm) in local economies; and lack of investment in the (few) opportunities that exist for market-based ventures.²⁷

As a result, it has been observed that the adoption of rights-based approaches in development work – that is, approaches that are informed and guided by the framework of international human rights law, and the values that underpin it – has had a significant impact on the ways in which development agencies operate.²⁸ It is possible to have investments in the name of development that do not meet the needs or respect the human rights of poor or marginalised communities where these local communities can be affected both by the lack of consultation and participation and by the negative impact such projects have on the environment and their livelihoods.²⁹

A rights-based approach, it has been observed, encourages responsible actions mindful of the rights of others, and of obligations to help respect, protect and promote the enjoyment of those rights, also contribute to building a climate of transparency and accountability that enhances the opportunities for long-term conservation.³⁰

It is, therefore, arguable that while participation means that people are closely involved in the economic, social, cultural and political processes that affect their lives, it may mean complete and direct control over these processes, or, partial or indirect; the most important thing being that people have constant access to decision-making and power.³¹ Article 21(1) of the *United Nations*

²⁷ Meine van Noordwijk, 'Integrated Natural Resource Management as Pathway to Poverty Reduction: Innovating Practices, Institutions and Policies' (2019) 172 *Agricultural Systems* 60, 61.

²⁸ 'Rights-Based Approaches' (GSDRC) <<https://gsdrc.org/topic-guides/human-rights/rights-based-approaches/>> accessed 22 July 2021.

²⁹ 'Business & Human Rights | Protection International' <<https://www.protectioninternational.org/en/our-work/what/business-human-rights>> accessed 24 July 2021.

³⁰ Springer J, Campese J and Painter M, 'Conservation and Human Rights: Key Issues and Contexts. Scoping Paper for the Conservation Initiative on Human Rights' [2011] Unpublished report. Conservation Initiative on Human Rights Working Group, 6.

³¹ "UNDP. 1993. *Human Development Report 1993*, 21.

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*Universal Declaration of Human Rights*³² guarantees that everyone has the right to take part in the government of his country, directly or through freely chosen representatives. Article 22 thereof also guarantees that everyone, as a member of society, has the right to social security and is entitled to realization, through national effort and international co-operation and in accordance with the organization and resources of each State, of the economic, social and cultural rights indispensable for his dignity and the free development of his personality.

Notably, measures for the conservation of biodiversity and the sustainable use of ecosystems very often require changes in the way natural resources are managed, affecting how, when, how much and by whom natural resources, ecosystem services and biodiversity are used. Based on the links between human rights and the environment, steps taken to conserve biodiversity can affect peoples' rights in positive ways.³³

Under the Constitution of Kenya 2010, the devolved system of governance was meant to, *inter alia*, promote democratic and accountable exercise of power, and foster national unity by recognising diversity; give powers of self-governance to the people and enhance the participation of the people in the exercise of the powers of the State and in making decisions affecting them; recognise the right of communities to manage their own affairs and to further their development; facilitate the decentralisation of State organs, their functions and services, from the capital of Kenya, Nairobi; and enhance checks and balances and the separation of powers.³⁴ While devolution has achieved commendable steps towards attaining equality and equity within the rural

<http://www.hdr.undp.org/en/reports/global/hdr1993>."

³² UN General Assembly, *Universal Declaration of Human Rights*, 10 December 1948, 217 A (III).

³³ BirdLife International, 'An Introduction to Conservation and Human Rights for BirdLife Partners', 13.

³⁴ George Nyabuga, 'Devolved Power: A Critical Interrogation of the Place, Roles and Obligations of the Media at the Grassroots in Kenya' (2017) 42 *Africa Development / Afrique et Développement* 105, 107.

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Kenya³⁵, the poverty levels and social, political and economic inequalities in the country are still high.³⁶ Rampant corruption and misallocation of political and economic resources in Kenya and especially at the county levels of governance may be some of the main factors that may be contributing to the slow pace of poverty alleviation despite the proximity of the rural areas to the devolved governance.³⁷

There is need for stakeholders to go back to the drawing board on why devolution was introduced by the drafters of the Constitution while also ensuring that the national values and principles of governance are applied and upheld at both levels of governance, and these include: a) patriotism, national unity, sharing and devolution of power, the rule of law, democracy and participation of the people; (b) human dignity, equity, social justice, inclusiveness, equality, human rights, non-discrimination and protection of the marginalised; (c) good governance, integrity, transparency and accountability; and (d) sustainable development.³⁸ This is especially important considering that integration of human rights into conservation matters also introduces new elements to conservation practice, particularly related to: grounding in defined standards, especially based on international human rights frameworks, and relationships of accountability between “rights-holders” and “duty bearers”.³⁹ Devolution can go a long way in encouraging Environmental Democracy and the realisation of Article 69 of the Constitution of Kenya 2010, which not only spells out the obligations of the State as a “duty-

³⁵ Michelle D’Arcy, ‘Kenya Illustrates Both the Promise as Well as the Pitfalls of Devolution’ (*The Conversation*) <<http://theconversation.com/kenya-illustrates-both-the-promise-as-well-as-the-pitfalls-of-devolution-96729>> accessed 8 May 2021.

³⁶ Brendon J Cannon and Jacob Haji Ali, ‘Devolution in Kenya Four Years On: A Review of Implementation and Effects in Mandera County’ (2018) 8 *African Conflict and Peacebuilding Review* 1.

³⁷ Brendon J Cannon and Jacob Haji Ali, ‘Devolution in Kenya Four Years On: A Review of Implementation and Effects in Mandera County’ (2018) 8 *African Conflict and Peacebuilding Review* 1; George Nyabuga, ‘Devolved Power: A Critical Interrogation of the Place, Roles and Obligations of the Media at the Grassroots in Kenya’ (2017) 42 *Africa Development / Afrique et Développement* 105.

³⁸ Article 10, Constitution of Kenya 2010.

³⁹ Springer J, Campese J and Painter M, ‘Conservation and Human Rights: Key Issues and Contexts. Scoping Paper for the Conservation Initiative on Human Rights’ [2011] Unpublished report. Conservation Initiative on Human Rights Working Group, 7.

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bearer”⁴⁰ but also those of citizens as both “rights-holders” and “duty bearers”.⁴¹ Notably, human rights entail both rights and obligations, with States (duty bearers) assuming obligations and duties under international law to respect, to protect and to fulfill human rights (of rights holders), and at the individual level while we are entitled our human rights, we (and organisations) should also respect the human rights of others.⁴² Refraining from engaging in anthropogenic activities that adversely biological diversity is part of exercising this responsibility as such activities would negatively affect nature’s ability to meet the needs of other human beings, both current and in future.

1.3.1. Recognising a Human Right to Safe, Healthy and Sustainable Environment as a Basis for Sustainable Development

Over the years, human activities have posed a major threat to the earth’s natural processes which have been strained beyond limits, causing a major environmental crisis.⁴³ It is worth pointing out that when humans damage the environment, they diminish the quality of life-most immediately for those directly affected, and in the long term, for everyone.⁴⁴ This also affects the biological diversity relying on the affected environment for their survival. As such, environmental protection and human rights are believed to be interrelated, interconnected, and mutually responsive as both of them are directed towards securing the well-being of humanity, with safe and healthy environment being the pre-condition for the enjoyment of fundamental human rights.⁴⁵

⁴⁰ Article 69 (1), Constitution of Kenya, 2010.

⁴¹ Article 69 (2), Constitution of Kenya, 2010.

⁴² BirdLife International, ‘An Introduction to Conservation and Human Rights for BirdLife Partners’, 2.

⁴³ McClymonds JT, ‘Human Right to a Healthy Environment: An International Legal Perspective, The’ (1992) 37 New York Law School Law Review 583.

⁴⁴ Popovic NA, ‘In Pursuit of Environmental Human Rights: Commentary on the Draft Declaration of Principles on Human Rights and the Environment’ (1995) 27 Colum. Hum. Rts. L. Rev. 487.

⁴⁵ Pathak P, ‘Human Rights Approach to Environmental Protection’ (Social Science Research Network 2014) SSRN Scholarly Paper ID 2397197 <<https://papers.ssrn.com/abstract=2397197>> accessed 31 March 2021.

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The 1992 *United Nations Conference on Development and the Environment* was one of the first international efforts towards acknowledging development and environmental protection as complementary objectives.⁴⁶ Article 12(2) (b) of the *International Covenant on Economic, Social and Cultural Rights (ICESCR)*⁴⁷ requires states parties to improve 'all aspects of environmental and industrial hygiene'. Article 24 of the *African Charter on Human and Peoples' Rights*⁴⁸ provides that 'all peoples shall have the right to a general satisfactory environment favourable to their development.' These are just some of the few international and regional legal instruments on human rights that make reference to the need for a clean and healthy environment as a requisite for the achievement of the other human rights.

A new imperative of Sustainable Development demands that environmental considerations become fully integrated into the mainstream of economic decision-making.⁴⁹ Over the years, many countries around the world have recognised the right to clean and healthy environment in their national constitutions.⁵⁰ Kenya's Constitution recognises this right under Article 42 which provides that 'every person has the right to a clean and healthy environment, which includes the right – to have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69; and to have obligations relating to the environment fulfilled under Article 70'.⁵¹ Constitutionalisation of the human right to a clean and healthy environment and the principle of sustainable development under the 2010 Constitution of Kenya has been hailed as an important development in environmental law in

⁴⁶ Mink SD, 'Poverty, Population, and the Environment' [1993] World Bank discussion papers (USA).

⁴⁷ UN General Assembly, *International Covenant on Economic, Social and Cultural Rights*, 16 December 1966, United Nations, Treaty Series, vol. 993, p. 3.

⁴⁸ Organization of African Unity (OAU), *African Charter on Human and Peoples' Rights* ("Banjul Charter"), 27 June 1981, CAB/LEG/67/3 rev. 5, 21 I.L.M. 58 (1982).

⁴⁹ Mink SD, 'Poverty, Population, and the Environment' [1993] World Bank discussion papers (USA).

⁵⁰ Boyd DR, 'The Effectiveness of Constitutional Environmental Rights', *Paper for Yale UNITAR Workshop, on April* (2013);

⁵¹ Article 42, Constitution of Kenya 2010.

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Kenya, representing environmental constitutionalism and sustainability constitutionalism, respectively.⁵²

The proponents of constitutionalisation of environmental rights argue that the potential benefits of constitutional environmental rights include: stronger environmental laws and policies; improved implementation and enforcement; greater citizen participation in environmental decision-making; increased accountability; reduction in environmental injustices; a level playing field with social and economic rights; and better environmental performance.⁵³ On the other hand, those against the approach argue that constitutional environmental rights are: too vague to be useful; redundant because of existing human rights and environmental laws; a threat to democracy because they shift power from elected legislators to judges; not enforceable; likely to cause a flood of litigation; and likely to be ineffective.⁵⁴ Thus, the question is yet to be settled although an impressive number of countries have opted for this approach to environmental rights. It is estimated that since the right's first mention in the *Stockholm Declaration* in 1972 – a result of the first major environmental conference- more than 100 constitutions across the world have adopted a human right to a healthy environment, often serving as a powerful tool to protect the natural world.⁵⁵

Despite this initiative by several countries, there is still the contention over the actual status of the right to clean and healthy environment under the

⁵² Mwanza R, 'The Relationship between the Principle of Sustainable Development and the Human Right to a Clean and Healthy Environment in Kenya's Legal Context: An Appraisal' (2020) 22 *Environmental Law Review* 184.

⁵³ Boyd DR, 'The Effectiveness of Constitutional Environmental Rights', *Paper for Yale UNITAR Workshop, on April* (2013), 5.

⁵⁴ *Ibid.*

⁵⁵ Zimmer K, 'The Human Right That Benefits Nature' <<https://www.bbc.com/future/article/20210316-how-the-human-right-to-a-healthy-environment-helps-nature>> accessed 31 March 2021.

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international legal framework on human rights.⁵⁶ Indeed, few international agreements explicitly refer to environmental human rights.⁵⁷

The lack of explicit language on environmental rights in any international and/or national legal instrument has been associated with possible environmental degradation and lack of accountability as it may create a legal vacuum which allows the State to engage in a variety of forms of environmental mismanagement within a legal context that lack effective avenues for legal recourse.⁵⁸ This book makes a case for the need for express recognition of the human right to a safe, healthy and sustainable environment as an independent right under the international law, without necessarily tying anchoring it to the rest of the human rights, for ease of enforcement and demanding accountability from states for both international community as well as citizens.

1.3.2 Safe, Healthy and Sustainable Environment: The Elements

A safe, clean, healthy and sustainable environment is considered to be integral to the full enjoyment of a wide range of human rights, including the rights to life, health, food, water and sanitation.⁵⁹ Arguably, the human right to a healthy environment – encompassing clean and balanced ecosystems, rich biodiversity and a stable climate – recognises that nature is a keystone of a dignified human existence, in line with a wealth of scientific evidence linking human welfare and the natural world.⁶⁰ Thriving ecosystems are important for

⁵⁶ 'Legal Analysis: The Right to a Healthy Environment in Australia' (*Environmental Defenders Office*, 8 January 2020) <<https://www.edo.org.au/2020/01/09/right-to-healthy-environment-in-australia/>> accessed 31 March 2021.

⁵⁷ 'Appalachia Puts Environmental Human Rights to the Test' (*YES! Magazine*) <<https://www.yesmagazine.org/environment/2018/01/17/appalachia-puts-environmental-human-rights-to-the-test>> accessed 31 March 2021.

⁵⁸ Mwanza R, 'The Relationship between the Principle of Sustainable Development and the Human Right to a Clean and Healthy Environment in Kenya's Legal Context: An Appraisal' (2020) 22 *Environmental Law Review* 184.

⁵⁹ 'Dr. David R. Boyd' (*UN Special Rapporteur | on Human Rights and the Environment*) <<http://srenvironment.org/node/556>> accessed 30 March 2021.

⁶⁰ Zimmer K, 'The Human Right That Benefits Nature' <<https://www.bbc.com/future/article/20210316-how-the-human-right-to-a-healthy-environment-helps-nature>> accessed 31 March 2021.

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provision of clean water and air, yield seafood and pollinators, and soaking up greenhouse gases.⁶¹

The procedural elements of the right to clean, safe and healthy environment are access to information, public participation, and access to justice/effective remedies⁶² while the substantive elements include clean air, a safe climate, access to safe water and adequate sanitation, healthy and sustainably produced food, non-toxic environments in which to live, work, study and play, and healthy biodiversity and ecosystems.⁶³

The right to clean and healthy environment which is often classified as part of third-generation “solidarity” rights is seen as an important right for protecting people individually—a characteristic shared by all human rights—by imposing more effective obligations on governments and by providing individual remedies for environmental deprivations.⁶⁴ Collectively, just like all other ‘third-generation’ rights— the right to clean and healthy environment calls for collective action and cooperation from all persons in taking care of the environment.⁶⁵

The right to a healthy environment has been hailed by some scholars as capable of acting as a crucial legal pathway to protecting the natural world, both by encouraging governments to pass stronger environmental laws and allowing courts to hold violators accountable and this is especially so when installed into constitutions, where such rights are taken seriously by many judicial systems and become hard to undo, creating an enduring force counteracting the interests against protecting nature.⁶⁶ Notably, the right to a healthy

⁶¹ *Ibid.*

⁶² Knox JH, ‘Report of the Special Rapporteur on the Issue of Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment: Biodiversity Report’ [2017] United Nations Human Rights Council, A/HRC/34/49.

⁶³ *Ibid.*

⁶⁴ McClymonds JT, ‘Human Right to a Healthy Environment: An International Legal Perspective, The’ (1992) 37 New York Law School Law Review 583.

⁶⁵ *Ibid.*, 583.

⁶⁶ Katarina Zimmer, ‘The Human Right That Benefits Nature’ <<https://www.bbc.com/future/article/20210316-how-the-human-right-to-a-healthy-environment-helps-nature>> accessed 31 March 2021.

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environment requires governments to carry out the following obligations: to refrain from interfering directly or indirectly with the enjoyment of the right to a healthy environment; to prevent third parties such as corporations from interfering in any way with the enjoyment of the right to a healthy environment; and, to adopt the necessary measures to achieve the full realisation of the human right to a safe and healthy environment.⁶⁷

1.3.3 Place of Safe, Healthy and Sustainable Environment in the Sustainable Development Agenda

Arguably, human rights and the environment are intertwined; human rights cannot be enjoyed without a safe, clean and healthy environment; and sustainable environmental governance cannot exist without the establishment of and respect for human rights.⁶⁸ It has rightly been pointed out that nearly 92 percent of pollution-related deaths occur in low-income and middle-income countries where children face the highest risks because small exposures to chemicals in utero and in early childhood can result in lifelong disease, disability, premature death, as well as reduced learning and earning potential.⁶⁹

Notably, environmental rule of law is indispensable for ensuring just and sustainable development outcomes, and guaranteeing fundamental rights to a healthy environment, where the concept of environmental law includes the following elements: adequate and implementable laws, access to justice and information, inclusion and equity in public participation, accountability, transparency and liability for environmental damage, fair and just enforcement, and human rights.⁷⁰

⁶⁷ Ruppel, Oliver C., "Third-generation human rights and the protection of the environment in Namibia." *Human rights and the rule of law in Namibia*. Windhoek: Macmillan Education Namibia (2008): 101-120, 103.

⁶⁸ Environment UN, 'What Are Environmental Rights?' (*UNEP - UN Environment Programme*, 2 March 2018) <<http://www.unep.org/explore-topics/environmental-rights-and-governance/what-we-do/advancing-environmental-rights/what>> accessed 30 March 2021.

⁶⁹ 'Dr. David R. Boyd' (*UN Special Rapporteur | on Human Rights and the Environment*) <<http://srenvironment.org/node/556>> accessed 30 March 2021.

⁷⁰ 'Climate Change - A Comparative Overview of the Rights Based Approach in the Americas | InforMEA' <<https://www.informea.org/en/literature/climate-change-comparative-overview-rights-based-approach-americas>> accessed 1 April 2021.

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The *United Nations Sustainable Development Goals (SDGs)*⁷¹ are a set of 17 goals with 169 targets that all UN Member States have agreed to work towards achieving by the year 2030.⁷² These goals and targets are all designed around ensuring that the environment is not only well protected but also that the resultant ecosystem services are used in meeting the economic and social needs of the human beings, both current and future generations.⁷³ As such, a safe, healthy and sustainable environment is a central element of the sustainable development agenda. The SDGs framework consists of 17 goals for environmental sustainability, social inclusion, economic development, peace, justice, good governance and partnership.⁷⁴ As such, sustainable development is seen as one of the most important aspects and methods used to conserve natural resources, as it recognizes that growth must be both inclusive and environmentally sound to reduce poverty and also build prosperity for the present population in addition to meeting the needs of future generations.⁷⁵

1.3.4 Human Right to Safe, Healthy and Sustainable Environment: Prospects and Challenges

The human right to safe, healthy and sustainable environment is generally considered to be part of the environmental rights. Notably, environmental impacts on health are uneven across age and mostly affect the poor.⁷⁶ It has rightly been pointed out that although there is clear scientific consensus on the benefits of nature to people, the evolution of nature as a human right has been

⁷¹UN General Assembly, *Transforming our world: the 2030 Agenda for Sustainable Development*, 21 October 2015, A/RES/70/1.

⁷²'Sustainable Development Goals' <<https://www.who.int/westernpacific/health-topics/sustainable-development-goals>> accessed 1 April 2021.

⁷³ *Ibid.*

⁷⁴ 'Sustainable Development - an Overview | ScienceDirect Topics' <<https://www.sciencedirect.com/topics/earth-and-planetary-sciences/sustainable-development>> accessed 1 April 2021.

⁷⁵ Muralikrishna IV and Manickam V, 'Chapter Two - Sustainable Development' in Iyyanki V Muralikrishna and Valli Manickam (eds), *Environmental Management* (Butterworth-Heinemann 2017) <<https://www.sciencedirect.com/science/article/pii/B9780128119891000026>> accessed 1 April 2021.

⁷⁶ Mink SD, 'Poverty, Population, and the Environment' [1993] World Bank discussion papers (USA).

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remarkably patchy around the world with many Latin American countries forging ahead while Europe and North America lag somewhat behind.⁷⁷

Worth pointing out is the observation that the elements of the right to a healthy environment, such as a safe climate and healthy biodiversity and ecosystems, are facing complex and systemic challenges that affect all people and living beings.⁷⁸ While there is no doubt on the important role played by the environment in supporting all life on the earth, progress towards recognising the human right to safe, healthy and sustainable development as a fully-fledged right under the international law has been slow and instead has been replaced with the 'greening' of human rights, such as the right to life and right to property, as people increasingly recognise how environmental degradation affects the ability to enjoy these rights.⁷⁹

As things currently stand, the Office of the High Commissioner on Human Rights emphasizes that "while the universal human rights treaties do not refer to a specific right to a safe and healthy environment, the United Nations human rights treaty bodies all recognize the intrinsic link between the environment and the realization of a range of human rights, such as the right to life, to health, to food, to water, and to housing."⁸⁰

The main contention between those in support and those against the full recognition of the right to safe and healthy environment as an independent

⁷⁷ Katarina Zimmer, 'The Human Right That Benefits Nature' <<https://www.bbc.com/future/article/20210316-how-the-human-right-to-a-healthy-environment-helps-nature>> accessed 31 March 2021.

⁷⁸ Ituarte-Lima C, 'I Thriving in the Anthropocene: Why the Human Right to a Healthy Environment', 20 < <https://elearning.rwi.or.id/storage/app/media/uploaded-files/i-ituarte-lima-c-thriving-in-the-anthropocene-why-the-human-right-to-a-healthy-environment-2020.pdf>> 30 March 2021.

⁷⁹ Ituarte-Lima C, 'I Thriving in the Anthropocene: Why the Human Right to a Healthy Environment', 27 < <https://elearning.rwi.or.id/storage/app/media/uploaded-files/i-ituarte-lima-c-thriving-in-the-anthropocene-why-the-human-right-to-a-healthy-environment-2020.pdf>> 30 March 2021.

⁸⁰ Boyle, Alan, "Human rights and international environmental law: Some current problems," *Электронный ресурс*.-Режим доступа: <http://www.eui.eu/Documents/DepartmentsCentres/Law/ResearchTeaching/WorkingGroups/08-03-HumanRights.pdf> (дата обращения: 10.04. 2014 г.) (2011).

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human right lies between anthropocentrism and ecocentrism approaches to conservation, where anthropocentrism means that the whole universe revolves around the interests of human-kind and that all human activities are human-centred, while ecocentrism is a collection of views that is theoretically in contrast with anthropocentrism.⁸¹ The debate between the two groups is informed by three approaches in relation to the relationship between human rights and environmental protection which are as follows: the first approach is one where environmental protection is seen as a possible means of fulfilling human rights standards, that is, the end is fulfilling human rights, and the route is through environmental law; the second approach states that 'the legal protection of human rights is an effective means to achieving the ends of conservation and environmental protection (greening of existing human rights); and the third approach to the question of 'human rights and the environment' is to deny the existence of any formal connection between the two at all, that is, with the growth and development of international environmental law as well as internationalization of domestic environments of states, it is unnecessary to have a separate human right to a decent environment.⁸² Thus, the debate is about either 'greening' of existing human rights law or the addition of new rights to existing treaties.⁸³ Some scholars, however, believe that environmental law, in absence of hard law documents, appears to be lagging in dealing with emerging environmental problems.⁸⁴ It is worth pointing out that while there are a number of international legal instruments that recognise the need for clean and healthy environment as a prerequisite for enjoyment of other rights, these references relating to the environment are attached to a particular issue and do not recognise the human right to a quality environment as an independent right.⁸⁵ This lack of consensus among the different stakeholders thus means that the world might have to wait a little longer to attain consensus and move the United Nations to finally

⁸¹ Leib LH, 'Historical and Philosophical Underpinnings of the Environmental Movement', *Human Rights and the Environment* (Brill 2011), 12 <<https://www.jstor.org/stable/10.1163/j.ctt1w8h1t2.5>> accessed 1 April 2021.

⁸² Pathak P, 'Human Rights Approach to Environmental Protection' (Social Science Research Network 2014) SSRN Scholarly Paper ID 2397197, 18-19 <<https://papers.ssrn.com/abstract=2397197>> accessed 1 April 2021.

⁸³ *Ibid*, 19.

⁸⁴ *Ibid*, 19.

⁸⁵ *Ibid*, 20.

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recognise the right to a safe, healthy and sustainable environment as an independent right capable of being enforced without necessarily treating its importance as inherently linked to the realisation of other rights. That is, recognising the right would move it from being treated as a means to an end to an end in itself.

1.3.5 Recognising a Human Right to Safe, Healthy and Sustainable Environment

A safe, clean, healthy and sustainable environment is now treated as an integral element to the full enjoyment of a wide range of human rights, including the rights to life, health, food, water and sanitation.⁸⁶ As already pointed out, while countries around the world have continually acknowledged and entrenched environmental rights into their national constitutions, there are few international legal instruments that expressly recognise the right to clean and healthy environment. As a result, there have been a strong call for the recognition of the right to a healthy environment in a global instrument such as a resolution by the General Assembly by various actors including current UN Special Rapporteur on Human Rights and Environment, although this is yet to be acted upon.⁸⁷

In order to ensure that the victims of environmental degradation are protected by the laws and mechanisms established to address human rights abuses, it has been suggested that efforts aimed at natural resource preservation should also incorporate measures aimed at addressing human impacts of environmental abuse.⁸⁸ In addition, it has been argued that linking human rights with the environment creates a rights-based approach to environmental protection that places the people harmed by environmental degradation at its centre.⁸⁹

⁸⁶ 'Dr. David R. Boyd' (*UN Special Rapporteur | on Human Rights and the Environment*) <<http://srenvironment.org/node/556>> accessed 31 March 2021.

⁸⁷ 'OHCHR | Right to a Healthy and Sustainable Environment' <<https://www.ohchr.org/EN/Issues/Environment/SREnvironment/Pages/HealthySustainable.aspx>> accessed 1 April 2021.

⁸⁸ Pathak P, 'Human Rights Approach to Environmental Protection' (Social Science Research Network 2014) SSRN Scholarly Paper ID 2397197, 17 <<https://papers.ssrn.com/abstract=2397197>> accessed 30 July 2021.

⁸⁹ *Ibid*, 17.

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Furthermore, it has been suggested that articulating the fundamental rights of peoples with respect to the environment creates the opportunity to secure those rights through human rights bodies in an international forum as well as the national tribunals.⁹⁰ Kenya has notably made steps in the right direction as far as recognising the justiciable nature of the right to clean and healthy environment is concerned.⁹¹ For now, it seems that the only way to ensure that the right to safe and healthy environment is justiciable is through domestic initiatives, where governments include the right to clean and healthy environment under in their countries' constitutions.⁹² There is a need for stakeholders to continually engage and encourage countries to adopt as a human right a safe, healthy and sustainable environment in their constitutions and/or statutes, as a step towards achieving global consensus on the same for the ultimate goal of an international legal instrument on the same.

1.4. Linking Environmental Democracy and Biodiversity Conservation

Notably, the close relationship between environmentalism and liberal democracy are now internationally recognised in a range of international declarations and agreements which include: principle 10 of the 1992 Rio Declaration which calls for access to environmental information, public participation in decision-making, and access to justice on environmental matters; in the *Aarhus Convention on Access to Information, Public Participation in Decision-Making, and Access to Justice in Environmental Matters 1998*; in the *United Nations Environment Program's Bali Guidelines* (UNEP 2010) and the *Environmental Democracy Index* (DICE Database 2016), an online platform that tracks and compares the state performance according to a set of indicators based on access to environmental information, the right to participate in

⁹⁰ *Ibid*, 17.

⁹¹ See *Peter K. Waweru v Republic* [2006] eKLR, Mis.Civ1 Appli.No. 118 OF 2004; *Mohamed Ali Baadi and others v Attorney General & 11 others* [2018] eKLR, Petition 22 of 2012; *Save Lamu & 5 others v National Environmental Management Authority (NEMA) & Another*, Tribunal Appeal No. NET 196 of 2016, (2019) eKLR.

⁹² Mwanza R, 'The Relationship between the Principle of Sustainable Development and the Human Right to a Clean and Healthy Environment in Kenya's Legal Context: An Appraisal' (2020) 22 *Environmental Law Review* 184; Schiel R, Langford M and Wilson B, 'Does It Matter? Constitutionalisation, Democratic Governance, and the Right to Water' (2020) 12 *Water* 350; Boyd DR, 'The Status of Constitutional Protection for the Environment in Other Nations' [2014] David Suzuki Foundation 4.

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decision-making, and the right to seek enforcement of environmental laws and/or compensation and redress for environmental harm.⁹³

Several commentators have made attempts at linking democracy and biodiversity conservation. One such commentator argues that 'national political institutions constitute an important arena for biodiversity conservation' since 'the national management of biodiversity is part of decision-making in the political system, where variation in the political institutions (i.e. being more or less democratic) that structure the selection of decision-makers, and the processes of decision-making, should be expected to impact the success of biodiversity conservation across countries.⁹⁴ The impact of political institutions on biodiversity conservation is pegged on the fact 'national governments are the main actors responsible for mapping and protecting their biodiversity, but countries differ in their capacity, willingness, and effectiveness to do so'.⁹⁵

It has rightly been pointed out that 'proponents of Environmental Democracy are friendly critics of liberal democracy who seek to work with, and revitalise, the norms and institutions of liberal democracy to bring about environmental change. They seek greater transparency and accountability of policymakers to publics, including neglected communities suffering environmental injustices. They seek to make the most of the civil and political rights that are protected in liberal democracies by fostering greater public awareness of ecological problems and their consequences, greater public engagement and participation in environmental policy- and rule-making in all branches of government, including the courts'.⁹⁶

⁹³ Eckersley R, 'Ecological Democracy and the Rise and Decline of Liberal Democracy: Looking Back, Looking Forward' (2020) 29 Environmental Politics 214.

⁹⁴ Rydén, O., Zizka, A., Jagers, S. C., Lindberg, S. I., & Antonelli, A., 'Linking Democracy and Biodiversity Conservation: Empirical Evidence and Research Gaps' (2020) 49 Ambio 419.

⁹⁵ Klein, J., Aronsson, H., Perrigo, A., Silvestro, D., Jagers, S. C., Lindberg, S. I., & Antonelli, A., 'Exploring the Impact of Political Regimes on Biodiversity' (2020) 98 V-Dem Working Paper.

⁹⁶ Eckersley R, 'Ecological Democracy and the Rise and Decline of Liberal Democracy: Looking Back, Looking Forward' (2020) 29 Environmental Politics 214.

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In the Kenyan case of *Mohamed Ali Baadi and others v Attorney General & 11 others* [2018] eKLR⁹⁷, a four-judge High Court bench pointed out the following in relation to the concept of Environmental Democracy:

109. In addition to the above, one of the issues implicated in this Petition is what is now generally recognized *minimum requirements for existence of Environmental Democracy, namely, "the tripartite of the so-called access rights in environmental matters, namely, (a) access to information, (b) participation in decision-making, and (c) access to justice."*^[53] *These three access rights have the common denominator that they empower individuals to have a meaningful voice in decisions that affect them and their development. The Constitution of Kenya and Environmental Law recognizes these three access rights.*

110. As pointed out later in this judgment, the above rights are also intertwined in that achievement and application of each impact on realization of the others. For instance, access to information ensures that all persons who choose to participate in environmental decision-making are equipped with the necessary, or at least, basic facts about quality of their environment and their legitimate expectation on the same.^[54]

111. Thus, violation of rights to a clean and healthy environment can easily lead to the violation of other rights in the Bill of Rights such as the right to life. Yet, the determination of violations or threats of violation of any rights in the Bill of Rights undoubtedly falls within the province of this Court.

112. It is also correct to state that Environmental Law has been described as Administrative Law in action,^[55] for the reason that environmental conflicts often depend on the exercise of administrative decision-making powers. Such powers, if not properly exercised can be challenged by way of a Constitutional petition which is also within the jurisdiction of this Court.

⁹⁷ *Mohamed Ali Baadi and others v Attorney General & 11 others* [2018] eKLR, Petition 22 of 2012.

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113. Where such failures occur, the citizens have a right to move to Court to seek appropriate reliefs such as prohibition, *mandamus*, *certiorari*, declaration of unconstitutionality, Judicial Review, or otherwise of the challenged decisions, damages or any other relief that the Court may deem just and appropriate.

.....

215. It may be tempting to ask why the law and indeed the Constitution generally imposes this duty of public participation yet the State is generally a government for and by the people. The people elect their representative and also participate in the appointment of most, if not all public officers nowadays. The answer is, however, not very far. Our democracy contains both representative as well as participatory elements which are not mutually exclusive but supportive of one another. The support is obtained even from that singular individual.

216. We also have no doubt that our local jurisprudence deals at length with why the Constitution and statute law have imposed the obligation of public participation in most spheres of governance and generally we take the view that it would be contrary to a person's dignity (see Article 28) to be denied this constitutional and statutory right of public participation.

The foregoing excerpt cements the importance of fostering Environmental Democracy as a step towards achieving biodiversity conservation, and ultimately demonstrates the important role that [environmental] human rights can play in achieving biodiversity conservation.

The link between Environmental Democracy and biodiversity conservation has also been said to be important in poverty eradication and the preamble of the CBD indeed acknowledges that "economic and social development and poverty eradication are the first and overriding priorities of developing countries" (United Nations 1993).⁹⁸ While there are still contentions on the nature of the links between the biodiversity conservation and poverty

⁹⁸ Roe, Dilys, "Linking biodiversity conservation and poverty alleviation: a state of knowledge review." *CBD Technical Series* 55 (2010), 9
< <https://www.cabdirect.org/cabdirect/abstract/20103329917>> Accessed 30 July 2021.

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alleviation, what is clear, however, is that if biodiversity and ecosystem services continue to be depleted, their potential to not only contribute to poverty alleviation but also act as a safety net for the poor especially in rural areas will be greatly affected.⁹⁹

1.5. Conclusion

Arguably, recognising the human right to a healthy environment will go a long way in protecting people and nature, as well as ensuring that there are conducive conditions for continued Sustainable Development and prosperity, leaving no one behind.¹⁰⁰ While many countries including Kenya, have made impressive steps towards the recognition and enforcement of the human right to a safe, healthy and sustainable environment, there is still no global consensus on the need to recognise it as an independent right without necessarily anchoring it on the other basic human rights. Such recognition will achieve the dual goal of protecting the environment through ecocentric approaches as well as ensuring that enforcement and accountability of governments and private persons are guaranteed.

Conservation of biodiversity and natural resources can help create environments that provide sustainable supplies of the goods and services

⁹⁹ Roe, Dilys, "Linking biodiversity conservation and poverty alleviation: a state of knowledge review." *CBD Technical Series* 55 (2010), 13,49; Adams WM and Hutton J, 'People, Parks and Poverty: Political Ecology and Biodiversity Conservation' (2007) 5 *Conservation and Society* 147; Suich H, Howe C and Mace G, 'Ecosystem Services and Poverty Alleviation: A Review of the Empirical Links' (2015) 12 *Ecosystem Services* 137; Adams W and others, 'Biodiversity Conservation and the Eradication of Poverty' (2004) 306 *Science* (New York, N.Y.) 1146; Billé R, Lapeyre R and Pirard R, 'Biodiversity Conservation and Poverty Alleviation: A Way out of the Deadlock?' [2012] S.A.P.I.E.N.S. *Surveys and Perspectives Integrating Environment and Society* <<https://journals.openedition.org/sapiens/1452>> accessed 15 September 2021; Barrett CB, Travis AJ and Dasgupta P, 'On Biodiversity Conservation and Poverty Traps' (2011) 108 *Proceedings of the National Academy of Sciences of the United States of America* 13907.

¹⁰⁰ Ituarte-Lima C, 'I Thriving in the Anthropocene: Why the Human Right to a Healthy Environment', 18 < <https://elearning.rwi.or.id/storage/app/media/uploaded-files/i-ituarte-lima-c-thriving-in-the-anthropocene-why-the-human-right-to-a-healthy-environment-2020.pdf>> 30 March 2021.

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necessary for healthy, fulfilled and dignified lives – helping to fulfil people’s right to development and to life and livelihood.¹⁰¹

¹⁰¹ BirdLife International, ‘An Introduction to Conservation and Human Rights for BirdLife Partners’, 2.

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2.1. Introduction

It has rightly been observed that while 'biodiversity can be greatly enhanced by human activities, it can also be adversely impacted by such activities due to unsustainable use or by more profound causes linked to our development models'.¹ This is despite the fact that biodiversity is considered to be very important for sustenance of all forms of life on earth.² It is worth acknowledging that biodiversity is essential not only to the proper functioning of earth systems; it is also key to the delivery of those ecosystem services that are crucial to human dignity and well-being including: the provision of potable water, food and fibers; soil fertility; maintenance of the 'genetic library of biodiversity' – an irreplaceable source of new innovations, pharmaceuticals and chemicals; and climate regulation – among others.³ The concept of ecosystem services was inspired by the desire to give an economic assessment of these functions thus leading to the appearance of the concept of ecosystem services, that is, consideration with regard to their usefulness for humans.⁴ Arguably, ecosystem services are divided into four categories namely: provisioning services refer to natural products that are directly used by humans for food, clothing, medicines, tools, or other uses; cultural services

¹ 'Conserving Biodiversity for Life and Sustainable Development | United Nations Educational, Scientific and Cultural Organization' <http://www.unesco.org/new/en/media-services/single-view/news/conserving_biodiversity_for_life_and_sustainable_development/> accessed 29 July 2021; 'Threats to Biodiversity – Biodiversity Clearing House Mechanism' <<http://meas.nema.go.ke/cbdchm/major-threats/>> accessed 31 July 2021.

² Dmitrii Pavlov and Elena Bukvareva, 'Biodiversity and Life Support of Humankind' (2007) 77 *Herald of the Russian Academy of Sciences* 550.

³ 'Conserving Biodiversity for Life and Sustainable Development | United Nations Educational, Scientific and Cultural Organization' <http://www.unesco.org/new/en/media-services/single-view/news/conserving_biodiversity_for_life_and_sustainable_development/> accessed 29 July 2021.

⁴ Dmitrii Pavlov and Elena Bukvareva, 'Biodiversity and Life Support of Humankind' (2007) 77 *Herald of the Russian Academy of Sciences* 550, 551.

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provide recreational opportunities, inspiration for art and music, and spiritual value; regulating services include pest control and carcass removal; and supporting services, such as pollination, seed dispersal, water purification, and nutrient cycling, provide processes essential for ecological communities and agricultural ecosystems.⁵

It is against this background that this chapter discusses approaches to biodiversity conservation due to the important role of biodiversity in ensuring that the sustainable development agenda is achieved for the sake of current and future generations. The concept of sustainable development seeks to strike a balance between using ecosystem services to improve human lives and the need to ensure that the environment can comfortably replenish itself, that is, based on the ecocentric approaches to conservation against the anthropocentric approaches only.⁶

Scholars identify three forms of biodiversity such as alpha (genetic diversity), beta (species richness) and gamma (ecological diversity) and the services that accrue from biodiversity include materialistic gains, ecological services (flood

⁵ Wenny, D.G., Devault, T.L., Johnson, M.D., Kelly, D., Sekercioglu, C.H., Tomback, D.F. and Whelan, C.J., 'The Need to Quantify Ecosystem Services Provided by Birds' (2011) 128 *The Auk* 1.

⁶ Louis J Kotzé and Duncan French, 'The Anthropocentric Ontology of International Environmental Law and the Sustainable Development Goals: Towards an Ecocentric Rule of Law in the Anthropocene' (2018) 7 *Global Journal of Comparative Law* 5; 'Putting Ecosystems into the SDGs' (*Water, Land and Ecosystems*, 9 October 2015) <<https://wle.cgiar.org/news/putting-ecosystems-sdgs>> accessed 3 June 2021; Bullock, C. H. "Nature's values: From intrinsic to instrumental. A review of values and valuation methodologies in the context of ecosystem services and natural capital." *National Economic and Social Council* 10 (2017); 'Striking a Balance between Conservation and Development' (UNEP, 13 May 2019) <<http://www.unep.org/news-and-stories/story/striking-balance-between-conservation-and-development>> accessed 3 June 2021; McCartney, M., Finlayson, M., de Silva, S., Amerasinghe, P., & Smakhtin, V., 'Sustainable Development and Ecosystem Services' (2014); Rülke, J., Rieckmann, M., Nzau, J. M., & Teucher, M., 'How Ecocentrism and Anthropocentrism Influence Human-Environment Relationships in a Kenyan Biodiversity Hotspot' (2020) 12 *Sustainability* 8213.

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control, climate maintenance, and nutrient cycling), and non-materialistic benefits such as recreation.⁷

2.2. Biodiversity: Definition and Scope

Notably, *Biodiversity*, a contraction of the phrase "biological diversity," can be traced to the first usage by Walter G. Rosen during a planning meeting for the 1986 National Forum on Biodiversity held in Washington, DC, while the first appearance of the word in the print literature likely occurred with the 1988 publication of the proceedings of the said conference.⁸

The Convention on Biological Diversity defines 'biodiversity' to mean "the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems".⁹

United Nations Educational, Scientific and Cultural Organization (UNESCO) defines 'biodiversity' as the diversity of all living forms at different levels of complexity: genes, species, ecosystems and even landscapes and seascapes.¹⁰ Biological diversity or biodiversity has also been defined as the variety of the planet's living organisms and their interactions.¹¹ The term is meant to

⁷Tamanna Kumari, Pinky Deswal and Vineeta Shukla, 'Approaches to Biodiversity Conservation In India', February 2021

<https://www.researchgate.net/publication/349338888_APPROACHES_TO_BIODIVERSITY_CONSERVATION_IN_INDIA> accessed 11 July 2021.

⁸ John Creech, 'Biodiversity Web Resources' <<http://www.istl.org/12-fall/internet.html>> accessed 29 July 2021; David L Hawksworth and Royal Society (Great Britain), *Biodiversity: Measurement and Estimation* (Springer Science & Business Media 1995).

⁹ Article 2, Convention on Biological Diversity.

¹⁰ United Nations Educational, Scientific and Cultural Organization, 'Conserving Biodiversity for Life and Sustainable Development | United Nations Educational, Scientific and Cultural Organization' <http://www.unesco.org/new/en/media-services/singleview/news/conserving_biodiversity_for_life_and_sustainable_development/> accessed 29 July 2021.

¹¹ Wes Sechrest and Thomas Brooks, 'Biodiversity - Threats' (2002).

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encompass all of life's variation, expressed in genes, individuals, populations, species, communities and ecosystems.¹²

A broader definition of 'biodiversity' has been propounded as referring to three dimensions within which variability occurs: *genetic*, meaning the variation of genes within a species, sub-species or population; *population/species*, meaning the variation between living species and their component populations at different spatial scales (local, regional or global); and *community/ecosystem*, meaning the variation within ecological complexes of which species are a part.¹³

These definitions are relevant especially in the context of Sustainable Development debate as they reflect the important role that biological diversity can and indeed plays in meeting the essentials of realising Sustainable Development goals such as food security, alleviating poverty, among others.¹⁴ The World Bank argues that while biodiversity provides many instrumental benefits, from food and fuel to recreation, even where biodiversity is not immediately instrumental, it represents global public goods that must be protected, if only for their potential value in the future.¹⁵

¹² *Ibid*, 1; see also Matta, G., Bhadauriya, G., & Singh, V., "Biodiversity and Sustainable Development: A Review." *Fecundity of fresh water prawn Macrobrachium Assamense Penensularae from Khoh River, India*: 72.

¹³ Roe, Dilys, "Linking biodiversity conservation and poverty alleviation: a state of knowledge review." *CBD Technical Series* 55 (2010), 13.

¹⁴ Måns Nilsson, 'Biodiversity's Contributions to Sustainable Development' [2019] Nature Sustainability <<https://www.sei.org/publications/biodiversity-contributions-sustainable-development/>> accessed 3 June 2021; Gagan Matta, Gaurav Bhadauriya and Vikas Singh, 'Biodiversity and Sustainable Development: A Review' *Fecundity of fresh water prawn Macrobrachium Assamense Penensularae from Khoh River, India* 72.

¹⁵ Sobrevila, Claudia; Hickey, Valerie, *The Role of Biodiversity and Ecosystems in Sustainable Development. 2010 Environment Strategy Analytical Background Papers*; World Bank, Washington, DC. © World Bank, 2010. <https://openknowledge.worldbank.org/handle/10986/27584> License: CC BY 3.0 IGO< accessed 29 July 2021.

2.3. General Approaches to Biodiversity Conservation

There are mainly two approaches to biological diversity conservation, namely: in-situ and ex-situ conservation. There is also the Ecosystem Services Approaches for Biodiversity Conservation. Notably, over the past century a wide range of different conservation-oriented approaches have been enacted, from local and regional scale activities, such as protected area establishment, ex-situ conservation, recovery planning for species and ecosystems, specific threat management (e.g. disease, fire), and biodiversity off-sets, to global scale inter-governmental policy developments such as the *Convention on Biological Diversity* (CBD) and *the Convention on International Trade on Endangered Species* (CITES), all approaches based on multiple values of biodiversity, including those values not related to humans.¹⁶

2.3.1 In-situ Biodiversity Conservation

In situ conservation is defined as the on-site conservation of genetic resources in natural populations of plants or animal species such as forest genetic resources, in natural populations of tree and animal species.¹⁷ The *Convention on Biological Diversity* 1992 defines it to mean ‘the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties’.¹⁸ Notably, Article 8 of the Convention on Biological Diversity (CBD) specifies in-situ conservation as the primary conservation strategy, and states that ex-situ measures should play a supportive role to reach conservation targets.¹⁹ Article 8 of CBD provides that in order to promote in-situ conservation, each Contracting Party shall, as far as possible and as

¹⁶ Ingram JC, Redford KH and Watson JEM, ‘Applying Ecosystem Services Approaches for Biodiversity Conservation: Benefits and Challenges’ [2012] S.A.P.I.E.N.S. Surveys and Perspectives Integrating Environment and Society <<https://journals.openedition.org/sapiens/1459>> accessed 12 September 2021.

¹⁷ Ajayi SS, ‘Chapter 9 - Principles for the Management of Protected Areas’ in SS Ajayi (ed), *Wildlife Conservation in Africa* (Academic Press 2019) <<https://www.sciencedirect.com/science/article/pii/B9780128169629000090>> accessed 12 September 2021.

¹⁸ Article 2, *Convention on Biological Diversity* (CBD) 1992.

¹⁹ ‘In-Situ Conservation Definition| Biodiversity A-Z’ <<https://biodiversitya-z.org/content/in-situ-conservation>> accessed 12 September 2021.

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appropriate: (a) Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity; (b) Develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity; (c) Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use; (d) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings; (e) Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas; (f) Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies; (g) Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity, taking also into account the risks to human health; (h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species; (i) Endeavour to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and the sustainable use of its components; (j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices; (k) Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations; (l) Where a significant adverse effect on biological diversity has been determined pursuant to Article 7, regulate or manage the relevant processes and categories of activities; and (m) Cooperate in providing financial and other support for in-situ conservation outlined in subparagraphs (a) to (l) above, particularly to developing countries.

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In-situ initiatives beyond protected areas may thus include: habitat restoration, recovery or rehabilitation; strategies for the sustainable use and management of biological resources; recovery programmes for nationally or sub-nationally threatened or endangered wild species; on-farm agricultural biodiversity conservation targeted at traditional crop varieties and crop wild relatives; genetic reserve conservation, that is, monitoring of genetic diversity in natural wild populations within a delineated area (known as genetic sanctuaries or gene management zones); control of threats to biodiversity such as invasive alien species, living modified organisms or over exploitation; preservation and maintenance of traditional knowledge and practices; and implementation of the regulatory, legislation, management or other frameworks needed to deliver the protection of species or habitats.²⁰

Some commentators have observed that while agriculture and protected areas are sometimes seen as opposite ends of a spectrum, in fact, they can play important complementary roles, especially when the protected areas are managed in ways explicitly designed to support agricultural development.²¹ Notably, in situ conservation of wild relatives and forest tree resources focuses on responding to the drivers and pressures that threaten the natural populations so as to maintain the genetic diversity and geographic range of species, thereby maximizing their potential to respond to natural or human-made environmental change.²²

2.3.2 Ex-situ Conservation

Ex situ conservation is defined as the relocation of endangered or rare species from their natural habitats to protected areas equipped for their protection and preservation, as an essential alternative strategy when in situ conservation is

²⁰ Ibid.

²¹ 'The Role of Protected Areas for Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture - Jeffrey A. McNeely' <https://www.biodiversityinternational.org/fileadmin/biodiversity/publications/Web_version/62/ch07.htm> accessed 12 September 2021.

²² Bellon, M.R., Dulloo, E., Sardos, J., Thormann, I. and Burdon, J.J., 'In Situ Conservation – Harnessing Natural and Human-Derived Evolutionary Forces to Ensure Future Crop Adaptation' (2017) 10 *Evolutionary Applications* 965.

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inadequate.²³ The *Convention on Biological Diversity* 1992 defines "ex-situ conservation" to mean the conservation of components of biological diversity outside their natural habitats.²⁴ Ex-situ conservation involves maintenance and breeding of endangered plants and animals under partially or wholly controlled conditions in specific areas including zoo, gardens, nurseries, etc.

That is, the conservation of selected plants and animals in selected areas outside their natural habitat is known as ex-situ conservation.²⁵ Article 9 of CBD provides for ex-situ conservation and states that: each Contracting Party shall, as far as possible and as appropriate, and predominantly for the purpose of complementing in-situ measures: (a) Adopt measures for the ex-situ conservation of components of biological diversity, preferably in the country of origin of such components; (b) Establish and maintain facilities for ex-situ conservation of and research on plants, animals and micro-organisms, preferably in the country of origin of genetic resources; (c) Adopt measures for the recovery and rehabilitation of threatened species and for their reintroduction into their natural habitats under appropriate conditions; (d) Regulate and manage collection of biological resources from natural habitats for ex-situ conservation purposes so as not to threaten ecosystems and in-situ populations of species, except where special temporary ex-situ measures are required under subparagraph (c) above; and (e) Cooperate in providing financial and other support for ex-situ conservation outlined in subparagraphs (a) to (d) above and in the establishment and maintenance of ex-situ conservation facilities in developing countries.

²³ Ajayi SS, 'Chapter 9 - Principles for the Management of Protected Areas' in SS Ajayi (ed), *Wildlife Conservation in Africa* (Academic Press 2019)
<<https://www.sciencedirect.com/science/article/pii/B9780128169629000090>>
accessed 12 September 2021.

²⁴ Article 2, *Convention on Biological Diversity* (CBD) 1992.

²⁵ Jaisankar I, Velmurugan A and Sivaperuman C, 'Chapter 19 - Biodiversity Conservation: Issues and Strategies for the Tropical Islands' in Chandrakasan Sivaperuman and others (eds), *Biodiversity and Climate Change Adaptation in Tropical Islands* (Academic Press 2018)

<<https://www.sciencedirect.com/science/article/pii/B9780128130643000193>>
accessed 12 September 2021.

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It has been observed that during recent years, dramatic progress has been made with the development of new conservation techniques for non-orthodox and vegetatively propagated species, and the current ex situ conservation concepts should be modified accordingly to accommodate these technological advances.²⁶ However, it is suggested that considering the fact that the requirements for optimal conservation vary from species to species, as well as the available infrastructural and human resources, it is important to consider all these aspects as well as the wider socio-economic conditions under which a given conservation effort takes place when deciding how to optimize these parameters into the conservation strategy.²⁷

2.3.3. Ecosystem Services Approaches for Biodiversity Conservation

Notably, ecosystem services as a concept and framework for understanding the way in which nature benefits people has led to a suite of approaches that are increasingly being used to support sustainable management of biodiversity and ecosystems.²⁸ While the ecosystem approach is a well-established strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way, the Ecosystem Services Approach (ESA) takes this strategy one step further, and through the inclusion of ecosystem services ensures that the complex relationships between nature and humans are more clearly understood and explicitly included.²⁹ Ecosystem-based management, with a primary focus on ecosystem services, is seen as a viable approach as it can also help broaden constituencies and influence decision-making to support conservation, as an integrated approach to natural resource management that considers the entire ecosystem, including humans, and has the goal of “maintaining an ecosystem in a healthy,

²⁶ Engelmann F and Engels JMM, ‘Technologies and Strategies for Ex Situ Conservation’ [2002] *Managing plant genetic diversity* 89, 99.

²⁷ *Ibid*, 100.

²⁸ Ingram, J.C., Redford, K.H. and Watson, J.E., ‘Applying Ecosystem Services Approaches for Biodiversity Conservation: Benefits and Challenges’ [2012] *SAPI EN. S. Surveys and Perspectives Integrating Environment and Society*.

²⁹ Beaumont NJ, Mongrue R and Hooper T, ‘Practical Application of the Ecosystem Service Approach (ESA): Lessons Learned and Recommendations for the Future’ (2017) *13 International Journal of Biodiversity Science, Ecosystem Services & Management* 68.

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productive and resilient condition so that it can provide the services humans want and need”.³⁰

An Ecosystem Services Approach (ESA) has been associated with four common characteristics: (1) ecosystem services are valued on the basis of their benefits to humans; (2) ecosystem services are underpinned by ecosystem processes and this relationship is made explicit; (3) the approach requires interdisciplinary collaboration and stakeholder engagement at multiple scales; and (4) the outcomes of the approach can be incorporated into environmental policy and management decisions.³¹

The new opportunities that ecosystem services approaches provide for biodiversity conservation include: the development of broader constituencies for conservation and expanded possibilities to influence decision-making; opportunities to add or create new value to protected areas; and the opportunities to manage ecosystems sustainably outside of protected areas.³² The main concern, however, despite the increasing adoption of ecosystem services as a framework and suite of tools by the conservation community, regard the application and efficacy of these approaches for conserving all of the components of biodiversity that the conservation community is charged with protecting. This is because at their core, ecosystem services approaches prioritize those processes that contribute to human wellbeing; very different from a biodiversity conservation approach, which is concerned with identifying conservation management actions to promote the persistence of all biodiversity, including species or ecosystems that do not have an identified

³⁰ Ingram, J.C., Redford, K.H. and Watson, J.E., ‘Applying Ecosystem Services Approaches for Biodiversity Conservation: Benefits and Challenges’ [2012] SAPI EN. S. Surveys and Perspectives Integrating Environment and Society, 4.

³¹ Beaumont NJ, Mongrue R and Hooper T, ‘Practical Application of the Ecosystem Service Approach (ESA): Lessons Learned and Recommendations for the Future’ (2017) 13 International Journal of Biodiversity Science, Ecosystem Services & Management 68.

³²Ingram, J.C., Redford, K.H. and Watson, J.E., ‘Applying Ecosystem Services Approaches for Biodiversity Conservation: Benefits and Challenges’ [2012] SAPI EN. S. Surveys and Perspectives Integrating Environment and Society, 3.

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value for humans.³³ Thus, it is suggested that when utilising ecosystem services approaches for conservation, planners and managers must be realistic and recognise that these approaches are not all-encompassing and there are going to be gap species, ecosystems, and ecological processes whose conservation will require tools tailored to address those issues.³⁴

2.4. Overview of the Convention on Biological Diversity

The Convention on Biological Diversity (CBD) is the first global agreement to cover all aspects of biological diversity: the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding,³⁵ and the same was signed at the Earth Summit in Rio de Janeiro, Brazil, in 1992 and entered into force on 29 December 1993.³⁶

The main principle that guides the application of CBD is that 'States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.'³⁷

³³ Ingram, J.C., Redford, K.H. and Watson, J.E., 'Applying Ecosystem Services Approaches for Biodiversity Conservation: Benefits and Challenges' [2012] SAPI EN. S. Surveys and Perspectives Integrating Environment and Society, 5; Reyers B and others, 'Finding Common Ground for Biodiversity and Ecosystem Services' (2012) 62 BioScience 503.

³⁴ Ingram, J.C., Redford, K.H. and Watson, J.E., 'Applying Ecosystem Services Approaches for Biodiversity Conservation: Benefits and Challenges' [2012] SAPI EN. S. Surveys and Perspectives Integrating Environment and Society.

³⁵ Article 1, Convention on Biological Diversity.

³⁶ Biosafety Unit, 'Welcome to the CBD Secretariat' (8 April 2013) <<https://www.cbd.int/secretariat/>> accessed 29 July 2021.

³⁷ Article 3, Convention on Biological Diversity.

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The CBD calls for cooperation among Contracting States in conservation and sustainable use of biological diversity.³⁸ As for individual States, the CBD requires them to develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which should reflect, *inter alia*, the measures set out in this Convention relevant to the Contracting Party concerned; and integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.³⁹

As for sustainable use of components of biological diversity, CBD requires Contracting States to, as far as possible and as appropriate: integrate consideration of the conservation and sustainable use of biological resources into national decision-making; adopt measures relating to the use of biological resources to avoid or minimize adverse impacts on biological diversity; protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements; support local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced; and encourage cooperation between its governmental authorities and its private sector in developing methods for sustainable use of biological resources.⁴⁰

CBD also requires each Contracting Party to, as far as possible and as appropriate, adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity.⁴¹

In order to build capacity through research and training, CBD requires all the Contracting Parties, taking into account the special needs of developing countries, to: establish and maintain programmes for scientific and technical education and training in measures for the identification, conservation and

³⁸ *Ibid*, Article 5.

³⁹ Article 6, Convention on Biological Diversity.

⁴⁰ *Ibid*, Article 10.

⁴¹ *Ibid*, Article 11.

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sustainable use of biological diversity and its components and provide support for such education and training for the specific needs of developing countries; promote and encourage research which contributes to the conservation and sustainable use of biological diversity, particularly in developing countries, inter alia, in accordance with decisions of the Conference of the Parties taken in consequence of recommendations of the Subsidiary Body on Scientific, Technical and Technological Advice: and in keeping with the provisions of Articles 16, 13 and 20, promote and cooperate in the use of scientific advances in biological diversity research in developing methods for conservation and sustainable use of biological resources.⁴² In addition to this, the Contracting Parties should: promote and encourage understanding of the importance of, and the measures required for, the conservation of biological diversity, as well as its propagation through media, and the inclusion of these topics in educational programmes; and cooperate, as appropriate, with other States and international organizations in developing educational and public awareness programmes, with respect to conservation and sustainable use of biological diversity.⁴³ In order to reduce or eliminate adverse impacts on biodiversity, CBD requires States to invest in impact assessment measures and/or procedures.⁴⁴

Notably, Kenya is a signatory to the Convention on Biological Diversity, and thus obligated to consider as well as adopt the Aichi Targets in its national plans and programs on biological diversity conservation.⁴⁵

2.5. Conclusion

The fundamental difference between the two main conservation strategies are: ex situ conservation involves the sampling, transfer, and storage of target taxa

⁴² *Ibid*, Article 12.

⁴³ Article 13, Convention on Biological Diversity.

⁴⁴ Article 14, Convention on Biological Diversity.

⁴⁵ Biosafety Unit, 'Main Details'

<<https://www.cbd.int/countries/profile/?country=ke>> accessed 3 June 2021; 'Convention on Biological Diversity | Treaties Database' <<http://kenyalaw.org/treaties/treaties/87/Convention-on-Biological-Diversity>> accessed 3 June 2021; 'Ministry of Environment and Forestry » Blog Archive » Statement By Kenya On Strategic Plan For Biodiversity 2011-2020' <<http://www.environment.go.ke/?p=3091>> accessed 3 June 2021.

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from the target area, whereas in situ conservation involves the designation, management, and monitoring of target taxa where they are encountered.⁴⁶ It is suggested that each ecosystem should be managed depending on its biodiversity composition and the choice of the management approach should also be informed by the same.

⁴⁶ Maxted N, 'In Situ, Ex Situ Conservation' in Simon A Levin (ed), *Encyclopedia of Biodiversity* (Second Edition) (Academic Press 2013) <<https://www.sciencedirect.com/science/article/pii/B9780123847195000496>> accessed 12 September 2021.

CHAPTER THREE

Regulatory Framework on Environmental Democracy and Biodiversity Conservation

3.1. Introduction

This chapter highlights some of the main instruments under the international regulatory framework on conservation of biodiversity, both international and domestic, in the context of Kenya. Notably, biodiversity is a broad subject which is covered by both strictly environmental legal instruments dedicated to the same as well as more general legal instruments, especially in light of human rights and Environmental Democracy.

3.2. International and Regional Regulatory framework on Environmental Democracy and Biodiversity Conservation

a. International Convention on Protection of New Plant Varieties

The *International Convention on Protection of New Plant Varieties*¹ established the International Union for the Protection of New Varieties of Plants (UPOV) as an intergovernmental organization with headquarters in Geneva (Switzerland), to provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society.² The UPOV Convention encourages and rewards the ingenuity and creativeness of breeders developing new varieties of plants.³ The UPOV system establishes basic legal principles of protection by providing the breeders exclusive rights to their plant invention for a specific period of

¹ International Union for the Protection of New Varieties of Plants, *International Convention for the Protection of New Varieties of Plants of December 2, 1961*, as Revised at Geneva on November 10, 1972, on October 23, 1978, and on March 19, 1991, UPOV Publication no: 221(E).

² 'International Union for the Protection of New Varieties of Plants (UPOV)' <<https://www.upov.int/portal/index.html.en>> accessed 5 June 2021.

³ 'International Convention for the Protection of New Varieties of Plants (UPOV)' <<https://www.uspto.gov/ip-policy/patent-policy/international-convention-protection-new-varieties-plants-upov>> accessed 5 June 2021.

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time, while making available the genetic material to others to use in their breeding programs.⁴

b. Convention on International Trade in Endangered Species of Wild Fauna and Flora

The *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES)⁵ was adopted in March 1973 to regulate worldwide commercial trade in wild animal and plant species in order to ensure that international trade does not threaten the survival of any species.⁶ CITES is a legally binding Convention on state parties to the convention, which are obliged to adopt their own domestic legislation to implement its goals.⁷ CITES assigns each protected species to one of three lists namely; Appendix I lists endangered species that are at risk of extinction and these species require both import and export permits approved by the “management authority and scientific authority” of the nations involved; Appendix II species are those that are not threatened with extinction but that might suffer a serious decline in number if trade is not restricted and their trade is thus regulated by permit; and Appendix III species are protected in at least one country that is a CITES member and that has petitioned others for help in controlling international trade in that species.⁸

The implementation of CITES requires international co-operation due to the international nature of trade in the affected plants and animals.⁹

⁴ *Ibid.*

⁵ United Nations, *Convention on International Trade in Endangered Species of Wild Fauna and Flora*, March 3rd, 1973, 993 U.N.T.S. 243.

⁶ ‘Convention on International Trade in Endangered Species | Description, Members, & Provisions’ (*Encyclopedia Britannica*) <<https://www.britannica.com/topic/Convention-on-International-Trade-in-Endangered-Species>> accessed 6 June 2021.

⁷ *Ibid.*

⁸ Kathryn A Saterson, ‘Government Legislation and Regulations in the United States’ in Simon A Levin (ed), *Encyclopedia of Biodiversity (Second Edition)* (Academic Press 2013) <<https://www.sciencedirect.com/science/article/pii/B9780123847195001866>> accessed 6 June 2021; ‘Convention on International Trade in Endangered Species | Description, Members, & Provisions’ (*Encyclopedia Britannica*) <<https://www.britannica.com/topic/Convention-on-International-Trade-in-Endangered-Species>> accessed 6 June 2021.

⁹ ‘What Is CITES? | CITES’ <<https://cites.org/eng/disc/what.php>> accessed 6 June 2021.

c. World Trade Organization Trade-Related Aspects of Intellectual Property Rights (WTO-TRIPS) Agreement

The WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)¹⁰ is considered to be the most comprehensive multilateral agreement on Intellectual Property (IP) which also plays a central role in facilitating trade in knowledge and creativity, in resolving trade disputes over IP, and in assuring WTO members the latitude to achieve their domestic policy objectives.¹¹ TRIPS Agreement provides the minimum standards of protection that WTO members must grant to copyrights, trademarks, geographical indications, industrial designs, and patents held by nationals of fellow WTO members, as well as exceptions to these minimum standards.¹²

d. International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

The *International Treaty on Plant Genetic Resources for Food and Agriculture*¹³ was adopted in 2001 with the objectives of conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising out of their use, in harmony with the Convention on Biological Diversity, for sustainable agriculture and food security.¹⁴ The sustainable use of plant genetic resources for food and agriculture may include such measures as, *inter alia*: strengthening research which enhances and conserves biological diversity by maximizing intra- and inter-specific variation for the benefit of farmers, especially those who generate and use their own

¹⁰ World Trade Organization, General Agreement on Trade-Related Aspects of Intellectual Property, 1869 U.N.T.S. 299.

¹¹ '>WTO | Intellectual Property (TRIPS) - Gateway'
<https://www.wto.org/english/tratop_e/trips_e/trips_e.htm> accessed 6 June 2021.

¹² 'International: WTO Considers Waiving Certain Intellectual Property Protections for the Prevention, Containment, and Treatment of COVID-19 | Global Legal Monitor' (24 March 2021)

<<https://www.loc.gov/law/foreign-news/article/international-wto-considers-waiving-certain-intellectual-property-protections-for-the-prevention-containment-and-treatment-of-covid-19/>> accessed 6 June 2021.

¹³ United Nations, International Treaty on Plant Genetic Resources for Food and Agriculture, Food and Agriculture Organization of the United Nations 13 December 2006, 2400 (p.303).

¹⁴ *Ibid*, Article 1.1.

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varieties and apply ecological principles in maintaining soil fertility and in combating diseases, weeds and pests; and supporting, as appropriate, the wider use of diversity of varieties and species in on-farm management, conservation and sustainable use of crops and creating strong links to plant breeding and agricultural development in order to reduce crop vulnerability and genetic erosion, and promote increased world food production compatible with sustainable development.¹⁵

e. COP 10 Decision X/2, Strategic Plan for Biodiversity 2011-2020

The COP 10 Decision X/2, *Strategic Plan for Biodiversity 2011-2020*¹⁶, with its *Aichi Targets*¹⁷, were adopted by the United Nations where Parties and other Governments, with the support of intergovernmental and other organizations, as appropriate, were urged to implement the Strategic Plan for Biodiversity 2011-2020 whose main mission is to: "take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being, and poverty eradication. To ensure this, pressures on biodiversity are reduced, ecosystems are restored, biological resources are sustainably used and benefits arising out of utilization of genetic resources are shared in a fair and equitable manner; adequate financial resources are provided, capacities are enhanced, biodiversity issues and values mainstreamed, appropriate policies are effectively implemented, and decision-making is based on sound science and the precautionary approach."¹⁸

The Plan was meant to provide an overarching framework on biodiversity, not only for the biodiversity-related conventions, but for the entire United Nations

¹⁵ *Ibid*, Article 6.2 (b)(f).

¹⁶ 'The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets' <<https://www.cbd.int/kb/record/decision/12268>> accessed 3 June 2021.

¹⁷ Biosafety Unit, 'Aichi Biodiversity Targets' (18 September 2020) <<https://www.cbd.int/sp/targets/>> accessed 3 June 2021.

¹⁸ *Ibid*.

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system and all other partners engaged in biodiversity management and policy development.¹⁹

**f. COP 8 Decision VIII/28, Impact Assessment: Voluntary Guidelines
on Biodiversity-Inclusive Impact Assessment**

VIII/28, Impact assessment: Voluntary guidelines on biodiversity-inclusive impact assessment is one chapter as part of the Report of The Eighth Meeting of The Parties to The Convention on Biological Diversity, held in Curitiba, Brazil, 20-31 March 2006.²⁰ The Guidelines provide detailed guidance on whether, when, and how to consider biodiversity in both project- and strategic-level impact assessments and are also an elaboration and refinement of guidelines previously adopted by the CBD (Decision VI/7-A), the Ramsar Convention on Wetlands (Resolution VIII.9) and the Convention on Migratory Species (Resolution 7.2).²¹

Notably, Article 14 of the Convention on Biological Diversity (CBD) identifies impact assessment as a key instrument for achieving the conservation, sustainable use and equitable sharing objectives of the Convention. The Voluntary Guidelines call for the Conduct of Cultural, Environmental and Social Impact Assessments regarding Developments Proposed to Take Place on, or which are Likely to Impact on, Sacred Sites and on Lands and Waters Traditionally Occupied or used by Indigenous and Local Communities.²²

¹⁹ Biosafety Unit, 'Strategic Plan for Biodiversity 2011-2020, Including Aichi Biodiversity Targets' (21 January 2020) <<https://www.cbd.int/sp/>> accessed 3 June 2021.

²⁰ 'VIII/28. Impact Assessment: Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment Chapter from the Report of the 8th Meeting of The Parties to The Convention on Biological Diversity 2006 - Convention on Biological Diversity Cartagena Documents | Tonga Environment Data Portal' <<https://tonga-data.sprep.org/dataset/convention-biological-diversity-cartagena-documents/resource/7712d75d-1173-4707-84ab>> accessed 6 June 2021.

²¹ 'Biodiversity in Impact Assessment, Background Document to CBD Decision VIII/28: Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment | NBSAP Forum' <<http://www.nbsapforum.net/knowledge-base/resource/biodiversity-impact-assessment-background-document-cbd-decision-viii28-0>> accessed 6 June 2021.

²² Para. 1, COP 8 Decision VIII/28, Impact Assessment: Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment.

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Parties, other Governments and relevant organizations are to apply the voluntary guidelines on biodiversity-inclusive environmental impact assessment as appropriate in the context of their implementation of paragraph 1 (a) of Article 14 of the Convention and of target 5.1 of the provisional framework of goals and targets for assessing progress towards 2010 and to share their experience, inter alia, through the clearing-house mechanism and national reporting.²³

g. United Nations Framework Convention on Climate Change, 1994

The United Nations Framework Convention on Climate Change, 1994²⁴ ultimate objective together with any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.²⁵

3.3. Kenya's Regulatory Framework on Environmental Democracy and Biodiversity Conservation

This section highlights Kenya's regulatory framework on the conservation of biodiversity and environment in general.

a. Constitution of Kenya 2010

Articles 2(5) and (6) of the Constitution of Kenya 2010²⁶ provide that the general rules of international law, and any treaty or convention ratified by Kenya, form part of the laws of Kenya, thus binding Kenya to observe its human rights obligations under international bill of human rights.²⁷

²³ *Ibid*, para. 5.

²⁴ United Nations Framework Convention on Climate Change, 1994, A/RES/48/189.

²⁵ *Ibid*, Article 2.

²⁶ Republic of Kenya, Constitution of Kenya 2010 (Government Printer, Nairobi, 2010).

²⁷ See also Treaty Making and Ratification Act, No. 45 of 2012, Laws of Kenya.

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The Constitution of Kenya 2010 recognises public participation as an important component of governance in Kenya. One of the greatest motivation for the devolved system of governance in the country was to boost public participation, as captured under the Fourth Schedule Part 2 (14) of the Constitution of Kenya which provides that one of the functions of the County governments is ensuring and coordinating the participation of communities and locations in governance at the local level and assisting communities and locations to develop the administrative capacity for the effective exercise of the functions and powers and participation in governance at the local level.²⁸ Similarly, Sections 87 to 92 and 115 of the County Governments Act, 2012²⁹ outline the principles of public participation and the procedure for facilitating public participation in County government governance and administration matters.

The Constitution of Kenya 2010³⁰ took bolder steps than its predecessor to not only incorporate environmental conservation and sustainable development issues as a stand-alone chapter but also notably puts emphasis on a rights-based approaches to conservation which require such conservation measures to also focus on the livelihoods and rights aspects of projects, programmes, and activities.³¹ It has been argued that adopting rights-based approaches to conservation serves to ensure that the protection of rights and biodiversity conservation are mutually reinforcing.³² These rights are both procedural and substantive.³³

²⁸ Fourth Schedule Part 2 (14), Constitution of Kenya 2010.

²⁹ County Governments Act, No. 17 of 2012, Laws of Kenya.

³⁰ The Constitution of Kenya, 2010.

³¹ See Preamble; Article 10; and Chapter Five of the Constitution of Kenya 2010.

³² 'Rights-Based Approaches to Conservation' (IUCN, 14 December 2015) <<https://www.iucn.org/theme/governance-and-rights/about/our-work/governance-and-rights-based-approaches/rights-based-approaches-conservation>> accessed 4 June 2021.

³³ Joshua Gellers and Chris Jeffords, 'Procedural Environmental Rights and Environmental Justice: Assessing the Impact of Environmental Constitutionalism' [2015] SSRN Electronic Journal; Dinah Shelton, 'Developing Substantive Environmental Rights' (2010) 1 Journal of Human Rights and the Environment 89; UN Environment, 'What Are Environmental Rights?' (UNEP - UN Environment Programme, 2 March 2018) <<http://www.unep.org/explore-topics/environmental-rights-and-47>

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The Constitution outlines favourable legislative protection of biodiversity as envisaged in Chapter Five on Land and the Environment, where there is the emphasis on sustainable use of land and other natural resources, including biodiversity as a key principle.³⁴

Article 69 of the Constitution is relevant in the quest for biodiversity conservation especially in relation to the obligations of the State in respect of the environment and natural resources management.³⁵ The provisions of Article 69(1) are notably comprehensive, addressing a number of cross-sectoral biodiversity concerns outlined by the CBD including issues of benefit sharing, traditional knowledge, elimination of activities harmful to biodiversity and the role of the community in conservation and sustainable use of biodiversity.³⁶ However, it is worth pointing out that 'every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources'.³⁷

Regarding recognition and promotion of Environmental Democracy, the Constitution of Kenya also obligates all State organs and all public officers to address the needs of vulnerable groups within society, including women, older members of society, persons with disabilities, children, youth, members of minority or marginalised communities, and members of particular ethnic, religious or cultural communities.³⁸ Notably, this is to be implemented in line with Article 10 thereof which provides for the national values and principles of governance which include the following: (a) patriotism, national unity, sharing and devolution of power, the rule of law, democracy and participation of the people; (b) human dignity, equity, social justice, inclusiveness, equality, human rights, non-discrimination and protection of the marginalised; (c) good governance, integrity, transparency and accountability; and (d) sustainable

governance/what-we-do/advancing-environmental-rights/what> accessed 7 June 2021.

³⁴ The Constitution of Kenya 2010, Article 60, 69.

³⁵ The Constitution of Kenya 2010, Article 69(1).

³⁶ *Ibid.*

³⁷ Article 69 (2), Constitution of Kenya, 2010.

³⁸ Article 21(3), Constitution of Kenya, 2010.

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development.³⁹ These national values and principles of governance are to bind all State organs, State officers, public officers and all persons whenever any of them- (a) applies or interprets this Constitution; (b) enacts, applies or interprets any law; or (c) makes or implements public policy decisions.⁴⁰

The Constitution also altered the legal landscape in Kenya by introducing a devolved system of governance in Kenya, with authority, roles and responsibilities split between the national government and the 47 county governments.⁴¹ Regarding the environment and biodiversity conservation, the National Government is charged with: use of international waters and water resources; protection of the environment and natural resources with a view to establishing a durable and sustainable system of development, including, in particular-(a) fishing, hunting and gathering; (b) protection of animals and wildlife; (c) water protection, securing sufficient residual water, hydraulic engineering and the safety of dams; and (d) energy policy; agricultural policy; and capacity building and technical assistance to the counties.⁴²

As for the county governments, they are charged with: Agriculture, including –(a) crop and animal husbandry; (b) livestock sale yards; (c) county abattoirs; (d) plant and animal disease control; and (e) fisheries; control of air pollution, noise pollution, other public nuisances and outdoor advertising; implementation of specific national government policies on natural resources and environmental conservation, including-- (a) soil and water conservation; and (b) forestry; and ensuring and coordinating the participation of communities and locations in governance at the local level and assisting communities and locations to develop the administrative capacity for the effective exercise of the functions and powers and participation in governance at the local level.⁴³ However, Counties may perform other functions assigned through an Act of Parliament. Notably, some of the functions related to

³⁹ Constitution of Kenya 2010, Article 10(2).

⁴⁰ Constitution of Kenya 2010, Article 10(1).

⁴¹ Fourth Schedule to the Constitution of Kenya 2010 on Distribution of functions between National and the county governments.

⁴² Fourth Schedule, Part 1, Constitution of Kenya, 2010.

⁴³ Fourth Schedule, Part 2, Constitution of Kenya, 2010 on distribution of functions between National and the county governments; see also Section 5 of the County Governments Act (2012) which outlines the functions of County Governments.

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environmental conservation fall within the shared jurisdiction of both national and county levels of government and should, therefore, be performed in a cooperative way.⁴⁴

b. Kenya's Vision 2030

The Vision 2030⁴⁵ was launched in 2008 as a long-term development blue print for the country, with the goal of transforming Kenya into “a newly-industrialised, middle-income country providing a high quality of life to all its citizens in a clean and secure environment”.⁴⁶ The Vision 2030 is grounded on three development pillars namely: economic, social and political pillars.⁴⁷ The development blueprint acknowledges the environment and all its aspect as an important part of achieving sustainable development and calls for conservation and sustainable use of these resources. The Vision 2030 acknowledges that invasive alien species and lack of a biodiversity inventory and inadequate procedures for access and benefit-sharing for biodiversity resources remain key challenges for the country.⁴⁸

The Social Pillar of the Vision 2030 seeks to invest in the people where it has been pointed out that ‘Kenya’s journey towards widespread prosperity also involves the building of a just and cohesive society that enjoys equitable social development in a clean and secure environment’.⁴⁹ Notably, the Political pillar of Vision 2030 also envisions “a democratic political system that is issue based, people-centred, result-oriented and accountable to the public” and ‘a country with a democratic system reflecting the aspirations and expectations of its people, in which equality is entrenched, irrespective of one’s race, ethnicity, religion, gender or socio-economic status; a nation that not only respects but

⁴⁴ Article 186, 189, Constitution of Kenya.

⁴⁵ Sessional Paper 10 of 2012 on Kenya Vision 2030, Government of Kenya.

⁴⁶ Sessional Paper 10 of 2012 on Kenya Vision 2030, Government of Kenya, Office of the Prime Minister Ministry of State for Planning, National Development and Vision 2030.

⁴⁷ ‘About Vision 2030 | Kenya Vision 2030’ <<http://vision2030.go.ke/about-vision-2030/>> accessed 1 May 2021.

⁴⁸ Chapter 4.6, Vision 2030.

⁴⁹ ‘Social Pillar | Kenya Vision 2030’ <<http://vision2030.go.ke/social-pillar/>> accessed 1 May 2021.

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also harnesses the diversity of its people's values, traditions and aspirations for the benefit of all'.⁵⁰

c. Environment (Management and Coordination) Act 1999

The *Environmental Management and Co-ordination Act, 1999*⁵¹ (EMCA) provides for "environmental audit and monitoring"⁵² and "environmental impact assessment"⁵³, among others, which are meant to ensure that all persons take care of the environment while carrying out any activities which may adversely affect the environment. Strategic Environmental Assessment (SEA) is defined as the process by which environmental considerations are required to be fully integrated into the preparation of *policies, plans and programmes* and prior to their final adoption (emphasis added).⁵⁴ Environmental impact assessment means a systematic examination conducted to determine whether or not a programme, activity or project will have any adverse impacts on the environment.⁵⁵ Environmental audit means the systematic, documented, periodic and objective evaluation of how well environmental organisation, management and equipment are performing in conserving or preserving the environment.⁵⁶ Strategic Environmental and Social Assessment (SESA) is seen

⁵⁰ 'Foundation for The Pillars | Kenya Vision 2030'

<<https://vision2030.go.ke/enablers-and-macros/>> accessed 1 May 2021.

⁵¹ Environmental Management and Co-ordination Act, No. 8 of 1999, Laws of Kenya.

⁵² *Ibid*, sec. 68;69.

⁵³ *Ibid*, secs 58-67; see also Environmental Management and Co-ordination (Amendment) Act, 2015 (No. 5 of 2015), sec. 57A (1) provides that "all Policies, Plans and Programmes for implementation shall be subject to Strategic Environmental Assessment".

⁵⁴ Environmental protection Agency, 'Strategic Environmental Assessment,' available at <http://www.epa.ie/monitoringassessment/assessment/sea/#.Vi5tmGuJ2CA>. S. 57(2), EMCA, provides that for the avoidance of doubt, the plans, programmes and policies (referred to in the Act) are those that are- (a) subject to preparation or adoption by an authority at regional, national, county or local level, or which are prepared by an authority for adoption through a legislative procedure by Parliament, Government or if regional, by agreements between the governments or regional authorities, as the case may be; (b) determined by the Authority as likely to have significant effects on the environment.

⁵⁵ *Environmental Management and Co-Ordination Act*, No 8 of 1999 (Government Printer, Nairobi, 1999), s.2.

⁵⁶ *Ibid*.

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to be a more effective tool since it integrates the social issues that are likely to emerge and not just the environmental considerations.⁵⁷

The implementation of this Act is to be guided by the following principles of Sustainable Development: (a) the principle of public participation in the development of policies, plans and processes for the management of the environment;(b) the cultural and social principles traditionally applied by any community in Kenya for the management of the environment or natural resources in so far as the same are relevant and are not repugnant to justice and morality or inconsistent with any written law;(c) the principle of international co-operation in the management of environmental resources shared by two or more states;(d) the principles of intergenerational and intragenerational equity;(e) the polluter-pays principle; and (f) the precautionary principle.⁵⁸

EMCA outlines various environmental offences which include offences related to inspection, Environmental Impact Assessment, records and standards and offences related to hazardous wastes.⁵⁹ The Act also prescribes penalties for these offences.⁶⁰

EMCA provides that no person should, without prior written approval of the Authority given after an environmental impact assessment, in relation to a river, lake, sea or wetland in Kenya, carry out any of the following activities: erect, reconstruct, place, alter, extend, remove or demolish any structure or part of any structure in, or under the river, lake or wetland; excavate, drill, tunnel or disturb the river, lake or wetland; introduce any

⁵⁷ Notably, the *Energy Act*, No. 1 of 2019, Laws of Kenya, requires under sec. 107 that a person who intends to construct a facility that produces energy using coal shall, before commencing such construction, apply in writing to the Authority for a permit to do so. Such an application must be accompanied by, inter alia, a Strategic Environment Assessment and Social Impact Assessment licenses. Also notable are the provisions of s. 57A(1) of the *Environmental Management Co-ordination (Amendment) Act 2015* which are to the effect that all policies, plans and programmes for implementation shall be subject to Strategic Environmental Assessment.

⁵⁸ Environmental Management and Co-ordination Act, sec. 3(5).

⁵⁹ EMCA, s.137-146.

⁶⁰ *Ibid.*

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animal whether alien or indigenous in a lake, river or wetland; introduce or plant any part of a plant specimen, whether alien or indigenous, dead or alive, in any river, lake or wetland; deposit any substance in a lake, river or wetland or in, on, or under its bed, if that substance would or is likely to have adverse environmental effects on the river, lake or wetland; direct or block any river, lake or wetland from its natural and normal course; drain any lake, river or wetland, any other matter prescribed by the Cabinet Secretary on the advice of the Authority.⁶¹

Overall, EMCA provides for the establishment of an appropriate legal and institutional framework for the management of the environment and for the matters connected therewith and incidental thereto.⁶² The Environmental Management and Co-ordination (Amendment) Act 2015⁶³ was enacted to amend EMCA 1999 and notably introduced further measures on impact assessment and a schedule to outline the development activities that must require impact assessment before they are carried out and to generally align the Act with the current Constitution.⁶⁴ The objects of the devolution of government are – to promote democratic and accountable exercise of power; to foster national unity by recognising diversity; to give powers of self-governance to the people and enhance the participation of the people in the exercise of the powers of the State and in making decisions affecting them; to recognise the right of communities to manage their own affairs and to further their development; to protect and promote the interests and rights of minorities and marginalised communities; to promote social and economic development and the provision of proximate, easily accessible services throughout Kenya; to ensure equitable sharing of national and local resources throughout Kenya; to facilitate the decentralisation of State organs, their functions and services, from the capital of Kenya; and to enhance checks and balances and the separation of powers.⁶⁵ EMCA and the 2015 amendment Act

⁶¹ *Ibid*, sec. 42(1); see also Environmental Management and Co-ordination (Amendment) Act, 2015, sec. 28.

⁶² *Ibid*, Preamble.

⁶³ Environmental Management and Co-ordination (Amendment) Act, No. 5 of 2015, Laws of Kenya.

⁶⁴ *Ibid*, Second Schedule; Sec. 57A.

⁶⁵ Article 174, Constitution of Kenya 2010.

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thus provide a basis for pursuing Environmental Democracy as well as fostering biodiversity conservation for realization of sustainable development goals.

d. Wildlife Conservation and Management Act 2013

The Wildlife Conservation and Management Act 2013⁶⁶ was enacted to provide for the protection, conservation, sustainable use and management of wildlife in Kenya and for connected purposes.⁶⁷ The implementation of this Act is to be guided by the following principles: wildlife conservation and management should be devolved, wherever possible and appropriate to those owners and managers of land where wildlife occurs; conservation and management of wildlife should entail effective public participation; wherever possible, the conservation and management of wildlife shall be encouraged using an ecosystem approach; wildlife conservation and management should be encouraged and recognized as a form of land use on public, community and private land; benefits of wildlife conservation should be derived by the land user in order to offset costs and to ensure the value and management of wildlife do not decline; wildlife conservation and management should be exercised in accordance with the principles of sustainable utilization to meet the benefits of present and future generations; benefits accruing from wildlife conservation and management should be enjoyed and equitably shared by the people of Kenya.⁶⁸

The Act prohibits "bio-piracy", that is, the exploration of biological resources without the knowledge and non-coercive prior consent of the owners of the resources and without fair compensation and benefit sharing as well as illegal "bio-prospecting" which means the exploration of biodiversity for commercially valuable genetic and biochemical resources.⁶⁹

⁶⁶ Wildlife Conservation and Management Act, No. 47 of 2013, Laws of Kenya.

⁶⁷ *Ibid*, Preamble.

⁶⁸ *Ibid*, sec. 4.

⁶⁹ *Ibid*, sec. 22.

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The related *Wildlife Conservation and Management (Implementation of Treaties) Regulations*⁷⁰ were made by the Cabinet Secretary for Environment and Natural Resources under section 109 of the Wildlife Conservation and Management Act, 2013, and require the Kenya Wildlife Service, as the lead agency, in consultation with stakeholders: meet the requirements of the treaties and the implementation of resolutions and decisions; accomplish the requirements of the treaties and the enforcing resolutions; execute the specific decisions directed to Kenya; budget for and make arrangements for the payment of respective annual convention fees; engage in the negotiation of resolutions and decisions that are beneficial and of interest to Kenya; lobby necessary amendments on treaties, decisions and resolutions in the interest of safeguarding Kenya's wildlife; comply with and monitor compliance with international treaties; implement international treaties; monitor and prevent trade that is inconsistent with international treaties in accordance with the Act and the Regulations made under it; confiscate species traded in contravention with any international treaty that Kenya is party to; and take any other necessary measures for the implementation of and enhancing compliance with international treaties.⁷¹ Each county is also to ensure that its legislation conforms with wildlife international treaties to which Kenya is a party.⁷²

Similarly, the *Wildlife Conservation and Management (Protection of Endangered and Threatened Ecosystems, Habitats and Species) Regulations, 2017*⁷³ were made by the Cabinet Secretary for Environment and Natural Resources under section 116 (2) (f) of the Wildlife Conservation and Management Act, 2013, to: implement the classification of ecosystems, habitats and species into the following categories- critically endangered; endangered; vulnerable; protected; and threatened; provide for protection of ecosystems that are threatened or endangered so as to maintain their ecological integrity; provide for the protection of species that are threatened, endangered, vulnerable, or protected to ensure their survival in the wild; implement Kenya's obligations

⁷⁰ Wildlife Conservation and Management (Implementation of Treaties) Regulations, 2017 (L.N. No. 241 of 2017).

⁷¹ *Ibid*, Regulation 3.

⁷² *Ibid*, Regulation 4.

⁷³ Wildlife Conservation and Management (Protection of Endangered and Threatened Ecosystems, Habitats and Species) Regulations, 2017 (L.N. No. 242 of 2017).

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under international agreements regulating international trade in endangered species; and ensure sustainable management and utilisation of biodiversity.⁷⁴ The Service is required to: identify the agencies that the Service shall permit to deal with fragile ecosystems; identify the officers and offices that shall regulate access to fragile ecosystems; create corridors and buffer zones and take such measures, as the it considers necessary for the protection of fragile ecosystems; regulate the removal or introduction of any species or genetic material into the ecosystem; and take measures to maintain the natural balance in the ecosystem.⁷⁵

The *Wildlife Conservation and Management (Joint Management of Protected Water Towers) Regulations, 2017*⁷⁶ were made by the Cabinet Secretary for Environment and Natural Resources under section 116 of the Wildlife Conservation and Management Act, 2013, makes provision with respect to conservation of protected water towers. The objective of these Regulations is to— ensure conservation of protected water towers; and enhance cooperation between the Service and the lead agencies in management of protected water towers.⁷⁷

e. The Forest Policy, 2020

The overall goal of this Policy⁷⁸ is sustainable development, management, utilization and conservation of forest resources and equitable sharing of accrued benefits including the flow of ecosystem services for present and future generations of the people of Kenya. In order to achieve this overall goal, ten per cent of the land area in Kenya should comprise forest cover.⁷⁹

This policy aims at enhancing management of forest resources for conservation of soil, water biodiversity and environmental stability. Additionally,

⁷⁴ *Ibid*, Regulation 4.

⁷⁵ *Ibid*, Regulation 5.

⁷⁶ Wildlife Conservation and Management (Joint Management of Protected Water Towers) Regulations, 2017 (L.N. No. 243 of 2017).

⁷⁷ *Ibid*, Regulation 3.

⁷⁸ Republic of Kenya, *Draft National Forest Policy, 2020* (Government Printer, Nairobi, 2020).

⁷⁹ *Ibid*, Para. 3.1.

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indigenous knowledge and intellectual property rights embodied in forest biodiversity and genetic resources will be harnessed and protected.⁸⁰

f. The Forest Conservation and Management Act, No. 34 of 2016

The *Forest Conservation and Management Act 2016*⁸¹ was enacted to give effect to Article 69 of the Constitution with regard to forest resources and to provide for the development and sustainable management, including conservation and rational utilization of all forest resources for the socio-economic development of forest adjacent communities.⁸² The Forest Act 2016 acknowledges community participation in forest governance through establishment of community forest associations with the twin objective of sustainable conservation of forest resources and rural livelihoods.⁸³

The *Forest Conservation and Management Act 2016* was enacted to give effect to Article 69 of the Constitution with regard to forest resources; to provide for the development and sustainable management, including conservation and rational utilization of all forest resources for the socio-economic development of the country.⁸⁴

g. Water Act 2016

Water is the basic ingredient for agriculture and survival of all biodiversity. The Constitution acknowledges access to clean and safe water as a basic human right.⁸⁵ The Water Act 2016⁸⁶ provides for the regulation, management and development of water resources in line with the Constitution. The Act also gives priority to use of abstracted water for domestic purposes over irrigation. The Act provides for establishment of Water Resource User Associations (WRUAs), which are community-based associations for collective management of water resources and resolution of conflicts concerning the use of water resources.⁸⁷

⁸⁰ *Ibid*, para. 3.2.

⁸¹ *Forest Conservation and Management Act*, No. 34 of 2016, Laws of Kenya.

⁸² Preamble, No. 34 of 2016, Laws of Kenya.

⁸³ *Ibid*, see Parts IV and V (Sections 30-52).

⁸⁴ Preamble, No. 34 of 2016, Laws of Kenya.

⁸⁵ Article 43, Constitution of Kenya 2010.

⁸⁶ *Water Act*, No. 43 of 2016, Laws of Kenya.

⁸⁷ *Ibid*, sec. 29.

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The Act requires the Cabinet Secretary responsible for water, following public participation, to formulate every five years, a National Water Resource Strategy which should contain, among other things, details of- existing water resources and their defined riparian areas; measures for the protection, conservation, control and management of water resources and approved land use for the riparian area; minimum water reserve levels at national and county levels; institutional capacity for water research and technological development; functional responsibility for national and county governments in relation to water resources management and any other matters the Cabinet Secretary considers necessary.⁸⁸

h. Seeds and Plant Varieties Act, Cap 326

This is an Act of Parliament to confer power to regulate transactions in seeds, including provision for the testing and certification of seeds, for the establishment of an index of names of plant varieties, to empower the imposition of restriction on the introduction of new varieties, to control the importation of seeds, to authorize measures to prevent injurious cross-pollination, to provide for the grant of proprietary rights to persons breeding or discovering and developing new varieties, to establish a national centre for plant genetic resources and to establish a Tribunal to hear appeals and other proceedings and for connected purposes.⁸⁹

This Act establishes a National Plant Genetic Resources Centre which shall be responsible for the conservation and sustainable utilization of plant biodiversity in Kenya.

i. Biosafety Act, 2009

Biosafety Act, 2009⁹⁰ is an Act of Parliament to regulate activities in genetically modified organisms, to establish the National Biosafety Authority, and for connected purposes.

The objectives of this Act include to facilitate responsible research into and minimize the risks that may be posed by genetically modified organisms; to

⁸⁸ S. 10, Water Act, No. 43 of 2016.

⁸⁹ Preamble, Seeds and Plant Varieties Act, Cap 326, Laws of Kenya.

⁹⁰ Biosafety Act (No. 2 of 2009), Laws of Kenya.

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ensure an adequate level of protection for the safe transfer, handling and use of genetically modified organisms that may have an adverse effect on the health of the people and the environment and to establish a transparent, science-based and predictable process for reviewing and making decisions on the transfer, handling and use of genetically modified organisms and related activities.⁹¹

j. Climate Change Act No. 11 of 2016

The Climate Change Act⁹² is to be applied for the development, management, implementation and regulation of mechanisms to enhance climate change resilience and low carbon development for the sustainable development of Kenya.⁹³

The Act is also to be applied in all sectors of the economy by the national and county governments to mainstream climate change responses into development planning, decision making and implementation; build resilience and enhance adaptive capacity to the impacts of climate change; formulate programmes and plans to enhance the resilience and adaptive capacity of human and ecological systems to the impacts of climate change; mainstream and reinforce climate change disaster risk reduction into strategies and actions of public and private entities; mainstream intergenerational and gender equity in all aspects of climate change responses and provide incentives and

⁹¹ See also United Nations, *Cartagena Protocol on Biosafety to the Convention on Biological Diversity*, Montreal, 29 January 2000, United Nations, *Treaty Series*, vol. 2226, p. 208. Article 1 thereof outlines the objective of the Protocol as follows:

In accordance with the precautionary approach contained in Principle 15 of the Rio Declaration on Environment and Development, the objective of this Protocol is to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on transboundary movements.

⁹² Climate Change Act, No. 11 of 2016, laws of Kenya.

⁹³ *Ibid*, preamble.

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obligations for private sector contribution in achieving low carbon climate resilient development.⁹⁴

k. Environmental Sustainability Guidelines for Ministries, Departments and Agencies (MDAs)

The Environmental Sustainability Guidelines for Ministries, Departments and Agencies (MDAs)⁹⁵ require MDAs in undertaking their mandates, integrate environmental considerations in their operations to fulfil the requirement of a clean, healthy and sustainable environment for all as per article 42 of the Constitution and EMCA through adoption and maintenance of good practices that contribute to the quality of environment on a long-term basis.⁹⁶

l. Environmental Management and Co-Ordination (Conservation of Biological Diversity and Resources, And Access to Genetic Resources and Benefits Sharing) Regulations, 2006

The *Environmental Management and Co-Ordination (Conservation of Biological Diversity and Resources, And Access to Genetic Resources and Benefits Sharing) Regulations, 2006*⁹⁷ are to apply to access to genetic resources or parts of genetic resources, whether naturally occurring or naturalised, including genetic resources bred for or intended for commercial purposes within Kenya or for export, whether in in-situ conditions or ex-situ conditions.⁹⁸ The Regulations shall, however, not apply to- the exchange of genetic resources, their derivative products, or the intangible components associated with them, carried out by members of any local Kenyan community amongst themselves and for their own consumption; access to genetic resources derived from plant breeders in accordance with the Seeds and Plant Varieties Act, Cap 326; human genetic

⁹⁴ *Ibid*, sec. 3.

⁹⁵ 'National Environment Management Authority (NEMA) - Environmental Sustainability Guidelines for MDAs' <https://www.nema.go.ke/index.php?option=com_content&view=article&id=110&Itemid=124> accessed 3 June 2021.

⁹⁶ *Ibid*.

⁹⁷ Environmental Management and Co-Ordination (Conservation of Biological Diversity and Resources, and Access to Genetic Resources and Benefits Sharing) Regulations, Legal Notice No. 160 of 2006, Laws of Kenya.

⁹⁸ 'National Environment Management Authority (NEMA) - Biodiversity Regulations' <https://www.nema.go.ke/index.php?option=com_content&view=article&id=30&Itemid=170> accessed 3 June 2021.

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resources; and approved research activities intended for educational purposes within recognized Kenyan academic and research institutions, which are governed by relevant intellectual property laws.⁹⁹

The Regulations require Environmental Impact Assessment for activities that may: have an adverse impact on any ecosystem; lead to the introduction of any exotic species; or lead to unsustainable use of natural resources.¹⁰⁰ The Regulations also require the National Environment Management Authority (NEMA), in consultation with the relevant lead agencies, to impose bans, restrictions or similar measures on the access and use of any threatened species in order to ensure its regeneration and maximum sustainable yield as a way to conserve threatened species.¹⁰¹ NEMA is also tasked with, in consultation with the relevant lead agencies, to identify and prepare an inventory of biological diversity of Kenya, which should include threatened, endangered, or rare species.¹⁰²

m. Environmental Management and Co-Ordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulations, 2009

These Regulations were made under the Environmental Management and Co-ordination Act, 1999, to make provision for the management, conservation and sustainable use of wetlands and wetland resources and the sustainable utilization and conservation of (resources on) river banks, lake shores, and the seashore.¹⁰³

The Environmental Management and Co-Ordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulations, 2009¹⁰⁴ seek to achieve

⁹⁹ Environmental Management and Co-Ordination (Conservation of Biological Diversity and Resources, and Access to Genetic Resources and Benefits Sharing) Regulations, 2006, sec. 3.

¹⁰⁰ *Ibid*, Regulation 4(1).

¹⁰¹ *Ibid*, Regulation 5.

¹⁰² *Ibid*, Regulation 6.

¹⁰³ Preamble, Environmental Management and Co-Ordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulations, Legal Notice No. 19 of 2009, Laws of Kenya.

¹⁰⁴ Environmental Management and Co-Ordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulations, Legal Notice No. 19 of 2009, Laws of Kenya.

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the following in relation to management of wetlands and wetland resources: to provide for the conservation and sustainable use of wetlands and their resources in Kenya; to promote the integration of sustainable use of resources in wetlands into the local and national management of natural resources for socio-economic development; to ensure the conservation of water catchments and the control of floods; to ensure the sustainable use of wetlands for ecological and aesthetic purposes for the common good of all citizens; to ensure the protection of wetlands as habitats for species of fauna and flora; provide a framework for public participation in the management of wetlands; to enhance education research and related activities; and to prevent and control pollution and siltation.¹⁰⁵

As far as management of river banks, lake shores and sea shore are concerned, the Regulations are meant: to facilitate the sustainable utilization and conservation of resources on river banks, lake shores, and on the seashore by and for the benefit of the people and community living in the area; promote the integration of sustainable use of resources in riverbanks lake shores and the seashore into the local and national management of natural resources for socio economic development; enhance education, research and research related activities; and prevent siltation of rivers and lakes and control pollution or and other activities likely to degrade the environment.¹⁰⁶

Every owner, occupier or user of land which is adjacent or contiguous to a wetland shall, with advice from the Authority, have a duty to prevent the degradation or destruction of the wetland, and should maintain the ecological and other functions of the wetland.¹⁰⁷

A developer intending to undertake a project which may have a significant impact on a wetland, river bank, lake shore or the sea shore is required to carry out an environmental impact assessment in accordance with the provisions of the Act.¹⁰⁸

¹⁰⁵ Environmental Management and Co-Ordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulations, 2009, Regulation 4.

¹⁰⁶ *Ibid*, Regulation, 16.

¹⁰⁷ *Ibid*, Regulation 14(1).

¹⁰⁸ *Ibid*, Regulation 21(1).

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n. The Integrated Coastal Zone Management Policy 2007

The Integrated Coastal Zone Management Policy 2007¹⁰⁹ paper provides for the development of a coastal zone policy in Kenya and it is intended to guide actions and policies related to the use and management of Kenya's coastal zone resources, including their protection and restoration.¹¹⁰ The Paper highlighted the fact that major threats facing coastal forests include encroachment for settlement and farming, illegal logging, human wildlife conflict, deforestation and loss of biodiversity mainly attributed to a reduction of forest cover.¹¹¹ Thus, the Integrated Coastal Zone Management (ICZM) aims at ensuring that the current and future generations of coastal stakeholders realise their basic needs and improve their quality of life whilst maintaining diverse, healthy and productive coastal ecosystems.¹¹²

o. Draft National Strategy for Achieving and Maintaining Over 10% Tree Cover By 2022

The Draft National Strategy for Achieving and Maintaining Over 10% Tree Cover By 2022¹¹³ is aligned to the National Forest Program, as a cross-sectoral framework that provides for: broad institutional and multi-stakeholder participation in accelerating the achievement of the Constitutional target of 10% tree cover of the national land area as provided under Article 69 (1) (b) of the Constitution of Kenya 2010; implementation of Presidential Directives that the Constitutional target of 10% national tree cover should be achieved by 2022 through among other initiatives the revival of Chief's tree nurseries with technical support of Kenya Forest Service and allocation of 10% Corporate Social Responsibility (CSR) to tree growing; opportunity to achieve national and global commitments with respect to climate change, biodiversity conservation, and land degradation. The government has

¹⁰⁹ Republic of Kenya, *Integrated Coastal Zone Management Action Plan For Kenya* (2007) <<https://www.nema.go.ke/images/Docs/Legislation%20and%20Policies/ICZM%20Draft%20Policy%20.pdf>>. Accessed 29 July 2021.

¹¹⁰ *Ibid*, para. 1.1.

¹¹¹ *Ibid*, para. 4.2.

¹¹² *Ibid*, para. 12.1.

¹¹³ Republic of Kenya, *Draft National Strategy for Achieving and Maintaining Over 10% Tree Cover By 2022*, May 2019 <<http://www.environment.go.ke/wp-content/uploads/2019/08/revised-Draft-Strategy-for-10-Tree-Cover-23-5-19-FINAL.pdf>> accessed 31 July 2021.

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committed to restore 5.1 million Ha of degraded landscapes as a contribution to the Africa Forest Landscape Initiative (AFR100), 50% reduction of greenhouse gases from the forest sector by 2030 as part of its Nationally Determined Contribution (NDC) to climate change, and to achieve land degradation neutrality by 2030 as a commitment to United Nations Convention to Combat Desertification (UNCCD); shared responsibility towards addressing public concerns with regard to continued deforestation, forest degradation and the need for enhanced protection, conservation and sustainable management of forest resources; enhancing the contribution of the forestry sector towards implementation of the Big 4 Agenda.

p. Kenya Plant Health Inspectorate Service Act, 2012

The Kenya Plant Health Inspectorate Service Act¹¹⁴ is an Act of Parliament to establish the Kenya Plant Health Inspectorate Service as a regulatory body for the protection of plants, seeds and plant varieties and agricultural produce, to be responsible for administering several other written laws and for matters incidental thereto or connected therewith.

q. The National Spatial Plan (NSP) 2015-2045

The National Spatial Plan aims at creating a spatial planning context that:- enhances economic efficiency and strengthens Kenya's global competitiveness, promotes balanced regional development for national integration and cohesion, optimizes utilization of land and natural resources for sustainable development, creates livable and functional human settlements in both urban and rural areas, secures the natural environment for a high quality of life and establishes an integrated national transportation network and infrastructure system.

The National Spatial Plan 2015-2045 highlights the fact that Kenya's diverse ecosystems and habitats are home to numerous biodiversity which is a result of unique topography, climate, geology, and drainage systems.¹¹⁵ Furthermore, the various communities with diverse cultural heritages and

¹¹⁴ Kenya Plant Health Inspectorate Service Act, No. 54 of 2012, Laws of Kenya.

¹¹⁵ Republic of Kenya, National Spatial Plan 2015-2045, p.41.

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livelihoods offer Kenya diversity in socio-economic activities such as crop farming, pastoralism, tourism, mining, fishing, water transport, hydro and geothermal power generation and urban entrepreneurs. This has implications on spatial and economic planning.¹¹⁶

The international best practices call for the states to link conservation measures with local land use planning in order to achieve a comprehensive approach to habitat and biodiversity preservation.¹¹⁷ Uncontrolled growth or development may lead to land fragmentation and consequently lead to habitat loss or diminished biodiversity.¹¹⁸ This calls for connection of land use planning and biodiversity preservation or conservation. There is need for identification of areas that offer particularly high value for conserving biotic resources during planning activities by both county and national governments.¹¹⁹

r. Draft National Land Use Policy, 2016

The overall goal of the National Land use Policy 2016¹²⁰ is to provide legal, administrative, institutional and technological framework for optimal utilization and productivity of land and land related resources in a sustainable and desirable manner at National, County and local level.

The policy particularly offers a framework of recommendations and principles designed to ensure the maintenance of a land use system that will provide for land-use planning, resource allocation and resource management for sustainable development to promote public good and general welfare; environmental management and sustainable production initiatives in the utilization of land resources; coordination and integration of institutional

¹¹⁶ *Ibid*, p.41.

¹¹⁷ Theobald, David M., Thomas Spies, Jeff Kline, Bruce Maxwell, N. T. Hobbs, and Virginia H. Dale. "Ecological Support for Rural Land-Use Planning," *Ecological Applications*, Vol.15, no. 6 (2005), pp.1906-1914 at p. 1910.

¹¹⁸ Fetene, Aramde, Kumlachew Yeshitela, and Hayal Desta. "Approaches to Conservation and Sustainable Use of Biodiversity-A Review." *Nature and Science* 10, no. 12 (2012): 51-62 at p.52.

¹¹⁹ See Theobald, David, and N. Thompson Hobbs, "A framework for evaluating land use planning alternatives: protecting biodiversity on private land," *Conservation Ecology*, Vol. 6, No. 1 (2002).

¹²⁰ Republic of Kenya, National Land Use Policy 2016 (Government Printer, Nairobi, 2016).

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linkages in planning at sectoral and cross-sectoral levels to foster collaboration and decision making among different land users; optimum utilization of land resources to meet governance, social-economic, political and cultural obligations of the people of Kenya; anchoring land development initiatives that will respond positively to the market demands; integrated framework for the preparation of a National Spatial Plan and review of various land use plans; mainstreaming of gender and special interest groups in land use planning and management; a comprehensive, efficient and affordable computer based land use information management system; an appropriate, accountable and democratic institution for land use conflicts resolution and mitigating problems associated with poor land use.¹²¹

The above domestic constitutional, policy and statutory instruments are not exhaustive as there are other various government policies, programmes, plans and actions meant to achieve the frameworks outline above.

3.4. Effective Conservation of Biological Diversity: Prospects and Challenges in Kenya

Biodiversity conservation in developing countries is affected by several challenges which include, *inter alia*, slow economic development, high levels of poverty, unequal land distribution, a highly segmented society, high population increase as well as commercial interests in natural resource extraction.¹²² Kenya's National Environment Management Authority (NEMA) highlights *drivers of biodiversity loss* as including *both direct and indirect causes* where direct threat includes land use change, habitat destruction, and introduction of invasive alien species, among others, while indirect threats are economic system and policy of the country; unsustainable exploitation of resources and weak management system; gaps in spatial information, and lack of public awareness, to mention but a few (Emphasis added).¹²³

¹²¹ *Ibid*, Chapter Three.

¹²² Regina Birner and others, 'Prospects and Challenges for Biodiversity Conservation in Guatemala' [2005] *Valuation and Conservation of Biodiversity: Interdisciplinary Perspectives on the Convention on Biological Diversity* 285.

¹²³ NEMA, 'Threats to Biodiversity - Biodiversity Clearing House Mechanism' <<http://meas.nema.go.ke/cbdchm/major-threats/>> accessed 31 July 2021.

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This is also highlighted in the country's Sixth national report to the Convention on Biological Diversity¹²⁴ dated January 2021 which points out that 'while the Government of Kenya has been making efforts towards biodiversity conservation, land degradation and ecosystem destruction are still witnessed through increasing siltation of water bodies and rivers, waste management, air and water pollution in most of our urban centers mostly due to rapid population growth and urbanization.¹²⁵ Efforts to improve the management and conservation of environment and natural resources are affected by impacts of climate change, increasing population, as well as expansion of agriculture and settlements into fragile and water towers ecosystems.¹²⁶

It is, therefore, arguable that unless these challenges are addressed, any efforts towards sustainable use of environmental resources for biodiversity conservation will remain a mirage.

3.5. Conclusion

Law and regulations are an important tool in conservation of environmental and biodiversity resources as it prescribes rights, duties and also acts as a deterrent to those who may engage in activities that are detrimental to these resources. ¹²⁷ The law provides the necessary framework within which all stakeholders can work together in pursuit of environmental resources

¹²⁴ Government of the Republic of Kenya, *Kenya Sixth national report to the Convention on Biological Diversity*, Ministry of Environment and Forestry, 2020 < www.environment.go.ke/wp-content/uploads/2021/01/FINAL-REPORT-MOEF-CBD-SIXTH-NATIONAL-REPORT-January-2021.docx> accessed 31 July 2021.

¹²⁵ *Ibid*, p. 15.

¹²⁶ *Ibid*, p. 15.

¹²⁷ Richardson BJ and Wood S, 'Environmental Law for Sustainability'; Prip C, 'The Convention on Biological Diversity as a Legal Framework for Safeguarding Ecosystem Services' (2018) 29 *Ecosystem Services* 199; Van Dyke F (ed), 'The Legal Foundations of Conservation Biology', *Conservation Biology: Foundations, Concepts, Applications* (Springer Netherlands 2008) <https://doi.org/10.1007/978-1-4020-6891-1_3> accessed 15 September 2021; Fischer F, 'The Importance of Law Enforcement for Protected Areas: Don't Step Back! Be Honest - Protect!' (2008) 17 *GAIA - Ecological Perspectives for Science and Society* 101; McDonald, J., McCormack, P.C., Dunlop, M., Farrier, D., Feehely, J., Gilfedder, L., Hobday, A.J. and Reside, A.E., 'Adaptation Pathways for Conservation Law and Policy' (2019) 10 *Wiley Interdisciplinary Reviews: Climate Change* e555; de Klemm, C. and Shine, C. (1993), *Biological Diversity Conservation and the Law*, IUCN, Gland, Switzerland and Cambridge, UK. xix + 292 pp.

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conservation both for the sake of the environment and meeting the basic needs of the human beings. This chapter has demonstrated that there indeed exists a legal framework for the conservation of biological diversity using Environmental Democracy as a tool of engaging the communities often bear the brunt of environmental degradation. It is within this framework that the next chapters discuss how countries, including Kenya, can foster Environmental Democracy and biodiversity conservation, as a step towards achieving the global sustainable development goals.

CHAPTER FOUR

Role of Biodiversity Conservation in Achieving Sustainable Development Goals

4.1. Introduction

Arguably, biodiversity and ecosystems feature prominently across many of the Sustainable Development Goals (SDGs) and associated targets as they contribute directly to human well-being and development priorities.¹ It has been argued that there is a need for making biodiversity an integral part of economic and development strategy as it has the potential to bring a return on investment in economic, social and environmental terms.² This is important considering that the sustainable development agenda seeks to strike a working balance between development plans of a country and environmental conservation.³ This is because humans rely on the environment for ecosystem services which include regulating services (e.g., filtering pollution, coastal protection, pest regulation, pollination), material provisioning services (e.g., food, energy, materials), and nonmaterial services (e.g., aesthetics, experience, learning, physical and mental health, recreation).⁴

This chapter generally discusses the role of biodiversity in the quest for achieving sustainable development agenda. Considering that biodiversity is a

¹United Nations Environment Programme, 'Biodiversity and the Sustainable Development Goals,' *CBD Press Brief*, Secretariat of the Convention on Biological Diversity < www.cbd.int/development/doc/biodiversity-2030-agenda-policy-brief-en.pdf > 31 July 2021.

² Limited BPPC, 'Biodiversity Dividend' *Bangkok Post* <<https://www.bangkokpost.com/business/2165927/biodiversity-dividend>> accessed 26 August 2021.

³See Basiago AD, 'Economic, Social, and Environmental Sustainability in Development Theory and Urban Planning Practice' (1998) 19 *Environment Systems and Decisions* 145; Stephen Polasky, Catherine L. Kling, Simon A. Levin, Stephen R. Carpenter, Gretchen C. Daily, Paul R. Ehrlich, Geoffrey M. Heal, Jane Lubchenco, 'Role of Economics in Analyzing the Environment and Sustainable Development' (2019) 116 *Proceedings of the National Academy of Sciences* 5233.

⁴Stephen Polasky, Catherine L. Kling, Simon A. Levin, Stephen R. Carpenter, Gretchen C. Daily, Paul R. Ehrlich, Geoffrey M. Heal, Jane Lubchenco, 'Role of Economics in Analyzing the Environment and Sustainable Development' (2019) 116 *Proceedings of the National Academy of Sciences* 5233.

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term used to refer to the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part, it is arguably important to conserve the same since most, if not all, of the socio-economic needs required to fulfil the SDGs directly rely on healthy ecosystems.

4.2. Linking Biodiversity and Sustainable Development Goals

Notably, the unusual rates of biodiversity loss, coupled with rising human population and consumption rates, threaten the sustainability of Earth's life support systems.⁵ It has been observed that rapid environmental change has resulted in reshaping ecosystems and increased species loss globally.⁶ Sustainable development goals (SDGs) set the 2030 agenda to transform the world by tackling multiple challenges humankind is facing to ensure well-being, economic prosperity, and environmental protection, thus providing a holistic and multidimensional view on development.⁷

Biodiversity and ecosystems feature prominently across many of the Sustainable Development Goals (SDGs) and associated targets. They contribute directly to human well-being and development priorities, where biodiversity is at the centre of many economic activities, particularly those related to crop and livestock agriculture, forestry, and fisheries and globally, nearly half of the human population is directly dependent on natural resources for its livelihood, and many of the most vulnerable people depend directly on biodiversity to fulfil their daily subsistence needs.⁸

⁵ Cavender-Bares, J., Heffernan, J., King, E., Polasky, S., Balvanera, P. and Clark, W.C., 'Sustainability and Biodiversity' in Simon A Levin (ed), *Encyclopedia of Biodiversity (Second Edition)* (Academic Press 2013)

<<https://www.sciencedirect.com/science/article/pii/B9780123847195003907>> accessed 12 September 2021.

⁶ Smith, M.M., Gilbert, J.H., Olson, E.R., Scribner, K.T., Van Deelen, T.R., Van Stappen, J.F., Williams, B.W., Woodford, J.E. and Pauli, J.N., 'A Recovery Network Leads to the Natural Recolonization of an Archipelago and a Potential Trailing Edge Refuge' n/a Ecological Applications e02416.

⁷ Pradhan, P., Costa, L., Rybski, D., Lucht, W. and Kropp, J.P., 'A Systematic Study of Sustainable Development Goal (SDG) Interactions' (2017) 5 *Earth's Future* 1169.

⁸ Secretariat of the Convention on Biological Diversity, *Biodiversity and the 2030 Agenda for Sustainable Development*, available at:

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Regarding SDG 1 on ending poverty in all its forms everywhere, biodiversity provides resources and income, particularly for the rural poor. Ecosystem services and other non-marketed goods make up between 50% and 90% of the total source of livelihoods among poor rural and forest-dwelling households.⁹ The 2030 Agenda for Sustainable Development, under Goal 2, aims to end hunger, achieve food security and improved nutrition and promote sustainable agriculture:- *By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round; By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment; By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality; By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed; increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.*

The CBD Aichi Target 13 states that countries should ensure: by 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and

www.cbd.int/development/doc/biodiversity-2030-agenda-policy-brief-en.pdf
accessed 12 September 2021.

⁹ Ibid.

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implemented for minimizing genetic erosion and safeguarding their genetic diversity.

One of the aims of the Programme of Work on Agricultural Biological Diversity is to promote the fair and equitable sharing of benefits arising out of the use of genetic resources.¹⁰ Whilst the CBD refers to the concept of benefit sharing in the context of the use of genetic resources¹¹ a number of CBD decisions make reference benefit sharing that is not confined to genetic resources¹² , including CBD Decision VII/11 which refers to "the equitable sharing of benefits derived from the use of *biodiversity*"¹³ (emphasis added). The concept of benefit sharing is linked to traditional knowledge.¹⁴

CBD Decision XIII/15 called for Parties to develop and implement incentives for farmers and indigenous peoples and local communities to protect pollinators and pollinator habitats, for example through benefit-sharing schemes, including payments for pollinator services schemes.¹⁵

As regards relevant international instruments, the *International Treaty on Plant Genetic Resources for Food and Agriculture*, (ITPGRFA) states that the Contracting Parties should take measures to protect and promote farmers' rights, including the right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture.¹⁶

The *Voluntary Principles* provide that responsible investment in agriculture and food systems respects traditional knowledge by, among other things, promoting fair and equitable sharing of benefits arising from the utilization of genetic resources for food and agriculture and that this should be done within

¹⁰ CBD Decision III/11, para. 1.

¹¹ CBD Arts. 1 and 15.

¹² Schroeder, Doris, "Benefit sharing: it's time for a definition," *Journal of medical ethics*, Vol. 33, no. 4 (2007), pp. 205-209, p. 205.

¹³ CBD Decision VII/11, Annex I, annotations to rationale to Principle 10.

¹⁴ The CBD calls for the parties to encourage the equitable sharing of the benefits arising from the utilisation of the knowledge, innovations and practices of indigenous and local communities (CBD, Article 8(j)).

¹⁵ CBD Decisión XIII/15, para. 7(q).

¹⁶ ITPGRFA, Article 9.2(b).

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applicable systems of access to genetic resources for food and agriculture, while respecting the rights of indigenous peoples and local communities under national law.¹⁷

In order to achieve SDG 3 on ensuring healthy lives and promoting well-being for all at all ages, healthy ecosystems help mitigate the spread and impact of pollution by both sequestering and eliminating certain types of air, water and soil pollution.¹⁸

SDG 5 requires countries to achieve gender equality and empower all women and girls. The targets therein are, *inter alia*: ensuring women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life; undertaking reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws; and adopting and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels.¹⁹

The CBD, in its preamble, recognizes "the vital role that women play in the conservation and sustainable use of biological diversity and affirms the need for the full participation of women at all levels of policy-making and implementation for biological diversity conservation."²⁰

¹⁷ Principles for Responsible Investment in Agriculture and Food Systems provides, Principle 7, para. 27.

¹⁸ Lajaunie C and Morand S, 'Biodiversity Targets, SDGs and Health: A New Turn after the Coronavirus Pandemic?' (2021) 13 Sustainability 4353.

¹⁹ Sustainable Development Goal 5: Gender Equality' (UN Women) <<https://www.unwomen.org/en/news/in-focus/women-and-the-sdgs/sdg-5-gender-equality>> accessed 15 September 2021.

²⁰UN Women, "Towards a gender-responsive post-2020 global biodiversity framework: Imperatives and Key Components", *A submission by the United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women) as an input to the development of the post-2020 global biodiversity framework*, 1 May 2019.

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Healthy ecosystems can go a long way in achieving SDG 6 which seeks to ensure the availability and sustainable management of water and sanitation for all.²¹

Biodiversity and ecosystems underpin many national and global economic activities, including those related to agriculture, forestry, fisheries and aquaculture, energy, tourism, transport and trade, and as such, biodiversity conservation and sustainable use can lead to higher productivity, more efficient resource use, and long-term viability of resources thus helping in achievement of SDG 8 which seeks to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.²²

SDG 15 is dedicated to “*protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss*”.²³

Being the supreme law of the land, the Constitution of Kenya sets a favourable environment for legislative protection of biodiversity. This is seen in Chapter Five on Land and the Environment, where there is the emphasis on sustainable use of land and other natural resources, including biodiversity as a key principle.²⁴ There is also the establishment of the National Land Commission, mandated to conduct research related to land and the use of natural resources, and make recommendations to appropriate authorities.

²¹ Environment UN, ‘GOAL 6: Clean Water and Sanitation’ (UNEP - UN Environment Programme, 2 June 2021) <<http://www.unep.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter/goal-6>> accessed 13 September 2021.

²² Secretariat of the Convention on Biological Diversity, Biodiversity and the 2030 Agenda for Sustainable Development, available at: www.cbd.int/development/doc/biodiversity-2030-agenda-policy-brief-en.pdf accessed 12 September 2021.

²³ ‘Biodiversity and Ecosystems.: Sustainable Development Knowledge Platform’ <<https://sustainabledevelopment.un.org/topics/biodiversityandecosystems>> accessed 13 September 2021.

²⁴ The Constitution of Kenya 2010, Article 60, 69.

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Article 69 of the Constitution remains relevant in the quest for biodiversity conservation especially in relation to the obligations of the State in respect of the environment and natural resources management. It is comprehensive, addressing a number of cross-sectoral biodiversity concerns outlined by the CBD including issues of benefit sharing, traditional knowledge, elimination of activities harmful to biodiversity and the role of the community in conservation and sustainable use of biodiversity. Article 69(1) provides that: - *the State shall – (a) ensure sustainable exploitation, utilisation, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits; (c) protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities; (h) utilise the environment and natural resources for the benefit of the people of Kenya.* Mainstreaming of biodiversity into different economic activities is considered necessary to both halt biodiversity loss and achieve the SDGs.²⁵ The highly interconnected SDGs will only be achieved in their entirety through transformative changes in our societies.²⁶

The Constitution also designates sustainable development as a national principle which is binding on all State organs, State officers, public officers and all persons.²⁷ In addition, it places an obligation upon the State to recognize the role of science and indigenous technologies in the development of the nation²⁸. It goes further to mandate Parliament to enact legislation to ensure that communities receive compensation or royalties for the use of their cultures and cultural heritage; and legislation to recognise and protect the ownership of indigenous seeds and plant varieties, their genetic and diverse characteristics and their use by the communities of Kenya.

²⁵ Hub ISK, 'Policy Brief: Why Biodiversity Matters: Mapping the Linkages between Biodiversity and the SDGs | SDG Knowledge Hub | IISD' <<https://sdg.iisd.org/443/commentary/policy-briefs/why-biodiversity-matters-mapping-the-linkages-between-biodiversity-and-the-sdgs/>> accessed 13 September 2021.

²⁶ Obrecht A and others, 'Achieving the SDGs with Biodiversity' (2021) 16 11.

²⁷ The Constitution of Kenya 2010, Article 10 (2) (d).

²⁸ Ibid, Article 11 (2) (b).

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4.3. Conclusion

Arguably, successful efforts to meet the needs of current and future generations will require a global perspective that considers the complex relationships between biodiversity, poverty, and equity as well as a progressive perspective that considers the nonlinear dynamics and potential tipping points in human and Earth systems.²⁹ Biodiversity has been identified as essential for sustainable development and human well-being as it underpins the provision of food, fibre and water; it mitigates and provides resilience to climate change; it supports human health, and provides jobs in agriculture, fisheries, forestry and many other sectors. Without effective measures to conserve biodiversity and use its components in a sustainable manner, the 2030 Agenda for Sustainable Development will not be achievable.³⁰

²⁹ Cavender-Bares, J., Heffernan, J., King, E., Polasky, S., Balvanera, P. and Clark, W.C., 'Sustainability and Biodiversity' in Simon A Levin (ed), *Encyclopedia of Biodiversity (Second Edition)* (Academic Press 2013) <<https://www.sciencedirect.com/science/article/pii/B9780123847195003907>> accessed 12 September 2021.

³⁰ United Nations, "Biodiversity at the Heart of Sustainable Development," *Input to the 2018 High-level Political Forum on Sustainable Development (HLPF)*, Secretariat of the Convention on Biological Diversity (CBD), 27 April 2018.

CHAPTER FIVE

Biodiversity Conservation and Water Resources Management

5.1. Introduction: Linking Biodiversity Conservation and Water Resources

Water and wetlands are fundamental to life, livelihood, food security and sustainable development. Water is required for domestic, agricultural, hydro-power, thermal power, navigation and recreation. It is especially an important factor of production in the agricultural sector.¹ Kenya is considered a water scarce country hence the need for enhanced conservation of the water resources and wetlands in the country.²

The *Convention on Biological Diversity (CBD) Aichi Target 14* provides that ‘by 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, should have been restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable. The *CBD Aichi Target 11* also requires that States should ensure that, “by 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes”.³

While biodiversity “can be termed as the variations among living biota performing their ecological functions in the terrestrial marine and other freshwater ecosystems and the other ecological complexities where they are living such as intraspecific diversity, interspecific diversity and diverse biota

¹ ‘Water and Food Security | International Decade for Action “Water for Life” 2005-2015’ <https://www.un.org/waterforlifedecade/food_security.shtml> accessed 11 September 2021 Sharifi Moghadam, E., Sadeghi, S.H.R., Zarghami, M. and Delavar, M., ‘Water-Energy-Food Nexus as a New Approach for Watershed Resources Management: A Review’ (2019) 7 Environmental Resources Research 129.

² ‘Kenya’s Water Crisis - Kenya’s Water In 2021’ (*Water.org*) <<https://water.org/our-impact/where-we-work/kenya/>> accessed 11 September 2021.

³ Unit B, ‘Aichi Biodiversity Targets’ (18 September 2020) <<https://www.cbd.int/sp/targets/>> accessed 8 September 2021.

in the ecosystems”, aquatic biodiversity is a comprehensive term used to refer to the freshwater ecosystems with lakes, ponds, reservoirs, rivers, streams, groundwater, and wetlands”.⁴

Arguably, water resources and aquatic biodiversity are intimately interrelated and interdependent and thus require an integrated management and conservation approach.⁵ The need for their conservation is informed by the fact that both provide a wide range of functions and have intrinsic value as well as provide for the sustenance of human populations, as a result of which degradation of water quality, depletion of water resources and loss of aquatic biodiversity are prominent features of the environmental landscape requiring urgent attention at global and national scales.⁶ The quality of water directly affects the ecosystem health including biotic and non-biotic communities living within the aquatic biodiversity.⁷ This is because water, as the human’s most valuable natural resource, is essential to all basic human needs, including food, drinking water, sanitation, health, energy and shelter and its proper management is the most pressing natural resource challenge of all.⁸

As already pointed out, ‘water, poverty and environment are intrinsically connected and the poor are the most vulnerable to environmental risk factors such as unsafe water and climate change.’⁹

Arguably, the availability and predictability of water resources can have direct impacts on food and energy systems and vice versa, where the water-energy-

⁴ Irfan S and Alatawi AMM, ‘Aquatic Ecosystem and Biodiversity: A Review’ (2019) 09 Open Journal of Ecology 1.

⁵ Mary Alkins-Koo, Floyd Lucas, Lorraine Maharaj, Shobha Maharaj, Dawn Phillip, Wayne Rostant and Sharda Surujdeo-Maharaj, ‘Water Resources and Aquatic Biodiversity Conservation: A Role for Ecological Assessment of Rivers in Trinidad and Tobago’; Nakano, Shin-ichi. *Aquatic Biodiversity Conservation and Ecosystem Services*. Springer Berlin Heidelberg, 2016,1.

⁶ *Ibid*,1.

⁷ Kumar A and Jha C, ‘Fishes as Environmental Indicators of Riverine Ecosystem’ (2020) 17 Life Science Journal.

⁸ Secretariat of the Convention on Biological Diversity. 2010. *Drinking Water, Biodiversity and Development: A Good Practice Guide*. Montreal, 1.

⁹ Bonnardeaux D, ‘Linking Biodiversity Conservation and Water, Sanitation, and Hygiene: Experiences from Sub-Saharan Africa’ [2012] Washington, DC: Africa Biodiversity Collaborative Group, USAID, 5.

food (WEF) nexus is intricately linked to everyday life.¹⁰ This chapter mainly focuses on freshwater resources and wetlands due to their more direct importance to human survival. It is estimated that fresh waters comprise only 0.01% of the water on Earth, with lakes, reservoirs and rivers covering approximately 2.3% (and freshwater wetlands encompassing an estimated 5.4–6.8%) of the global land surface area, excluding large ice sheets.¹¹

It has been observed that aquatic ecosystems (rivers, lakes, groundwater coastal waters, seas) support the delivery of crucial ecosystem services, such as fish production, water provisioning and recreation.¹² In addition, key ecosystem services are also connected to the hydrological cycle in the river basin, for example water purification, water retention and climate regulation, and while most of these water related ecosystem services can be directly appreciated by people and quantified, some, especially regulating and maintenance services, are less evident but all ecosystem services have to be considered for the sustainable use and management of water resources.¹³

The chapter critically analyses the connection between biodiversity conservation and water resources management, both important components of efforts towards achieving sustainable development agenda. It offers recommendations on best international practices that can ensure fulfilment of the human right to water and conservation of aquatic biodiversity.

5.2. Factors Affecting Water Resource Availability and Use

Water scarcity is considered to be one of the greatest challenges facing mankind in the 21st Century thus calling for more sustainable use.¹⁴ It is

¹⁰ Pradhanang SM, 'Water-Energy-Food Nexus', *Water-Energy-Food Nexus* (American Geophysical Union (AGU) 2017) <<https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1002/9781119243175.ch13>> accessed 26 August 2021.

¹¹ Reid AJ and others, 'Emerging Threats and Persistent Conservation Challenges for Freshwater Biodiversity' (2019) 94 *Biological Reviews* 849, 851.

¹² Cardoso A, 'Assessing Water Ecosystem Services for Water Resource Management' (2016) 61 *Environmental Science & Policy*, 194.

¹³ *Ibid*, 194.

¹⁴ 'International Decade for Action "Water for Life" 2005-2015. Focus Areas: Water Scarcity' <<https://www.un.org/waterforlifedecade/scarcity.shtml>> accessed 28 August 2021; La Banque Africaine Ddp And Bankgroup A, 'The Africa Water Vision

estimated that over 1.2 billion people, or almost one-fifth of the world's population, live in areas of physical scarcity, and 500 million people are approaching this situation.¹⁵ In addition, it has been documented that about 1.6 billion people, or almost one quarter of the world's population, face economic water shortage (where countries lack the necessary infrastructure to take water from rivers and aquifers).¹⁶ For instance, Kenya is classified as a water-scarce country where it is estimated that the country has a per capita availability below 1000 m³ annually.¹⁷ With these figures, it is estimated that out of the population of 50 million, 32 percent of Kenyans rely on unimproved water sources, such as ponds, shallow wells and rivers, while 48 percent of Kenyans lack access to basic sanitation solutions, with these challenges being especially evident in rural areas and urban slums where people are often unable to connect to piped water infrastructure.¹⁸

The 2018 World Water Development Report documented that humans use about 4,600 cubic km of water every year, of which 70% goes to agriculture, 20% to industry and 10% to households.¹⁹ While water is considered to be the most renewable of all the Earth's resources covering nearly three-quarters of the planet's surface by way of oceans, and in the polar ice caps and mountain glaciers²⁰, water quality deterioration has been attributed to water logging,

for 2025: Equitable and Sustainable Use of Water for Socioeconomic Development'; 'Water Shortages Could Affect 5bn People by 2050, UN Report Warns' (*the Guardian*, 19 March 2018) <<http://www.theguardian.com/environment/2018/mar/19/water-shortages-could-affect-5bn-people-by-2050-un-report-warns>> accessed 28 August 2021; 'Are We Running out of Water?' (*the Guardian*, 18 June 2018) <<http://www.theguardian.com/news/2018/jun/18/are-we-running-out-of-water>> accessed 28 August 2021.

¹⁵ 'International Decade for Action "Water for Life" 2005-2015. Focus Areas: Water Scarcity' <<https://www.un.org/waterforlifedecade/scarcity.shtml>> accessed 28 August 2021.

¹⁶ Ibid.

¹⁷ Mulwa F, Li Z and Fangninou FF, 'Water Scarcity in Kenya: Current Status, Challenges and Future Solutions' (2021) 8 Open Access Library Journal 1.

¹⁸ 'Kenya's Water Crisis - Kenya's Water In 2021' (*Water.org*) <<https://water.org/our-impact/where-we-work/kenya/>> accessed 28 August 2021.

¹⁹ 'Water Shortages Could Affect 5bn People by 2050, UN Report Warns' (*the Guardian*, 19 March 2018) <<http://www.theguardian.com/environment/2018/mar/19/water-shortages-could-affect-5bn-people-by-2050-un-report-warns>> accessed 28 August 2021.

²⁰ 'Are We Running out of Water?' (*the Guardian*, 18 June 2018)

salinization, groundwater mining, and pollution from industrial waste, poorly treated sewage, and runoff of agricultural chemicals, combined with poor household and community sanitary conditions (which contribute to disease and malnutrition).²¹ In most developing countries, the situation is aggravated by rapid population growth, economic development and urbanization, all of which affect the stakeholders' ability to provide adequate sanitation services.²²

Kenya's *National Spatial Plan 2015-2045*²³ highlights some of the challenges facing water bodies which include: *Pollution due to urban and industrial waste disposal, which reduces water quality leading to loss of biodiversity through deaths of aquatic plants and animals.*²⁴ *Notably, most of the affected rivers are those that flow within the commercial and residential areas.*²⁵ *Water bodies also face a constant danger of siltation following increased soil erosion especially during rainy seasons. Uncontrolled sinking of boreholes diminishes underground water.*²⁶ *Diversion of water mainly for agricultural purposes either upstream, or downstream, reduces the flow and level of water leading to water use conflict.*²⁷

It is imperative to note that water scarcity does not only affect human beings but also biodiversity, especially the aquatic biodiversity.²⁸ Considering that

<<http://www.theguardian.com/news/2018/jun/18/are-we-running-out-of-water>> accessed 28 August 2021.

²¹ Rosegrant MW, *Water Resources in the Twenty-First Century: Challenges and Implications for Action*, vol 20 (Intl Food Policy Res Inst 1997), 1.

²² Mulwa F, Li Z and Fangninou F, 'Water Scarcity in Kenya: Current Status, Challenges and Future Solutions' (2021) 08 OALib 1, 2.

²³ Republic of Kenya, *The National Spatial Plan 2015-2045*.

²⁴ *Ibid*, p.98.

²⁵ *The National Spatial Plan 2015-2045*, p.98.

²⁶ *Ibid*, p.98.

²⁷ *Ibid*, p.98.

²⁸ Verones F and others, 'Biodiversity Impacts from Water Consumption on a Global Scale for Use in Life Cycle Assessment' (2017) 22 *The International Journal of Life Cycle Assessment* 1247; Vörösmarty CJ and others, 'Global Threats to Human Water Security and River Biodiversity' (2010) 467 *nature* 555; Johnson N, Revenga C and Echeverria J, 'Managing Water for People and Nature' (2001) 292 *Science* 1071; McLAUGHLIN DW, 'Land, Food, and Biodiversity' (2011) 25 *Conservation Biology* 1117; Sabater S and Barceló D, *Water Scarcity in the Mediterranean: Perspectives under Global Change*, vol 8 (Springer Science & Business Media 2010); Darwall W and others, 'Freshwater Biodiversity: A Hidden Resource under Threat', *Wildlife in a changing world: an analysis of the 2008 IUCN Red List of Threatened Species* (IUCN Gland, Switzerland 2009); Nabi G and others, 'The Crisis of Water Shortage and Pollution in Pakistan: Risk to Public

water is a key driver of economic and social development while it also has a basic function in maintaining the integrity of the natural environment, and only one of a number of vital natural resources, it is imperative that water issues are not considered in isolation.²⁹

5.3. Approaches to Effective Biodiversity Conservation and Water Resources Management

While access to a regular supply of safe water is a basic human right, access to water resources and usage are directly related to the control and management rights.³⁰ It is worth noting that as far as access to water resources is concerned, the earliest legal frameworks in Kenya were enacted to alienate control of water resources by Africans, and these included the *Water Ordinance of 1929*, which vested all water resources on the Crown, effectively denying the local communities the universal water rights of access and control that they had enjoyed in the pre-colonial period.³¹ The loss of control rights over natural resources also affected other resources including forests and water.³²

In the current world, it is considered best practice in water resources planning to integrate water quantity and quality management for both groundwater and

Health, Biodiversity, and Ecosystem' (2019) 26 *Environmental science and pollution research* 10443; Albert JS and others, 'Scientists' Warning to Humanity on the Freshwater Biodiversity Crisis' (2021) 50 *Ambio* 85; García-Vega D and Newbold T, 'Assessing the Effects of Land Use on Biodiversity in the World's Drylands and Mediterranean Environments' (2020) 29 *Biodiversity and Conservation* 393; Daga VS and others, 'Water Diversion in Brazil Threatens Biodiversity' (2020) 49 *Ambio* 165; Seeteram NA and others, 'Conserving Rivers and Their Biodiversity in Tanzania' (2019) 11 *Water* 2612.

²⁹ 'International Decade for Action "Water for Life" 2005-2015. Focus Areas: Integrated Water Resources Management (IWRM)' <<https://www.un.org/waterforlifedecade/iwrm.shtml>> accessed 29 August 2021.

³⁰ See Rosegrant MW, *Water Resources in the Twenty-First Century: Challenges and Implications for Action*, vol 20 (Intl Food Policy Res Inst 1997).

³¹ Carpenter S, Baldwin E and Cole DH, 'The Polycentric Turn: A Case Study of Kenya's Evolving Legal Regime for Irrigation Waters' (2017) 57 *Natural Resources Journal* 101; Shurie MM, Mwaniki B and Kameri-Mbote P, 'Water Permit Systems, Policy Reforms and Implications for Equity in Kenya' [2017] Project Country Report. Output from the REACH Programme.

³² Mogaka, H., 'Economic Aspects of Community Involvement in Sustainable Forest Management in Eastern and Southern Africa,' *Issue 8 of Forest and social perspectives in conservation*, IUCN, 2001,74.

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surface water, while incorporating a full understanding of how the natural resources and the people of a basin are impacted by various levels of development or by adopting new resource use policies.³³ Subsequently, land use as well as land and vegetation management are thus issues that need to be considered in water resources planning and management, all best done in a highly participative way, involving all the major stakeholder groups, and in a way that achieves a balance between the level of economic development and the consequent impact on the natural resource base of a river basin as agreed by the stakeholders.³⁴

The *Water Act, 2016* was enacted to provide for the regulation, management and development of water resources and water and sewerage services in line with the Constitution.³⁵ The Act requires the Cabinet Secretary responsible for water, following public participation, to formulate every five years, a National Water Resource Strategy which should contain, among other things, details of existing water resources and their defined riparian areas; measures for the protection, conservation, control and management of water resources and approved land use for the riparian area; minimum water reserve levels at national and county levels; institutional capacity for water research and technological development; functional responsibility for national and county governments in relation to water resources management and any other matters the Cabinet Secretary considers necessary.³⁶

The *National Policy on Groundwater Development and Management 2013* has the objectives to *ensure a planned and coordinated approach in surface and groundwater planning and development including conservation of water for ecosystems maintenance and to develop mitigation measures on the impact of climate change, among others.*

The *National Horticulture Policy, 2012* mandates the government to *provide incentives for investments in water conservation, efficient water use and recycling.*

³³ Millington P, 'Integrated River Basin Management: From Concepts to Good Practice' (The World Bank 2006), 3.

³⁴ *Ibid*, 3.

³⁵ S. 3, Water Act, No. 43 of 2016.

³⁶ S. 10, Water Act, No. 43 of 2016.

The next section discusses participatory approaches that may be adopted as a way of striking a balance between the need to meet the human right to water and conservation of aquatic biodiversity and foster Environmental Democracy in biodiversity conservation matters.

5.3.1. Ecosystem Services Approaches for Biodiversity Conservation

Arguably, the importance of ecosystem services may help incentivize conservation and sustainable management of lands and waters outside of protected areas.³⁷ As a result, ecosystem services are increasingly incorporated into explicit policy targets and can be an effective tool for informing decisions about the use and management of the planet's resources, especially when trade-offs and synergies need to be taken into account.³⁸ The Millennium Ecosystem Assessment defined ecosystem services as the benefits people obtain from ecosystems and are co-produced by the interactions between ecosystems and societies.³⁹

The CBD Aichi Target 14 states that: *'By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable'*.⁴⁰

5.3.2. Payment for Water Ecosystem Services

Payments for Ecosystem Services (PES) is used to refer to a situation where a beneficiary or user of an ecosystem service makes a direct or indirect payment to the provider of that service, with the idea that whoever preserves or maintains an ecosystem service should be paid for doing so.⁴¹ Ecosystems-

³⁷ Ingram JC, Redford KH and Watson JEM, 'Applying Ecosystem Services Approaches for Biodiversity Conservation: Benefits and Challenges' [2012] S.A.P.I.E.N.S. Surveys and Perspectives Integrating Environment and Society <<https://journals.openedition.org/sapiens/1459>> accessed 23 August 2021.

³⁸ Balvanera, P., Quijas, S., Karp, D.S., Ash, N., Bennett, E.M., Boumans, R., Brown, C., Chan, K.M., Chaplin-Kramer, R., Halpern, B.S. and Honey-Rosés, J., 'Ecosystem Services', *The GEO handbook on biodiversity observation networks* (Springer 2017).

³⁹ *Ibid*, 42.

⁴⁰ *Ibid*, 42.

⁴¹ 'Payments for Ecosystem Services'

<<https://www.sdfinance.undp.org/content/sdfinance/en/home/solutions/payments-for-ecosystem-services.html>> accessed 29 August 2021.

forests, mountains, wetlands, agricultural land, freshwater – provide a variety of services that are economically valuable: fresh water supply for human settlements (e.g. by filtering the water from contaminants); irrigation and power generation; or storm protection and pollination.⁴² The provision of such services might require communities living in the proximity of the ecosystem to undertake or not to undertake certain activities. To complete these tasks in the absence of regulatory provision, the communities need a financial incentive and the Payments for Ecosystem Services (PES) is the mechanism that governs these payments. In other words, PES involves a series of payments to land or other natural resource owners in return for a guaranteed flow of ecosystem services or certain actions likely to enhance their provision over and above what would otherwise be provided in the absence of payment.⁴³

The Payment for Ecosystem Service (PES) is preferred for its ability to not only incorporate various stakeholders but also its ability to incorporate voluntary economic incentives and market-based instruments which are superior to the conventional command and control approaches of watershed and natural resource management and works on the principle that upstream resource managers are rewarded for good resource stewardship through economic incentives to guarantee sustainable delivery of ecosystem services downstream.⁴⁴

Based on the experiences of other jurisdictions in application of PES in watershed services, it has been suggested that in the implementation of existing and new PES schemes: First, PES schemes need to take into account the institutional and social conditions prevailing in the area. The interventions needed to a more efficient PES usually entail the degree of coordination between stakeholders and strategic allocation of roles and responsibilities among institutions involved; second, it is important to understand the effect of uncertainty due to the limited knowledge about the interaction between ecosystem properties and provision of services in the decision-making process and the design of the PES scheme; and lastly, current experiences need to be

⁴² *Ibid.*

⁴³ *Ibid.*

⁴⁴ Langat D, 'Guidelines for Establishing Payment for Ecosystem Services Schemes in Kenya' (KEFRI, 2017).

constantly revised and improved and new efforts need to be explored in order to sustain the flow of watershed services over time as a basis for sustainable development.⁴⁵ It has also been suggested that implementation of the PES scheme should be done with the development of other complementary activities in different areas: conservation, environmental education, increasing the participation of people living within the forest or at the buffer zones, among others.⁴⁶

While PES transactions are unique, depending on the ecosystem service and the stakeholders involved, they share certain characteristics which include: ability of the economic incentive to influence land use decisions and ecosystem service provision; opportunity for individual ecosystem service providers (sellers) to receive direct or indirect benefits from the beneficiaries of the service (buyers); extent to which the service being provided can be expressed in terms of measurable quality or quantity; transactions are voluntary but legally-binding; ecosystem services are well-defined and valued; and payments are conditional on continued provision of the ecosystem service by the provider.⁴⁷

SDG 6 on clean water and sanitation acknowledges the place of PES in financing clean water and sanitation by providing that the most important funding source for investing in drinking water and sanitation services consists of household contributions, via tariffs paid to service providers and via self-supply (meaning that they arrange for their water and sanitation in the community or at the household level).⁴⁸

⁴⁵ Cremaschi DG, Lasco RD and Delfino RJP, 'Payments for Watershed Protection Services: Emerging Lessons from the Philippines' (2013) 6 *Journal of sustainable development* 90.

⁴⁶Espinosa C, 'Payment for Water-Based Environmental Services: Ecuador's Experiences, Lessons Learned and Ways Forward. IUCN Water, Nature and Economics Technical Paper No. 2, IUCN – The World Conservation Union' [2005] *Ecosystems and Livelihoods Group Asia, Colombo*, 27.

⁴⁷ Langat D, 'Guidelines for Establishing Payment for Ecosystem Services Schemes in Kenya' (KEFRI, 2017), 3.

⁴⁸ 'Goal 6: Clean Water and Sanitation'

<<https://www.sdfinance.undp.org/content/sdfinance/en/home/sdg/goal-6--clean-water-and-sanitation.html>> accessed 29 August 2021.

5.3.3. Integrated River Basin Management

Arguably, the causal link between Water, Sanitation and Hygiene (WASH) and ecosystem health and integrity is clearer when dealing with freshwater ecosystems, where over-abstractions of freshwater for multiple uses, coupled with non-point source pollution from agriculture and poorly-designed sanitation facilities, or lack thereof, threaten the sustainability of water sources and the ecosystem services the water resource provides.⁴⁹ This calls for management approaches that strike a balance between these uses of freshwater resources, to ensure that while human beings dependent on a particular freshwater body have access to sufficient and quality water for their own consumption and uses, the aquatic biodiversity reliant on the same are not exposed to dangers that affect their existence. Thus, good quality and sufficient quantity of water are essential not just to the human communities' basic and economic needs but also to the riverine ecosystem, and further downstream, to the estuarine and marine ecosystems.⁵⁰ Human communities should, therefore, reduce anthropogenic activities such as poor land management which can negatively affect the riverine ecosystem, causing unintended consequences to human and wildlife communities alike.⁵¹

To achieve the foregoing, it is recommended for countries to adopt an Integrated River Basin Management (IRBM) approach which has been defined to mean coordinated planning, development, management and use of land, water and related natural resources within hydrologic boundaries.⁵²

This is similar to the Integrated Water Resource Management (IWRM), an integrated approach whereby river basins/catchments are managed in a holistic manner and it has been defined as 'a process which promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an

⁴⁹ Reid, A.J., Carlson, A.K., Creed, I.F., Eliason, E.J., Gell, P.A., Johnson, P.T., Kidd, K.A., MacCormack, T.J., Olden, J.D., Ormerod, S.J. and Smol, J.P., 'Emerging Threats and Persistent Conservation Challenges for Freshwater Biodiversity' (2019) 94 *Biological Reviews* 849, 9.

⁵⁰ *Ibid*, 9.

⁵¹ *Ibid*, 9.

⁵² Watson N, 'Integrated River Basin Management: A Case for Collaboration' (2004) 2 *International Journal of River Basin Management* 243, 243.

equitable manner without compromising the sustainability of vital ecosystems'.⁵³ Integrated River Basin Management (IRBM) emphasizes cross-disciplinary coordination of water, land and related resources in a river basin, watershed or catchment to achieve long-term sustainability.⁵⁴ IRBM is based on the principle that naturally functioning river basin ecosystems, including accompanying wetlands and groundwater systems, are the source of freshwater and, therefore, management of river basins must include the maintenance of ecosystem functioning as a paramount goal on the one hand, and on the other hand, IRBM includes human interests and managing activities on the basin scale.⁵⁵

Arguably, the success of integrated water management strategies depends on striking a balance between human resource use and ecosystem protection.⁵⁶

Notably, the basic elements of these integrated approaches are a basin-wide planning scope, attention to management of surface and subsurface water and to water quantity, water quality and environmental integrity as an inseparable entity, where there should be an emphasis on the relations between land use and water resources and to the integration of natural limitations, social and economic demands and legal, political and administrative processes.⁵⁷ It has been suggested that effective river basin planning and management can have benefits as wide as poverty alleviation, sustainable development, access to energy, healthy ecosystems, gender equality and thriving livelihoods.⁵⁸ In

⁵³ Bonnardeaux D, 'Linking Biodiversity Conservation and Water, Sanitation, and Hygiene: Experiences from Sub-Saharan Africa' [2012] Washington, DC: Africa Biodiversity Collaborative Group, USAID, 6.

⁵⁴ 'Integrated River Basin Management' (*International RiverFoundation*) <<https://riverfoundation.org.au/our-programs/integrated-river-basin-management/>> accessed 29 August 2021.

⁵⁵ Evers M, 'Integrative River Basin Management: Challenges and Methodologies within the German Planning System' (2016) 75 *Environmental Earth Sciences* 1085.

⁵⁶ Vörösmarty, C.J., McIntyre, P.B., Gessner, M.O., Dudgeon, D., Prusevich, A., Green, P., Glidden, S., Bunn, S.E., Sullivan, C.A., Liermann, R.C. and Davies, P.M., 'Rivers in Crisis: Global Water Insecurity for Humans and Biodiversity' (2010) 467 *Nature* 555, 2.

⁵⁷ Jaspers FG, 'Institutional Arrangements for Integrated River Basin Management' (2003) 5 *Water policy* 77, 78.

⁵⁸ 'Integrated River Basin Management' (*International RiverFoundation*) <<https://riverfoundation.org.au/our-programs/integrated-river-basin-management/>> accessed 29 August 2021.

addition, IRBM involves all stakeholders involved in river basin planning and management collaboratively to develop an agreed set of policies and strategies to achieve a balanced approach to land, water, and natural resource management.⁵⁹ It also focuses on adopting best practices to overcome various management challenges from community use to environmental science, economics, urban planning or business management, while putting the focus back onto achieving healthy river ecosystems with wide-ranging benefits for all communities, economies and biological processes within it.⁶⁰

It has been suggested that key issues for a comprehensive approach for an IRBM and its successful implementation involve, *inter alia*: the integration of policies, decisions and costs across sectoral interests such as industry, agriculture, urban development, navigation, fishery management and conservation, amongst other things through poverty reduction strategies; a long-term vision for the river basin, agreed to by all the major stakeholders, strategic decision-making at the river basin scale and active participation by all relevant stakeholders in well-informed and transparent planning and decision-making processes; and a solid basis of knowledge of the river basin and the natural and socio-economic forces that influence it.⁶¹

5.4. Conclusion

It has been argued that ecosystem health is inherently linked to water management, sanitation and agriculture as these aspects influence water availability and quality, and the loss of biodiversity can reduce the provision of ecosystem services essential for human well-being. Therefore, sustainable sanitation and water management is crucial for a more sustainable ecosystem management in the future.⁶²

The availability and quality of water can adversely be affected by a number of environmental factors including land degradation, pollution, over-use and

⁵⁹ *Ibid.*

⁶⁰ *Ibid.*

⁶¹ Evers M, 'Integrative River Basin Management: Challenges and Methodologies within the German Planning System' (2016) 75 *Environmental Earth Sciences* 1085.

⁶² Oguh, C.E., Obiwulu, E.N.O., Umezina, O.J., Ameh, S.E., Ugwu, C.V. and Sheshi, I.M., 'Ecosystem and Ecological Services; Need for Biodiversity Conservation-A Critical Review' [2021] *Asian Journal of Biology* 1.

global-warming and in turn, water quality and quantity can affect human health directly, through causing or preventing water-borne diseases and illness, and indirectly, by impacting on productive ecosystems, such as agriculture and fisheries, on which livelihoods depend.⁶³

As already pointed out, rivers, water resources and aquatic biodiversity are intimately interrelated and interdependent whereby water quality and habitat quality affect the composition, diversity and, therefore, health of aquatic ecosystems.⁶⁴ There is a need for an integrated approach to biodiversity conservation and water resources management as healthy functional aquatic ecosystems can provide benefits in terms of improved water quality as well as water production.⁶⁵ For this reason, the success of integrated water management strategies depends on striking a balance between human resource use and ecosystem protection.⁶⁶ Notably, the benefits of water provision on economic productivity comes with adverse effects on ecosystems and biodiversity, with potentially grave but unquantified costs.⁶⁷ As a result, any interventions to reverse these trends to protect aquatic biodiversity and ensure the sustainability of water delivery systems should put in place frameworks to diagnose the primary threats to water security at a range of spatial scales from local to global.⁶⁸ It has been observed that the mismanagement and degradation of ecosystems is a root cause of water insecurity and as a result, to tackle water insecurity, there is a need for governments to tackle biodiversity loss through ensuring healthy soils, forests, wetlands, grasslands and other ecosystems which provide vital hydrological services that can reduce water-related disaster risks and improve water

⁶³ BirdLife International, International B, 'An Introduction to Conservation and Human Rights for BirdLife Partners', 6.

⁶⁴ Mary Alkins-Koo, Floyd Lucas, Lorraine Maharaj, Shobha Maharaj, Dawn Phillip, Wayne Rostant and Sharda Surujdeo-Maharaj, 'Water Resources and Aquatic Biodiversity Conservation: A Role for Ecological Assessment of Rivers in Trinidad and Tobago'; Nakano, Shin-ichi. *Aquatic Biodiversity Conservation and Ecosystem Services*. Springer Berlin Heidelberg, 2016, 6.

⁶⁵ *Ibid*, 6.

⁶⁶ Vörösmarty, C.J., McIntyre, P.B., Gessner, M.O., Dudgeon, D., Prusevich, A., Green, P., Glidden, S., Bunn, S.E., Sullivan, C.A., Liermann, R.C. and Davies, P.M., 'Rivers in Crisis: Global Water Insecurity for Humans and Biodiversity' (2010) 467 Nature 555, 2.

⁶⁷ *Ibid*, 2.

⁶⁸ *Ibid*, 2.

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availability and quality.⁶⁹ Arguably, conserving or restoring natural ecosystems, or enhancing the creation of natural processes in modified or artificial ecosystems, can be a sustainable solution to water insecurity and may be more cost-effective than grey-infrastructure alternatives.⁷⁰

⁶⁹ OECD (2019), *Biodiversity: Finance and the Economic and Business Case for Action*, report prepared for the G7 Environment Ministers' Meeting, 5-6 May 2019, 30.

⁷⁰ *Ibid*, 30.

CHAPTER SIX

Sustainable Land Use and Agricultural Resources Management for Biodiversity Conservation

6.1. Introduction

While the threats to biodiversity conservation in Kenya are varied and acute, human population growth and the pressure on land and renewable natural resources have been identified as are the biggest threats.¹ Arguably, current land use practices reflect the economic priorities of powerful interested parties, including governments, development banks and companies, private land holders, farmers and others.² A combination of anthropogenic land-use practices and climate change have been attributed to massive biodiversity loss globally.³ Most commentators have identified the major direct causes of human-induced biodiversity loss as the fragmentation, degradation or loss of habitats (land-use change); the over-exploitation of natural resources; pollution of air and water (by several activities such as agriculture); the introduction of non-native (alien, or exotic) species and climate change-induced biodiversity loss - these factors being inextricably linked with some or all of the other direct causes and in turn are driven by underlying causes.⁴

In addition, studies have concluded that one major cause of future species loss will be land use change from agriculture. Further, infrastructure development and settlement expansion as well as the consequences of climate change will

¹ Wakhungu, J.W., Waruingi, L., Agwanda, B., Awori, P., Isiche, J., Itela, S. and Njumbi, S., 'Towards a National Biodiversity Conservation Framework: Policy Implications of Proceedings of the International Conference on Biodiversity, Land-Use and Climate Change', 5.

² Murray MG and Williamson D, 'Current Issues in Biodiversity Conservation' [2002] Wildlife Management Working Paper (FAO), 8.

³ Smith, M.M., Gilbert, J.H., Olson, E.R., Scribner, K.T., Van Deelen, T.R., Van Stappen, J.F., Williams, B.W., Woodford, J.E. and Pauli, J.N., 'A Recovery Network Leads to the Natural Recolonization of an Archipelago and a Potential Trailing Edge Refuge' n/a Ecological Applications e02416.

⁴ Slingenber, A., Braat, L., van der Windt, H., Rademaekers, K., Eichler, L. and Turner, K., "Study on understanding the causes of biodiversity loss and the policy assessment framework." (2009).

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be significant contributors to future biodiversity loss if no new policy measures are being implemented.⁵

This chapter critically discusses the biodiversity conservation issues that arise from land use and agricultural activities and makes some recommendations in respect of the same.

6.2. Relationship between Agriculture and Biodiversity

It is generally agreed that the services provided by biodiversity cover a large spectrum of factors contributing to the generation of agricultural income: crop yield and quality, soil fertility, pest control and pollination. Other services, such as contributions to landscape quality are not directly beneficial to the farmer, but are beneficial to the community as a whole.⁶ Agricultural environments and landscapes constitute a reservoir of diversity in terms of the number of species and the number of functions useful for agriculture (pollination, recycling of organic matter, amongst others). However, intensification of agricultural practices threatens this diversity.⁷ Intensification of agricultural production is believed to have led to an increase in the productivity of cultivated areas, associated with the use of mineral fertilisers and synthetic pesticides and with the "simplification" of agricultural landscapes resulting from a reduction in the diversity of production systems.⁸

Thus, while agricultural intensification has allowed mankind to feed the growing world population it has been cited as one of the main drivers of worldwide biodiversity decline.⁹ The effect of biodiversity decline has been felt on broad ecosystems and environmental aspects. For instance, freshwater ecosystems have suffered as excess nutrients from agricultural practices enter

⁵ *Ibid.*

⁶ Le Roux, X., R. Barbault, J. Baudry, F. Burel, I. Doussan, E. Garnier, F. Herzog et al. "Agriculture and biodiversity: benefiting from synergies. Multidisciplinary Scientific Assessment." *Synthesis Report, INRA (France)* (2008), p.3.

⁷ *Ibid*, p.1.

⁸ *Ibid*, p.2.

⁹ Kleijn, D., F. Kohler, A. Báldi, P. Batáry, E. D. Concepción, Y. Clough, M. Díaz et al. "On the relationship between farmland biodiversity and land-use intensity in Europe." *Proceedings of the Royal Society of London B: Biological Sciences* 276, no. 1658 (2009): 903-909, p.903.

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surface and ground waters and inefficient irrigation systems deplete water sources.¹⁰ Furthermore, biological control of pests in arable fields is an important ecosystem service provided by high-diversity landscapes and species-rich enemy communities, but it can be affected by the intensification of agriculture.¹¹

Inputs of mineral fertilizers and pesticides can lead to degradation of habitat quality at local-field scales, while transformation of perennial habitats (grassland) to arable fields and destructions of field boundaries and hedges leads to a loss of semi-natural habitats and simplification at landscape scales, including changes in the distribution and supply of resource for many species and the food webs building on them.¹²

It has been observed that since the world cannot stop producing food and, arguably, the world can little afford to lose more of its biological diversity, the challenge, therefore, is to find a system of agriculture that will produce food in a sustainable manner that enhances biodiversity rather than depleting it.¹³

Biodiversity is, therefore, considered important at all scales of the agricultural landscape, from the different soil microbes that help cycle nutrients and decompose organic matter, to wasps and bats that help reduce crop pests, and to birds and insects that pollinate high value crops, biodiversity helps farmers successfully grow food and maintain sustainable farm landscapes.¹⁴ Thus, not

¹⁰ Geier, Bernward, Jeffrey A. McNeely, and Sue Stolton. "The relationship between nature conservation, biodiversity and organic agriculture." *Stimulating positive linkages between agriculture and biodiversity. Recommendations for building blocks for the EC-Agricultural Action Plan on Biodiversity. European Centre for Nature Conservation, ECNC Technical report series, Tilburg, The Netherlands* (2000): 101-105 at p. 102.

¹¹ Thies, Carsten, Sebastian Haenke, Christoph Scherber, Janne Bengtsson, Riccardo Bommarco, Lars W. Clement, Piotr Ceryngier et al., "The relationship between agricultural intensification and biological control: experimental tests across Europe." *Ecological Applications* 21, no. 6 (2011): 2187-2196, p. 2187.

¹² *Ibid*, p. 2187.

¹³ Geier, Bernward, Jeffrey A. McNeely, and Sue Stolton. "The relationship between nature conservation, biodiversity and organic agriculture." *Stimulating positive linkages between agriculture and biodiversity. Recommendations for building blocks for the EC-Agricultural Action Plan on Biodiversity. European Centre for Nature Conservation, ECNC Technical report series, Tilburg, The Netherlands* (2000): 101-105 at p. 102.

¹⁴ GRACE Communications Foundation, Biodiversity, available at

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only does the maintenance of biodiversity help ensure viable crop production, but many organisms and species have come to rely on particular agricultural landscapes for their very survival. That is, agriculture both supports, and is supported by, the maintenance of biodiversity.¹⁵

It is on this basis that this chapter discusses some viable options that can be useful in Kenya's efforts towards enhancing agricultural production through biodiversity conservation while eliminating the adverse agricultural practices and land use.

6.3. Land Use and Agricultural Practices and Biodiversity Resources: The Challenges

The agricultural sector in Kenya comprises the following subsectors: industrial crops, food crops, horticulture, livestock, fisheries and forestry – and employs such factors of production as land, water and farmer institutions (cooperatives, associations).¹⁶ It is estimated that Kenya has an area of about 587,000 km² out of which 11,000 km² is water. Of the remaining 576,000 km² landmass, only about 16 per cent is of high and medium agricultural potential with adequate and reliable rainfall. This potentially arable land is dominated by commercial agriculture with cropland occupying 31 per cent, grazing land 30 per cent, and forests 22 per cent. The rest of the land is used for game parks, urban centres, markets, homesteads and infrastructure.¹⁷

Arguably, the services provided by biodiversity cover a large spectrum of factors contributing to the generation of agricultural income: crop yield and quality, soil fertility, pest control and pollination.¹⁸ It is also worth pointing out that agricultural environments and landscapes constitute a reservoir of

<http://www.sustainabletable.org/268/biodiversity>.

¹⁵ Ibid.

¹⁶ Republic of Kenya, *Agricultural Sector Development Strategy 2010–2020*, p. 1.

¹⁷ Republic of Kenya, *Agricultural Sector Development Strategy, 2010-2020*, p. 9. (Government Printer, Nairobi, 2010).

¹⁸ Le Roux, X., Barbault, R., Baudry, J., Burel, F., Doussan, I., Garnier, E., Herzog, F., Lavorel, S., Lifran, R., Roger-Estrade, J. and Sarthou, J.P., 'Agriculture and Biodiversity: Benefiting from Synergies' [2008] Multidisciplinary Scientific Assessment. INRA, Paris.

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diversity in terms of the number of species and the number of functions useful for agriculture (pollination, recycling of organic matter, amongst others).¹⁹

In 2008, Kenya launched *Vision 2030*, a long term development blue print for the country, with the goal of transforming Kenya into “a newly-industrialised, middle-income country providing a high quality of life to all its citizens in a clean and secure environment”.²⁰ Agriculture is identified as a key sector to deliver the 10 per cent economic growth rate per annum envisaged under the economic pillar. As a result, the Development Blueprint leans heavily towards promotion of a commercially-oriented, and modern agricultural sector, which it plans to accomplish by institutional reforms in agriculture and livestock, increasing productivity of crops and livestock, introducing land use policies for better utilisation of high and medium potential lands, developing more irrigable areas in arid and semi-arid lands for both crops and livestock and improving market access for our smallholders through better supply chain management. This comes with its own fair share of challenges.

Agriculture has been termed as the largest contributor to biodiversity loss with expanding impacts due to changing consumption patterns and growing populations as it destroys biodiversity by converting natural habitats to intensely managed systems and by releasing pollutants, including greenhouses gases.²¹ Historically in Kenya, the colonialists used the law to appropriate all land and land-based resources from Africans and to vest them in the colonial masters.²² In addition, the law gave the colonial authorities powers to appropriate land held by indigenous people and allocate it to the settlers.²³ The colonial authorities were, therefore, able to grant land rights to settlers in the highlands, while Africans were being driven and restricted to

¹⁹ *Ibid*, 1.

²⁰ Sessional Paper 10 of 2012 on Kenya Vision 2030, Government of Kenya, Office of the Prime Minister
Ministry of State for Planning, National Development and Vision 2030.

²¹ Dudley N and Alexander S, ‘Agriculture and Biodiversity: A Review’ (2017) 18 *Biodiversity* 45, 31.

²² Ogendo, HWO, *Tenants of the Crown: Evolution of Agrarian Law & Institutions in Kenya*, (ACTS Press, Nairobi, 1991), p.54.

²³ See generally the case of *Isaka Wainaina and Anor v Murito wa Indagara and others*, [1922-23] 9 E.A.L.R. 102.

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the native reserves. In the natives' reserves, there was overcrowding, soil erosion, and poor sanitation, amongst many other problems.²⁴ This colonial practice naturally led to massive loss of biodiversity in the country, with the Africans trying to maximize productivity in the small portions of land that they were allowed to control and cultivate for their own livelihoods.²⁵ Arguably, the African continent has never recovered from this and the negative effects on environment and biodiversity continue to manifest in present day land use and practices, especially in Kenya.²⁶ Arguably, conflicts between local groups and other more powerful actors, including both state agencies and private sector investors, remain widespread across the sub-continent and are often intensifying with strong political economic incentives for political elites and central bureaucracies to consolidate their control over natural resources.²⁷

6.4. Legal and Policy Framework on Biodiversity Conservation in Land use and Agricultural Practices in Kenya

Article 60 of the Constitution of Kenya 2010 provides for the principles of land policy in Kenya and states that land in Kenya should be held, used and managed in a manner that is equitable, efficient, productive and sustainable, and in accordance with, *inter alia*, the principles of--equitable access to land; security of land rights; sustainable and productive management of land resources; transparent and cost effective administration of land; sound conservation and protection of ecologically sensitive areas; elimination of gender discrimination in law, customs and practices related to land and property in land; and encouragement of communities to settle land disputes

²⁴ See Ogendo, HWO, *Tenants of the Crown: Evolution of Agrarian Law & Institutions in Kenya*, (ACTS Press, Nairobi, 1991).

²⁵ Domínguez L and Luoma C, 'Decolonising Conservation Policy: How Colonial Land and Conservation Ideologies Persist and Perpetuate Indigenous Injustices at the Expense of the Environment' (2020) 9 Land 65; Le Billon P and Lujala P, 'Environmental and Land Defenders: Global Patterns and Determinants of Repression' (2020) 65 Global Environmental Change 102163.

²⁶ Domínguez L and Luoma C, 'Decolonising Conservation Policy: How Colonial Land and Conservation Ideologies Persist and Perpetuate Indigenous Injustices at the Expense of the Environment' (2020) 9 Land 65.

²⁷ Roe D, Nelson F and Sandbrook C, *Community Management of Natural Resources in Africa: Impacts, Experiences and Future Directions* (IIED 2009), ix.

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through recognised local community initiatives consistent with this Constitution.²⁸

The *Land Act 2012*²⁹ provides that the National Land Commission should take appropriate action to maintain public land that has endangered or endemic species of flora and fauna, critical habitats or protected areas. The Commission should also identify ecologically sensitive areas that are within public lands and demarcate or take any other justified action on those areas and act to prevent environmental degradation and climate change.³⁰ It also envisages a management body which should, on its own motion or at the request of the Commission, submit to the Commission for approval a plan for the development, management and use of the reserved public land vested in the management body. However, before submitting a plan to the Commission a management body should – (a) consider any conservation, environmental or heritage issues relevant to the development, management or use of the public land in its managed reserve for the purpose of that managed reserve; and (b) incorporate in the plan a statement that it has considered those issues in drawing up the plan; (c) submit an environmental impact assessment plan pursuant to existing law on environment; and (d) comply with the values and principles of the Constitution.³¹

The Land Act states that: - The National Land Commission shall make rules and regulations for the sustainable conservation of land based natural resources. The rules and regulations may contain – (a) *measures to protect critical ecosystems and habitats; (b) incentives for communities and individuals to invest in income generating natural resource conservation programmes; (c) measures to facilitate the access, use and co-management of forests, water and other resources by communities who have customary rights to these resources; (d) procedures for the registration of natural resources in an appropriate register; (e) procedures on the involvement of stakeholders in the management and utilization of land-based natural resources; and (f) measures to ensure benefit sharing to the affected communities.*

²⁸ Article 60 (1), Constitution of Kenya 2010.

²⁹ Land Act, No. 6 of 2012, Laws of Kenya.

³⁰ Land Act, Section 11.

³¹ *Ibid*, Section 17.

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The *Agriculture and Food Authority (AFA) 2016-2021 Strategic Plan*³² also states the need to: *-Establish institutional capacity for data collection and collation on agricultural land use; continuously monitor emerging environmental issues that affect the value chains; Enhance technical capabilities of the counties to increase agricultural production for food security and wealth creation. The overarching idea is to boost farmers' capacity to produce food crops in more efficient, climate-resilient and ecologically responsible ways; develop and implement climate change adaptation and mitigation measures in agriculture responsible ways; Establish a Research Advisory Unit composed of AFA's Technical Team, and Researchers (KALRO, universities, other research institutions) to drive innovation in the Agricultural sub sectors; Create collaborative linkages with institutions such as KALRO, KEPHIS, Kenya Seed, universities and other research institutions on innovation and technology; Facilitate establishment of a collaborative arrangement between County Governments and KALRO on use of existing Agriculture Training Centres (ATCs) as technology transfer and innovation centres and provide technical assistance to the counties in promoting the concept of green growth economy as a way of ensuring environmental protection and sustainability through agricultural practices. AFA in conjunction with the Ministry of Environment and Natural Resources and other institutions should take on this task.*

The *National Land Policy 2009*³³ is also relevant to land-based biodiversity conservation. The overall objective of the National Land Policy 2009 is to secure rights over land and provide for sustainable growth, investment and the reduction of poverty in line with the Government's overall development objectives. The Policy also offers a framework of policies and laws designed to ensure the maintenance of a system of land administration and management that provides: All citizens with the opportunity to access and beneficially occupy and use land; economically viable, socially equitable and environmentally sustainable allocation and use of land; efficient, effective and economical operation of land markets; efficient and effective utilisation of land and land-based resources; and efficient and transparent land dispute resolution mechanisms.

³² Republic of Kenya, *Agriculture and Food Authority (AFA) 2016-2021 Strategic Plan*.

³³ Republic of Kenya, *Sessional Paper No. 3 of 2009 on National Land Policy*, Laws of Kenya.

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The *National Spatial Plan 2015-2045* (NSP) aims at creating a spatial planning context that enhances economic efficiency and strengthens Kenya's global competitiveness, promoting balanced regional development for national integration and cohesion, optimizing utilization of land and natural resources for sustainable development, creating livable and functional human settlements in both urban and rural areas, securing the natural environment for a high quality of life and establishing an integrated national transportation network and infrastructure system. In order to boost agricultural productivity in Kenya, the *National Spatial Plan* seeks to develop policies and measures that will spur a positive shift in the sector such as: establishment of fertilizer factories to reduce the cost of agricultural inputs, increase investment in irrigation to reduce dependency on rain fed agriculture and increase amount of land under crop production and to ensure that each county has at least one agricultural value addition processing plant.³⁴

The NSP provides strategies and policies to guide future growth of towns and assignment of roles to different urban areas.³⁵ The *Urban Areas and Cities Act, 2011*³⁶ calls for city and municipality established under its provisions to operate within the framework of an integrated urban areas and city development planning, whose objectives should be, *inter alia*: (d) be the basis for—(i) the preparation of environmental management plans; (ii) the preparation of valuation rolls for property taxation; (iii) provision of physical and social infrastructure and transportation; (iv) preparation of annual strategic plans for a city or municipality; (v) disaster preparedness and response; (vi) overall delivery of service including provision of water, electricity, health, telecommunications and solid waste management; and (vii) the preparation of a geographic information system for a city or municipality; (e) nurture and promote development of informal commercial activities in an orderly and sustainable manner; (f) provide a framework for regulated urban agriculture; and (g) be the basis for development control.³⁷ A city or urban area

³⁴ National Spatial Plan 2015-2045, p.65.

³⁵ Ibid, p.103.

³⁶ Urban Areas and Cities Act, No. 13 of 2011, Laws of Kenya.

³⁷ S. 36, Urban Areas and Cities Act, No. 13 of 2011.

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integrated development plan should be aligned to the development plans and strategies of the county governments.³⁸

The *Preparation and Implementation of County Spatial Plans, Draft Guidelines, February 2017* is an instrument to provide support to the County Governments to facilitate preparation of County Integrated Development Plans as required by law and also to realize coordinated and sustainable development planning in the counties. The manual guides: the process of plan preparation; Visioning; stakeholder engagement; presentation of the plan outputs; plan implementation; monitoring and Evaluation framework. The Manual also provides a reference frame to enable the realization of a unified understanding of the intention of the Integrated Planning framework among the planners, the County Governments and other public and private agencies that have a stake in County Integrated Planning.

It advocates for a mainstreaming approach in order to ensure mainstreaming of cross cutting issues into the County Spatial Plans. Such issues include, *inter alia*, land, infrastructure, tourism, agriculture, livestock and fisheries, trade, manufacturing, education and training; health; environment, water and sanitation, Population, Urbanization and Housing, Gender, vulnerable Groups and Youth, sports and culture.

The *National Horticulture Policy, 2012*, mandates the Government to finalize the development and implementation of a land- use policy which shall guide agricultural land use including land subdivision. The *National Environment Policy, 2013* was formulated to: provide a framework for an integrated approach to planning and sustainable management of Kenya's environment and natural resources; strengthen the legal and institutional framework for good governance, effective coordination and management of the environment and natural resources; ensure sustainable management of the environment and natural resources, such as unique terrestrial and aquatic ecosystems, for national economic growth and improved livelihoods; promote and support research and capacity development as well as use of innovative environmental management tools such as incentives, disincentives, total economic valuation,

³⁸ S. 37, Urban Areas and Cities Act, No. 13 of 2011.

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indicators of sustainable development, Strategic Environmental Assessments (SEAs); Environmental Impact Assessments (EIAs), Environmental Audits (EA) and Payment for Environmental Services (PES); promote and enhance cooperation, collaboration, synergy, partnerships and participation in the protection, conservation, sustainable management of the environment and natural resources; ensure inclusion of cross-cutting and emerging issues such as poverty reduction, gender, disability, HIV&AIDS and other diseases in the management of the environment and natural resources and promote domestication, coordination and maximisation of benefit from Strategic Multilateral Environmental Agreements (MEAs).

Some of the aims of the Environment Policy were to give the framework to guide the country's efforts in addressing the ever-growing environmental issues and challenges such as: *Loss of biodiversity*: Kenya continues to lose her biodiversity due to habitat destruction, overgrazing, deforestation, pollution, unsustainable harvesting of natural resources, biopiracy and introduction of invasive and alien species, among others. Invasive and alien species are a major threat to the environment. They threaten indigenous species through the effects of predation, alteration of habitat or disruption of ecosystem processes.

The challenge of dealing with loss of biodiversity becomes even more complicated when one is dealing with shared resources where laws and policies of respective countries are not harmonized;³⁹ *Rehabilitation and restoration of environmentally degraded areas*: There are several degraded areas in Kenya which require rehabilitation and restoration. These include wetlands, riverbanks, deforested areas, eroded shoreline, hilltops and disused quarries and mines;⁴⁰ *Climate change, energy, security and disaster management*: Climate change poses significant environmental challenges for Kenya as evidenced by the frequent droughts and water shortages that even affect power supplies. This is happening at a time when power demand is on the rise and utilisation of renewable energy sources exclusive of hydro remains relatively low. Other adverse impacts of climate change can be seen in the form of frequent and severe natural disasters such as floods, landslides and prolonged droughts.

³⁹ National Environment Policy, p.5.

⁴⁰ Ibid.

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Increased frequency and intensity of extreme climatic conditions continue to undermine the country's sustainable development. Managing climate-related disasters remains a significant challenge.⁴¹

The foregoing policy and statutory instruments are some of the legal tools used to lay a foundation for protection and conservation of land-based biodiversity resources.

6.5. Adoption of Sustainable Agricultural Production Methods and Diversification of Livelihoods

It has been argued that Agricultural land serves many purposes beyond food production and mechanisms are needed to pay farmers for wider stewardship of land resources and thus a multifunctional landscape approach balances different needs at a landscape scale while incorporating site-level specificity on land use, demand, and condition.⁴² In addition, consumers are believed to play a critical role in reducing unsustainable food waste and many of the techniques and strategies for biodiversity-friendly farming systems exist; the challenge is to bring them to scale.⁴³

Notably, under Kenya's Vision 2030, agriculture is identified as a key sector to deliver the 10 per cent economic growth rate per annum envisaged under the economic pillar. As a result, the Development Blueprint leans heavily towards promotion of a commercially-oriented, and modern agricultural sector, which it plans to accomplish through institutional reforms in agriculture and livestock, increasing productivity of crops and livestock, introducing land use policies for better utilisation of high and medium potential lands, developing more irrigable areas in arid and semi-arid lands for both crops and livestock and improving market access for our smallholders through better supply chain management.⁴⁴

⁴¹ Ibid, p.6.

⁴² Dudley N and Alexander S, 'Agriculture and Biodiversity: A Review' (2017) 18 Biodiversity 45.

⁴³ Ibid.

⁴⁴ Sessional Paper 10 of 2012 on Kenya Vision 2030, para. 3.3.

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While intensification of agricultural production has the potential to lead to an increase in the productivity of cultivated areas, associated with the use of mineral fertilizers and synthetic pesticides and with the "simplification" of agricultural landscapes resulting from a reduction in the diversity of production systems in order to feed the growing world population,⁴⁵ the same has also been cited as one of the main drivers of worldwide biodiversity decline.⁴⁶ The adverse effect has been on broad ecosystems and environmental aspects such as freshwater ecosystems which have suffered as excess nutrients from agricultural practices enter surface and ground waters and inefficient irrigation systems deplete water sources,⁴⁷ while biological control of pests in arable fields which is an important ecosystem service provided by high-diversity landscapes and species-rich enemy communities can be affected by the intensification of agriculture.⁴⁸

In addition, use of mineral fertilizers and pesticides can lead to degradation of habitat quality at local-field scales, while transformation of perennial habitats (grassland) to arable fields and destructions of field boundaries and hedges can lead to a loss of semi-natural habitats and simplification at landscape scales, including changes in the distribution and supply of resource for many

⁴⁵ Le Roux, X., Barbault, R., Baudry, J., Burel, F., Doussan, I., Garnier, E., Herzog, F., Lavorel, S., Lifran, R., Roger-Estrade, J. and Sarthou, J.P., 'Agriculture and Biodiversity: Benefiting from Synergies', p.2.

⁴⁶ Kleijn, D., F. Kohler, A. Báldi, P. Batáry, E. D. Concepción, Y. Clough, M. Díaz et al. "On the relationship between farmland biodiversity and land-use intensity in Europe." *Proceedings of the Royal Society of London B: Biological Sciences* 276, no. 1658 (2009): 903-909, p.903; Poisson, M.C., Garrett, D.R., Sigouin, A., Bélisle, M., Garant, D., Haroune, L., Bellenger, J.P. and Pelletier, F., 'Assessing Pesticides Exposure Effects on the Reproductive Performance of a Declining Aerial Insectivore' n/a *Ecological Applications* e02415.

⁴⁷ Geier, Bernward, Jeffrey A. McNeely, and Sue Stolton. "The relationship between nature conservation, biodiversity and organic agriculture." *Stimulating positive linkages between agriculture and biodiversity. Recommendations for building blocks for the EC-Agricultural Action Plan on Biodiversity. European Centre for Nature Conservation, ECNC Technical report series, Tilburg, The Netherlands* (2000): 101-105 at p. 102.

⁴⁸ Thies, Carsten, Sebastian Haenke, Christoph Scherber, Janne Bengtsson, Riccardo Bommarco, Lars W. Clement, Piotr Ceryngier et al., "The relationship between agricultural intensification and biological control: experimental tests across Europe." *Ecological Applications* 21, no. 6 (2011): 2187-2196, p. 2187.

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species and the food webs building on them.⁴⁹ Soils may also deteriorate as a result of erosion, compaction, loss of organic matter and contamination with pesticides, and in some areas, heavy metals.⁵⁰

It has rightly been argued that where the connection between producers and consumers is weak or costly, farmers' earnings are reduced, creating disincentives to adopt agricultural productivity enhancing technologies. This is because, certain types of technologies or innovations are only profitable when farmers are integrated into market.⁵¹ Furthermore, the understanding of the structure and function of markets and value chains; farmers' output market participation level and participation of various actors and constraints along the value chain is essential for accelerating technology adoption and increasing growth of agricultural production and the competitiveness of smallholder farmers.⁵²

The National Horticulture Policy, 2012 ascribes to the Government the mandate to: - *enhance environmental conservation and measures to mitigate the effects of climate change and global warming; Encourage and offer incentives for green and conservation farming; Establish a clear framework to enhance inter-institutional coordination; Partner with the private sector to enable the country participate in carbon trading, sustainably protect fragile ecosystems like riparian areas and the country's major water towers, promote water use efficiency and adopt green energy; Introduce incentives for investment on green energy and other alternative sources of energy; Support initiatives on carbon and water trading, and green water credit; Enhance horticultural production, the Government will strengthen and harmonize public extension services to offer specialized extension services.*

The Crops Act, 2013, in Section 4 sets out that: - *the national government and county governments shall be guided by the principles in the management and administration of agricultural land that land owners and lessees of agricultural land,*

⁴⁹ *Ibid*, p. 2187.

⁵⁰ Chris Stoate and others, 'Ecological Impacts of Arable Intensification in Europe' (2002) 63 *Journal of Environmental Management* 337.

⁵¹ International Centre of Insect Physiology and Ecology (*icipe*), 'Markets and Value Chains Research,' available at <http://www.icipe.org/research/social-science-and-impact-assessment/markets-and-value-chains-research> [Accessed on 11/07/2017].

⁵² *Ibid*.

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being stewards, have the obligation to cultivate the lands they own or lease and make the land economically productive on a sustainable and environmentally friendly manner.

Biodiversity is important at all levels of the agricultural landscape, from the different soil microbes that help cycle nutrients and decompose organic matter, to wasps and bats that help reduce crop pests, and to birds and insects that pollinate high value crops, biodiversity helps farmers successfully grow food and maintain sustainable farm landscapes.⁵³ Thus, not only does the maintenance of biodiversity help ensure viable crop production, but many organisms and species have come to rely on particular agricultural landscapes for their very survival. That is, agriculture both supports, and is supported by, the maintenance of biodiversity.⁵⁴

6.6. Conclusion

Arguably, while secure rights, such as tenure and access to resources, can also contribute to conservation by providing the incentives and legal frameworks for careful stewardship of resources, conservation can also impact negatively on people's rights, for example by denying access to resources, and weak rights can undermine conservation efforts.⁵⁵ There is thus a need to strike a balance between achieving conservation and ensuring that communities exploit natural resources sustainably to meet their basic needs and also improve their lives.

⁵³ GRACE Communications Foundation, Biodiversity, available at <http://www.sustainabletable.org/268/biodiversity>; see also Benton, T.G., Bryant, D.M., Cole, L. and Crick, H.Q., 'Linking Agricultural Practice to Insect and Bird Populations: A Historical Study Over Three Decades' (2002) 39 *Journal of applied ecology* 673; Saunders, M.E., Peisley, R.K., Rader, R. and Luck, G.W., 'Pollinators, Pests, and Predators: Recognizing Ecological Trade-Offs in Agroecosystems.' (2016) 45 *AMBIO-A Journal of the Human Environment*; Wenny, D.G., Devault, T.L., Johnson, M.D., Kelly, D., Sekercioglu, C.H., Tomback, D.F. and Whelan, C.J., 'The Need to Quantify Ecosystem Services Provided by Birds' (2011) 128 *The auk* 1.

⁵⁴ *Ibid.*

⁵⁵ BirdLife International, 'An Introduction to Conservation and Human Rights for BirdLife Partners', 2.

CHAPTER SEVEN

Biodiversity Conservation and Forest Resources Management

7.1 Introduction

Arguably, loss of biodiversity in general, and in tropical forests in particular, has been identified as a major concern for modern society the world over.¹ It has been argued that deforestation is a major contributor to global emissions and reducing emissions from deforestation and degradation is a potentially cost-effective method of limiting emissions which can also yield important benefits in terms of biodiversity, watershed management, and local livelihoods, indeed development more generally.²

SDG 15 recognises the importance of forests and obligates States to 'protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity'.³ Among the targets associated with this Goal are that States should: by 2020, ensure conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements; by 2030, ensure the conservation of mountain ecosystems, including their biodiversity, to enhance their capacity to provide benefits which are essential for sustainable development; take urgent and significant action to reduce degradation of natural habitat, halt the loss of biodiversity, and by 2020 protect and prevent the extinction of threatened species; ensure fair and equitable sharing of the benefits arising from the utilization of genetic resources, and promote appropriate access to genetic resources; by 2020, integrate ecosystems and biodiversity values into national and local planning, development processes and poverty reduction strategies, and accounts; mobilize and significantly increase from all sources financial

¹ Lele, S., Wilshusen, P., Brockington, D., Seidler, R. and Bawa, K., 'Beyond Exclusion: Alternative Approaches to Biodiversity Conservation in the Developing Tropics' (2010) 2 *Current Opinion in Environmental Sustainability* 94.

² Masundire HM, 'Achieving Sustainable Development and Promoting Development Cooperation-Dialogues at the ECOSOC' (New York: United Nations, 2008),28.

³ UN General Assembly, *Transforming our world: the 2030 Agenda for Sustainable Development*, Goal 15.

resources to conserve and sustainably use biodiversity and ecosystems; and enhance global support to efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities.⁴ Notably, these targets not only recognise the link between forests and biodiversity conservation but also calls for empowerment of local communities through capacity building to enable them pursue sustainable livelihood opportunities. This arguably means ensuring that they fully participate in forests resources management in the spirit of Environmental Democracy.

This chapter discusses the challenges and explores some of the ways that communities can be effectively included in forest resources management through fostered Environmental Democracy for biodiversity conservation and human rights protection and promotion.

7.2. Forest Resources and Biodiversity Conservation

Forest resources offer a range of benefits and opportunities for local and national economic development, improved livelihoods and provision of environmental goods and services such as watershed protection and carbon sequestration.⁵ They contribute directly and indirectly to the national and local economies through revenue generation and wealth creation, and it is estimated that forestry contributes to 3.6% of Kenya's GDP, excluding charcoal and Direct Subsistence Uses.⁶ Forests also support most productive and service sectors in the country, particularly agriculture, fisheries, livestock, energy, wildlife, water, tourism, trade and industry that contributes about 33% to 39 % of the country's GDP. Biomass comprises about 80% of all energy used in the country, while they also provide a variety of goods, which support subsistence livelihoods of many communities.⁷ Other services provided include erosion control, natural hazard and disease regulation. Forest adjacent communities benefit directly through subsistence utilization of the forests.

⁴ 'SDG 15: Protect, Restore and Promote Sustainable Use of Terrestrial Ecosystems, Sustainably Manage Forests, Combat Desertification, Halt and Reverse Land Degradation and Halt Biodiversity Loss – SDG Compass' <<https://sdgcompass.org/sdgs/sdg-15/>> accessed 13 August 2021.

⁵ Republic of Kenya, *Forest Policy 2014*, Laws of Kenya.

⁶ Ibid.

⁷ Ibid.

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Deforestation in Kenya is however estimated at 50,000 hectares annually, with a consequent yearly loss to the economy of over USD 19 million.⁸

While Kenya is endowed with a wide range of forest ecosystems ranging from montane rainforests, savannah woodlands; dry forests and coastal forests and mangroves, the current forest cover is estimated at 6.99% of the land area of the country, below the constitutional requirement of 10%.⁹

Forest resources conservation is provided for both in the international and national legal frameworks. The CBD Aichi Target 5 provides that “by 2020, the rate of loss of all natural habitats, including forests, should at least be halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced. Notably, the CBD Aichi Biodiversity Target 7 also provides that countries should ensure that “by 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity”. The overall goal of Kenya’s *Forest Policy 2014* was sustainable development, management, utilization and conservation of forest resources and equitable sharing of accrued benefits for the present and future generations of the people of Kenya.

The *Forest Conservation and Management Act 2016*¹⁰ was enacted to give effect to Article 69 of the Constitution with regard to forest resources; to provide for the development and sustainable management, including conservation and rational utilization of all forest resources for the socio-economic development of the country.¹¹

The *National Spatial Plan 2015-2045* highlights some of the challenges facing forest ecosystems to include overwhelming pressure from competing land uses like agriculture, industry, human settlement and development of infrastructure; extraction of forest products, illegal logging, cutting trees for fuel wood and charcoal and grazing of livestock have also contributed to the degradation of forests. These competing land uses have adverse environmental effects on long-term sustainability of forest ecosystems. Under

⁸ Ibid.

⁹ Ibid.

¹⁰ No. 34 of 2016, Laws of Kenya.

¹¹ Preamble, No. 34 of 2016, Laws of Kenya.

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this Plan, the Government is mandated to: *prepare integrated forest resource management plans to promote sustainable use of forest resources; develop and implement national standards, principles and criteria of sustainable forest management; indigenous forests shall be identified and protected from logging and involve and empower communities in the management of forest ecosystems through controlled logging, agro-forestry, re-forestation and natural regeneration.*

The Constitution of Kenya 2010 also requires under Article 69(1) that the State should, *inter alia*, – (a) ensure sustainable exploitation, utilisation, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits; (b) work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya; (d) encourage public participation in the management, protection and conservation of the environment; (e) protect genetic resources and biological diversity; (f) establish systems of environmental impact assessment, environmental audit and monitoring of the environment.

The *Community Land Act*¹² provides that: for purposes of the sustainable conservation of land based natural resources within community land across counties, every respective registered community should abide by the relevant applicable laws, policies and standards on natural resources.¹³ With respect to subsection (1), the communities should establish - measures to protect critical ecosystems and habitats; incentives for communities and individuals to invest in income generating natural resource conservation programmes; measures to facilitate the access, use and co-management of forests, water and other resources by communities who have customary rights to these resources; procedures for the registration of natural resources in an appropriate register; and procedures for the involvement of communities and other stakeholders in the management and utilization of land-based natural resources.¹⁴

¹² Community Land Act, No. 47 of 2016, Laws of Kenya.

¹³ *Ibid*, sec. 20 (1).

¹⁴ *Ibid*, se. 20 (2).

7.3. Challenges in Biodiversity Conservation and Forest Resources Management in Kenya

The management and conservation of forests is often associated with tension between powerful, centralised state authorities or the ruling elite and less powerful local communities.¹⁵ Over the years, this state of affairs has led to decentralization of forest rights and tenure to local communities and indigenous groups in both developing and developed nations, giving greater local control of forest resources as a response to the failure of government agencies to exercise adequate stewardship over forests and to ensure that the values of all stakeholders are adequately protected.¹⁶

While the law provides for community based approaches to forest management, there exists challenges at the local level, when local governance institutions are not downwardly accountable to the community and benefits are disproportionately captured by local elites.¹⁷ As a result, tensions exist in some places between the development of locally accountable governance and traditional authorities, with Community-based natural resource management (CBNRM) interventions not being accompanied by the type of long-term investments in capacity-building required to ensure broader participation and the accountability of local leaders to their community.¹⁸

The loss of control rights over natural resources during the colonial period affected other resources including forests and water.¹⁹ The focus of forests management in reserved forests was production and protection and included collection of revenues, supervisory permits and licences, protection against

¹⁵ Sayer, J., Elliott, C., Barrow, E., Gretzinger, S., Maginnis, S., McShane, T., & Shepherd, G., 'The Implications for Biodiversity Conservation of Decentralised Forest Resources Management Paper Prepared on Behalf of IUCN and WWF for the UNFF Inter-Sessional Workshop on Decentralisation Interlaken, Switzerland, May 2004'.

¹⁶ Sayer J, Margules C and Boedhihartono AK, 'Will Biodiversity Be Conserved in Locally-Managed Forests?' (2017) 6 Land 6.

¹⁷ Roe D, Nelson F and Sandbrook C, *Community Management of Natural Resources in Africa: Impacts, Experiences and Future Directions* (IIED 2009), ix.

¹⁸ *Ibid.*

¹⁹ Mogaka, H., 'Economic Aspects of Community Involvement in Sustainable Forest Management in Eastern and Southern Africa,' *Issue 8 of Forest and social perspectives in conservation*, IUCN, 2001, 74.

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illegal entry and use, reforestation and afforestation, research and extension.²⁰ Further, outside reserved forests, the focus by the government authorities was regulation and control of forest resources utilisation through legislation without considering the interests of the local communities or the existing traditional management systems.²¹

Thus, the colonial government effectively transferred the management of forests from the local communities to the government through exclusionist and protectionist legal frameworks, a move that was inherited by the independent governments of Kenya.²² It was only in the 1990s that there emerged a paradigm shift towards community-based forests management, although this was done with minimal commitment from the stakeholders.²³ Arguably, this has been with little success due to the bureaucracy involved in requiring communities to apply for complicated licenses and permits in order to participate in the same.

A closer examination of the *Forest Conservation and Management Act, 2016*²⁴ reveals this challenge. For instance, all indigenous forests and woodlands are to be managed on a sustainable basis for purposes of water, soil and biodiversity conservation; riverine and shoreline protection; cultural use and heritage; recreation and tourism; sustainable production of wood and non-wood products; carbon sequestration and other environmental services; education and research purposes; and as habitats for wildlife in terrestrial forests and fisheries in mangrove forests.²⁵ In this regard, the law requires the

²⁰ Kigenyi, *et al*, 'Practice Before Policy: An Analysis of Policy and Institutional Changes Enabling Community Involvement in Forest Management in Eastern and Southern Africa,' *Issue 10 of Forest and social perspectives in conservation*, (IUCN, 2002), p. 9.

²¹ *Ibid*.

²² For instance, in 1985 the Government of the day effected a total ban on the shamba system, which was participatory in nature in that it allowed communities to settle in forests and engage in farming as they took care of the forests. Following the ban, the communities were resettled outside the gazetted forest areas. This form of eviction has also been witnessed in such recent cases as the Endorois and the Ogiek cases.

²³ Emerton, L., 'Mount Kenya: The Economics of Community Conservation,' *Evaluating Eden Series*, Discussion Paper No.4, p. 6.

²⁴ *Forest Conservation and Management Act*, No. 34 of 2016, Laws of Kenya.

²⁵ Sec. 42 (1), *Forest Conservation and Management Act*, No. 34 of 2016; See also Article 60, Constitution of Kenya 2010.

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Kenya Forest Service to consult with the forest conservation committee for the area where the indigenous forest is situated in preparing a forest management plan.²⁶ Furthermore, the Forests Board is empowered to enter into a joint management agreement for the management of any state indigenous forest or part thereof with any person, institution, government agency or forest association.²⁷ While such arrangements can potentially promote co-management and are important in promoting environmental justice since communities get to participate in management of indigenous forests, there is little evidence of active involvement of these communities. If anything, these communities have been suffering eviction from the indigenous forests.²⁸

The *Draft National Forest Policy 2020* acknowledges that 'while the Forests Act No. 7 of 2005 and the Forest Conservation and Management Act 2016 provide for PFM (a model where the authority managing forest land invites local

²⁶ *Ibid*, S. 42(2).

²⁷ *Ibid*, S. 44(3).

²⁸ 'Kenya: Indigenous Peoples Targeted as Forced Evictions Continue despite Government Promises'

<<https://www.amnesty.org/en/latest/news/2018/08/kenya-indigenous-peoples-targeted-as-forced-evictions-continue-despite-government-promises/>>

accessed 7 July 2021; 'Kenya: Indigenous Ogiek Face Eviction from Their Ancestral Forest... Again' (*Mongabay Environmental News*, 8 October 2018)

<<https://news.mongabay.com/2018/10/kenya-indigenous-ogiek-face-eviction-from-their-ancestral-forest-again/>> accessed 7 July 2021; 'Families Torn Apart: Forced Eviction of Indigenous People in Embobut Forest, Kenya - Kenya' (*ReliefWeb*)

<<https://reliefweb.int/report/kenya/families-torn-apart-forced-eviction-indigenous-people-embobut-forest-kenya-0>> accessed 7 July 2021; 'Imminent Forced Eviction by Kenya Threatens Indigenous Communities' Human Rights and Ancestral Forests - Kenya' (*ReliefWeb*)

<<https://reliefweb.int/report/kenya/imminent-forced-eviction-kenya-threatens-indigenous-communities-human-rights-and>> accessed 7

July 2021; 'Kenya Defies Its Own Courts: Torching Homes and Forcefully Evicting the Sengwer from Their Ancestral Lands, Threatening Their Cultural Survival | Forest Peoples Programme'

<<https://www.forestpeoples.org/topics/legal-human-rights/news/2014/01/kenya-defies-its-own-courts-torching-homes-and-forcefully-evi>> accessed 7 July 2021; 'Kenya's Sengwer People Demand Recognition of "Ancestral Land" | Voice of America - English'

<<https://www.voanews.com/africa/kenyas-sengwer-people-demand-recognition-ancestral-land>> accessed 7 July 2021; Jacqueline M Klopp and Job Kipkosgei Sang, 'Maps, Power, and the Destruction of the Mau Forest in Kenya' (2011) 12 *Georgetown Journal of International Affairs* 125; 'Kenya Forest Service - Kenya Forest Service'

<http://www.kenyaforestservice.org/index.php?option=com_content&view=article&catid=223&id=149&Itemid=98> accessed 7 July 2021.

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people to participate in some activities with responsibilities outlined in participatory agreements and participatory forest management plans (PFMPs)), the implementation of PFMPs through management agreements between KFS and CFAs has been limited due to inadequate funding, where the PFM process needs to be strengthened, improved upon, and adequately financed'. In addition, the Policy document states that 'participation should extend to community engagement in the management and utilization of national gazetted forests through community forestry. Other issues that need to be addressed are: sustainable access, user rights and benefit sharing; enhancing the livelihoods of communities; adoption and mainstreaming of innovative climate change adaptation and mitigation models in forest resource management strategies; and identification of best practices on grievance and redress mechanisms between communities and forest management institutions'.²⁹

It has been argued that many, if not all of the planet's environmental problems and certainly its entire social and economic problems, have cultural activity and decisions – people and human actions – at their roots.³⁰ As such, solutions are likely to be also culturally-based, and the existing models of sustainable development forged from economic or environmental concern are unlikely to be successful without cultural considerations.³¹ Culture in this context, has been defined as: the general process of intellectual, spiritual or aesthetic development; culture as a particular way of life, whether of people, period or group; and culture as works and intellectual artistic activity.³² Notably, the generation, adaptation and use of indigenous knowledge are greatly influenced by the culture.³³

It has rightly been observed that despite the indigenous populations having suffered from invasion and oppression, and oftentimes they have seen

²⁹ Republic of Kenya, Draft National Forest Policy 2020, para. 2.2.2.

³⁰ Dessen, J. et al (ed), 'Culture in, for and as Sustainable Development: Conclusions from the COST Action IS1007 Investigating Cultural Sustainability,' (University of Jyväskylä, Finland, 2015), p. 14. Available at <http://www.culturalsustainability.eu/conclusions.pdf> [Accessed on 7 July 2021].

³¹ Ibid, p.14.

³² Ibid, p. 21.

³³ SGJN Senanayake, 'Indigenous Knowledge as a Key to Sustainable Development' (2006) 2 Journal of Agricultural Sciences–Sri Lanka.

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their knowledge eclipsed by western knowledge, imposed on them through western institutions, indigenous populations have managed to survive for centuries adapting in many different ways to adverse climate conditions and managing to create sustainable livelihood systems.³⁴ Indeed, their diverse forms of knowledge, deeply rooted in their relationships with the environment as well as in cultural cohesion, have allowed many of these communities to maintain a sustainable use and management of natural resources, to protect their environment and to enhance their resilience; their ability to observe, adapt and mitigate has helped many indigenous communities face new and complex circumstances that have often severely impacted their way of living and their territories.³⁵ It is, therefore, worth including indigenous knowledge and culture in any plans, programmes and policies aimed at realisation of sustainable development agenda.

Economically, forests provide timber which is an important source of revenue and a major foreign exchange earner. Forests also serve as habitats and a source of livelihoods for indigenous peoples and forest dwellers.³⁶ The *Africa Forest Law Enforcement and Governance (AFLEG) Ministerial Declaration of 2003*³⁷ recognized the role of forests in its preamble noting that Africa's forest ecosystems are essential for the livelihoods of the African people; especially the poor and that forests play important social, economic and environmental functions.³⁸

Environmental injustice continues to manifest itself in modern times through conflicts such as those in Lamu County and in the pastoral counties, largely

³⁴ Giorgia Magni, 'Indigenous Knowledge and Implications for the Sustainable Development Agenda.' (2017) 52 *European Journal of Education* 437, p.3

< <https://unesdoc.unesco.org/ark:/48223/pf0000245623> > Accessed 7 July 2021.

³⁵ Ibid; See also Anders Breidlid, 'Culture, Indigenous Knowledge Systems and Sustainable Development: A Critical View of Education in an African Context' (2009) 29 *International Journal of Educational Development* 140.

³⁶ UNFF Memorandum <www.iucnael.org/en/.../doc.../849-unit-3-forest-game-backgroundunder.html> Accessed on 15 August 2021; See also UNEP, *Global Environment Outlook 5: Environment for the future we want*, (UNEP, 2012), pp.145-154.

³⁷ Africa Forest Law Enforcement and Governance (AFLEG), Ministerial Conference 13-16 October, 2003; Ministerial Declaration, Yaoundé, Cameroon, October 16, 2003.

³⁸ Sec. 2, *Forest Conservation and Management Act*, No. 34 of 2016, Laws of Kenya.

attributable to environmental injustices inflicted over the years.³⁹ The conflicts also rise as a result of some sections of the society harbouring feelings that land and other land-based resources were taken away from local communities, creating a feeling of disinheritance. In other areas, there are conflicts over access to resources such as forests among forest communities for livelihood, while in others conflicts emerge due to competition over scarce natural resources and competing land uses.⁴⁰

7.4. Sustainable Management of Forests for Biodiversity Conservation

The environment and forest sector is the foundation upon which the performance of the key primary sectors of the economy is anchored including, manufacturing, energy, health and agriculture.⁴¹ It was estimated that by 2010 the national forest cover stood at 4.18 million Ha, representing 6.99% of the total land area while the gazetted public forests managed by Kenya Forest Service covered 2.59 million Ha.⁴² In 2015, the forest cover was estimated at 7.2% based on the national projection from the 2010 forest cover data.⁴³ This is below the recommended minimum global standard of 10% thus necessitating Kenya's goal of increasing and maintaining the national tree cover to at least 10% by 2022.⁴⁴ Most of the forestland in Kenya has been

³⁹ "They Just Want to Silence Us" (*Human Rights Watch*, 17 December 2018) <<https://www.hrw.org/report/2018/12/17/they-just-want-silence-us/abuses-against-environmental-activists-kenyas-coast>> accessed 9 July 2021; Rachel Berger, 'Conflict over Natural Resources among Pastoralists in Northern Kenya: A Look at Recent Initiatives in Conflict Resolution' (2003) 15 *Journal of International Development* 245.

⁴⁰ 'FAO Working Paper 1' <<http://www.fao.org/3/X2102E/X2102E01.htm>> accessed 9 July 2021; Urmilla Bob and Salomé Bronkhorst, 'Environmental Conflicts: Key Issues and Management Implications' (2010) 10 *African Journal on Conflict Resolution*.

⁴¹ Republic of Kenya, *Draft National Strategy for Achieving and Maintaining Over 10% Tree Cover By 2022*, May 2019 <<http://www.environment.go.ke/wp-content/uploads/2019/08/reviised-Draft-Strategy-for-10-Tree-Cover-23-5-19-FINAL.pdf>> accessed 31 July 2021, para. 1.1.

⁴² *Ibid.*

⁴³ *Ibid.*

⁴⁴ <https://www.the-star.co.ke/authors/gilbertkoech>, 'Why State Wants You to Plant Trees on 10% of Your Land' (*The Star*) <<https://www.the-star.co.ke/news/2021-03-14-why-state-wants-you-to-plant-trees-on-10-of-your-land/>> accessed 3 June 2021; Anyango Otieno and Jeckoniah Otieno, 'Sh48b Needed to Raise Forest Cover to 10 per Cent' (*The Standard*)

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attributed to change of and use over the years thus shrinking the country's forest cover to below the international accepted standards.⁴⁵ This is despite the fact that forests are considered important for the provision of vital ecosystem services to communities living around them, contributing immensely to their livelihoods.⁴⁶ Natural forests also provide many ecosystem services needed for biodiversity conservation and sustainable management.⁴⁷

Sustainable forest management is impossible without the conservation of biological diversity in forest ecosystems. In addition to the establishment and functioning of protected areas (PA) and a network of protective forests to maintain biodiversity, it is necessary to ensure the existence and species dispersal in the territories actively involved in forest management.⁴⁸

Sustainable forest management practices that reduce the depletion of carbon stock and enhance forest resiliency (e.g., through reduced impact logging and longer harvesting cycles) could benefit biodiversity if they are applied in forests that have unsustainable harvest rates but would negatively impact forest biodiversity if applied in intact old-growth forests.⁴⁹

<<https://www.standardmedia.co.ke/kenya/article/2001394403/sh48b-needed-to-raise-forest-cover-to-10-per-cent>> accessed 3 June 2021.

⁴⁵ Donald Kipruto Kimutai and Teiji Watanabe, 'Forest-Cover Change and Participatory Forest Management of the Lembus Forest, Kenya' (2016) 3 *Environments* 20; Sylvester Ngome Chisika and Chunho Yeom, 'Enhancing Ecologically Sustainable Management of Deadwood in Kenya's Natural Forests' (2021) 2021 *International Journal of Forestry Research* e6647618; Jebiwott, A., Ogendi, G. M., Makindi, S. M., & Esilaba, M. O., 'Forest Cover Change and Ecosystem Services of Katimok Forest Reserve, Baringo County, Kenya'.

⁴⁶ Jebiwott, A., Ogendi, G. M., Makindi, S. M., & Esilaba, M. O., 'Forest Cover Change and Ecosystem Services of Katimok Forest Reserve, Baringo County, Kenya'.

⁴⁷ Sylvester Ngome Chisika and Chunho Yeom, 'Enhancing Ecologically Sustainable Management of Deadwood in Kenya's Natural Forests' (2021) 2021 *International Journal of Forestry Research*, 1.

⁴⁸ 'Biodiversity Conservation in Forest Management' (*WWF Russia*) <<https://wwf.ru/en/what-we-do/forests/biodiversity-conservation-in-forest-management/>> accessed 13 September 2021.

⁴⁹ Harvey CA, Dickson B and Kormos C, 'Opportunities for Achieving Biodiversity Conservation through REDD' (2010) 3 *Conservation Letters* 53.

7.4.1. Role of Technology and Innovation in Combating Deforestation

Technological and social innovation has an important role in delivering a low-carbon growth through: short-term cost-effective emissions reductions using known technologies (for example, in energy generation and transmission), land use change (for example, in reduced deforestation), and energy efficiency; and in the medium - to longer-term, through delivering next-generation low-carbon technologies, especially for the power, transport, industry, and building sectors.⁵⁰ However, it must be noted that due to the development differences between countries, there would be different policy frameworks for different technologies at different stages of development.⁵¹

Social innovation refers to the reconfiguration of social practices and new institutions such as networks, partnerships, collaborations and governance arrangements – in response to societal challenges and opportunities, and it is seen as crucial for addressing challenges as it has the potential to deliver tangible and positive benefits for rural communities.⁵² Arguably, its potential lies in offering ‘new ways of framing, knowing, doing and organising and transforming the way researchers, development agents and rural stakeholders usually work together, and it represents a shift in the perspective and approach to development that provides opportunities for better inclusion of stakeholders’ voices, values and vision in matters that concern them and for valuing their experience.⁵³

Some of these innovations, it is hoped, will help in predicting changes in future land use and the effects of climate-related deforestation and this will in turn help governments and environment-oriented organizations to use the readily

⁵⁰ Masundire HM, ‘Achieving Sustainable Development and Promoting Development Cooperation-Dialogues at the ECOSOC’ (New York: United Nations, 2008),28.

⁵¹ *Ibid*, 28.

⁵² Barlagne, C., Bézard, M., Drillet, E., Larade, A., Diman, J.L., Alexandre, G., Vinglassalon, A. and Nijnik, M., ‘Stakeholders’ Engagement Platform to Identify Sustainable Pathways for the Development of Multi-Functional Agroforestry in Guadeloupe, French West Indies’ [2021] Agroforestry Systems <<https://doi.org/10.1007/s10457-021-00663-1>> accessed 15 September 2021.

⁵³ *Ibid*.

available vast data to hopefully make better policies to protect the forests.⁵⁴ Indeed, Kenya's *Draft National Forests Policy 2020* acknowledges that 'the forest sector suffers from low productivity of tree crops, low conversion efficiency and weak value addition schemes, as a result of climate change, small genetic base of crops, emerging pests and diseases, delayed investments in silvicultural technology⁵⁵, low investments in technology development, and poor investment in forest-based industry. As such, it states that research and development is needed to refocus basic forestry disciplines to pertinent issues such as productivity, low cost silvicultural technologies, health, crop diversification, processing, value addition, intellectual property rights and indigenous knowledge.⁵⁶

The United Nations climate negotiations on Reducing Emissions From Deforestation And Degradation (REDD), a kind of payments for environmental services (PES)⁵⁷, provide a rare opportunity for conservation of tropical forests and biodiversity.⁵⁸ It has been observed that since Reducing emissions from deforestation and forest degradation (REDD+) policies, projects, and interventions focus on forests, they simultaneously affect socioeconomic and ecological outcomes at local, subnational, national, regional, and global levels.⁵⁹ Reducing emissions from deforestation and forest

⁵⁴ 'Technology to Tackle Deforestation' (*AZoCleantech.com*, 29 November 2013) <<https://www.azocleantech.com/article.aspx?ArticleID=470>> accessed 15 September 2021.

⁵⁵ Developing silvicultural systems for sustainable forestry involves assembling the components of a silvicultural prescription such that the prescription will successfully maintain a range of ecosystem attributes (values). Those components include a suite of harvesting, regeneration, and tending methods. 'Developing Silvicultural Systems for Sustainable Forestry in Canada' <<http://www.fao.org/3/XII/0596-B1.htm>> accessed 15 September 2021.

⁵⁶ Republic of Kenya, *Draft National Forest Policy 2020*, para. 2.2.10.

⁵⁷ Pagiola S and Bosquet B, 'Estimating the Costs of REDD at the Country Level'.

⁵⁸ Harvey CA, Dickson B and Kormos C, 'Opportunities for Achieving Biodiversity Conservation through REDD' (2010) 3 Conservation Letters 53.

⁵⁹ Duchelle, A.E., De Sassi, C., Jagger, P., Cromberg, M., Larson, A.M., Sunderlin, W.D., Atmadja, S.S., Resosudarmo, I.A.P. and Pratama, C.D., 'Balancing Carrots and Sticks in REDD+ Implications for Social Safeguards' (2017) 22 Ecology and Society; Duchelle AE and others, 'What Is REDD+ Achieving on the Ground?' (2018) 32 Current Opinion in Environmental Sustainability 134; Arun Agrawal, Daniel Nepstad, and Ashwini Chhatre, 'Reducing Emissions from Deforestation and Forest Degradation', *Annu. Rev. Environ. Resour.* 2011. 36:373-96, at 373.

degradation in developing countries (REDD) is based on the following basic idea: reward individuals, communities, projects and governments that reduce greenhouse gas (GHG) emissions from forests.⁶⁰

There is a need for countries to continue exploring such projects as part of innovative responses to deforestation and climate change.⁶¹

7.4.2. Promoting Agroforestry for Biodiversity Conservation

As already pointed out, Environmental Democracy is an important tool in promoting participatory management of resources, including forests. As a result, it has been suggested that social innovation is critical in shaping human-forest relationships and how farmers and scientists engage with each other to design sustainability transitions, where it has been observed that if countries are to address synergies between rural livelihoods, biodiversity conservation and the capacity of the natural environment to provide ecosystem services, the role of local communities is central.⁶² Agroforestry is a participatory approach that can be used in enhancing the participation of communities in sustainable management of forest resources for biodiversity conservation.⁶³

With declining biodiversity affecting food security, agricultural sustainability and environmental quality, agroforestry has been hailed as a possible partial solution for biodiversity conservation and improvement.⁶⁴ Agroforestry systems try to balance various needs: 1) to produce trees for timber and other commercial purposes; 2) to produce a diverse, adequate supply of nutritious foods both to meet global demand and to satisfy the needs of the producers themselves; and 3) to ensure the protection of the natural environment so that

⁶⁰ Verbist, B., Vangoidsenhoven, M., Dewulf, R. and Muys, B., 'Reducing Emissions from Deforestation and Degradation (REDD)' [2011] KLIMOS, Leuven, Belgium 1.

⁶¹ Cf. Duchelle AE and others, 'Balancing Carrots and Sticks in REDD+ Implications for Social Safeguards' (2017) 22 Ecology and Society.

⁶² Barlagne, C., Bézard, M., Drillet, E., Larade, A., Diman, J.L., Alexandre, G., Vinglassalon, A. and Nijnik, M., 'Stakeholders' Engagement Platform to Identify Sustainable Pathways for the Development of Multi-Functional Agroforestry in Guadeloupe, French West Indies' [2021] Agroforestry Systems <<https://doi.org/10.1007/s10457-021-00663-1>> accessed 15 September 2021.

⁶³ P Udawatta R, Rankoth L and Jose S, 'Agroforestry and Biodiversity' (2019) 11 Sustainability 2879.

⁶⁴ Ibid.

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it continues to provide resources and environmental services to meet the needs of the present generations and those to come.⁶⁵

Often, farmers see themselves as being part of the socio-ecological system and as custodians of the natural environment.⁶⁶ Agroforestry is a form of integrated land management that combines agriculture and forestry on a same unit of land and aims to ‘create environmental, economic, and social benefits’.⁶⁷

Arguably, agroforestry contributes directly to SDGs 1 (no poverty), 2 (zero hunger), 3 (good health and wellbeing), 6 (clean water and sanitation), 7 (affordable and clean energy), 8 (decent work and economic growth), 11 (sustainable cities and communities), 12 (responsible consumption and production), 13 (climate action), and 15 (life on land) and indirectly through implementation approaches to Goals 4 (quality education), 5 (gender equality), 9 (industry, innovation and infrastructure), 10 (reduced inequalities), 14 (life below water), 16 (peace, justice and strong institutions) and 17 (partnerships for the goals).⁶⁸ If well designed and implemented, agroforestry systems can arguably provide the following: their role in rural development as they can improve food sovereignty and contribute to provision of energy for the smallholders; and their environmental functions: contribution to biodiversity conservation, to increased connectivity of fragmented landscapes, and adaptation and mitigation of climate change.⁶⁹

⁶⁵ ‘What Is Agroforestry?’ (*World Agroforestry | Transforming Lives and Landscapes with Trees*) <<https://www.worldagroforestry.org/about/agroforestry>> accessed 15 September 2021.

⁶⁶ Barlagne, C., Bézard, M., Drillet, E., Larade, A., Diman, J.L., Alexandre, G., Vinglassalon, A. and Nijnik, M., ‘Stakeholders’ Engagement Platform to Identify Sustainable Pathways for the Development of Multi-Functional Agroforestry in Guadeloupe, French West Indies’ [2021] Agroforestry Systems.

⁶⁷ Ibid.

⁶⁸ ‘What Is Agroforestry?’ (*World Agroforestry | Transforming Lives and Landscapes with Trees*) <<https://www.worldagroforestry.org/about/agroforestry>> accessed 15 September 2021.

⁶⁹ Montagnini F, ‘Integrating Landscapes: Agroforestry for Biodiversity Conservation and Food Sovereignty’ (2017) 12 *Advances in agroforestry* (ISSN 1875-1199).

7.5. Conclusion

Increasingly, forests have been associated with global sustainability, with them re-taking centre stage in global conversations about sustainability, climate and biodiversity.⁷⁰ Arguably, there is a need for countries to adopt approaches to combating deforestation which involve public resources and governance reform if the hard and soft infrastructure for controlling deforestation and the scale required is to work effectively, and these approaches should include observation, monitoring, definition and enforcement of property rights, legal and administrative reform, among others, at the country level.⁷¹ There is no meaningful progress that can be made in achieving biodiversity conservation through sustainable forests management if communities are not actively and meaningfully involved in such efforts, through Environmental Democracy.

⁷⁰ Oldekop JA and others, 'Forest-Linked Livelihoods in a Globalized World' (2020) 6 Nature Plants 1400.

⁷¹ Masundire HM, 'Achieving Sustainable Development and Promoting Development Cooperation-Dialogues at the ECOSOC' (New York: United Nations, 2008),28.

CHAPTER EIGHT

Gender Perspectives in Biodiversity Conservation

8.1. Introduction

Kenya's *Draft National Forest Policy 2020*'s overall goal is to develop, manage, utilize and sustainably conserve forest resources to cover at least 10% of the total land mass, for equitable sharing of the accrued benefits including the flow of ecosystem services for present and future generations, and one of the cross-cutting issues covered therein is gender and social inclusion.¹ It was inspired by the fact that 'the absence of an approved updated National Forest Policy since 1968 and a decade after the promulgation of the Constitution 2010 means that legal requirements brought about by the Constitution with respect to natural resource management such as public participation, community and gender rights, equity in benefit sharing, devolution and the need to achieve 10% forest cover are not anchored in policy'.²

The term "gender" is used to refer to the set of social norms, practices and institutions that regulate the relations between women and men (also known as "gender relations").³ It has also been defined as a social construct that ascribes different qualities and rights to women and men regardless of individual competence or desires.⁴ It is noteworthy that gender does not mean 'women' or 'girls' - although the word is frequently (mis)used as shorthand for women, women's empowerment, women's human rights, or, more broadly, for any initiative that is geared towards girls or women.⁵ Gender

¹ Republic of Kenya, *Draft National Forest Policy 2020*, Chapter Three.

² Ibid, para. 1.4.2.

³ United Nations, "The Role of Men and Boys in Achieving Gender Equality," *Women 2000 and Beyond*, December 2008, p.4. Available at <http://www.unwomen.org/~media/headquarters/media/publications/un/en/w2000menandboyseweb.pdf>.

⁴ G. J. Latham, "A study on gender equality as a prerequisite for sustainable development," *Report to the Environment Advisory Council*, Sweden 2007:2, p. 17. Available at http://www.uft.oekologie.unibremen.de/hartmutkoehler_fuer_studierende/MEC/09-MEC-reading/gender%202007%20EAC%20rapport_engelska.pdf.

⁵ UNICEF, "Promoting Gender Equality: An Equity-Focused Approach to Programming," *Operational Guidance Overview*, p. 10. Available at http://www.unicef.org/gender/files/Overarching_Layout_Web.pdf.

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inequality has been defined as the differential treatment and outcomes that deny women the full enjoyment of the social, political, economic and cultural rights and development. It is the antithesis of equality of men and women in their human dignity, autonomy and equal protection.⁶ Gender equality is, however, not a 'women's issue' but refers to the equal rights, responsibilities and opportunities of women and men, girls and boys, and should concern and fully engage men as well as women.⁷

While the degradation of natural resources and the loss of biodiversity has an impact on everyone regardless of their status or gender, it has been argued that these changes affect women more due to their closer interactions with natural resources and biological diversity.⁸ For this reason, there is a need for active participation of both men and women in biodiversity conservation. Arguably, the central role of women in the conservation and sustainable use of natural resources has been overlooked in studies on biodiversity, most of which have been done from the perspective of natural science.⁹ The Convention on Biological Diversity, which was signed at the Rio Earth Summit in June 1992, explicitly recognizes in its preamble as it states that "the vital role that women play in the conservation and sustainable use of biological diversity" and affirms "the need for the full participation of women at all levels of policy-making and implementation for biological diversity conservation."¹⁰ Similarly, in addition, the 1992 Earth Summit held in Rio emphasized the central role of women in promoting ecologically sound and sustainable development. Since then, feminists all over the world have embraced the environmental challenge

⁶ Baraza, N., 'Lost Between Rhetoric and Reality: What Role for the Law and Human Rights in Redressing Gender Inequality?' *Kenya Law Reform* Vol. II [2008-2010] p 1. Available at <http://www.kenyalaw.org/klr/index.php?id=874>.

⁷ See generally 'Universal Declaration of Human Rights - In six cross-cutting themes' Available at http://www.ohchr.org/EN/UDHR/Documents/60UDHR/Stories_on_Human_Right_PressKit_en.pdf.

⁸ Bechtel JD, 'Gender, Poverty and the Conservation of Biodiversity' [2010] A review of issues and opportunities. MacArthur Foundation Conservation White Paper Series, 4.

⁹ Zweifel H, 'The Gendered Nature of Biodiversity Conservation' (1997) 9 *NWSA Journal* 107.

¹⁰ *Ibid*, 107.

and are among the most ardent activists for protecting the planet and its inhabitants.¹¹

Initially, due to the gender-specific nature of women's chores as homemakers, they were seen as a problem, responsible for the destruction of the environment where the millions of women collecting firewood every day to cook for their families was seen as one of the main causes of deforestation and ecological crisis, although this later change to Women and women's groups all over the world becoming actively engaged in grassroots movements defending the environment against destruction in such movements as the late Prof. Wangari Maathai's Green Belt movement in Kenya.¹²

This chapter seeks to discuss and affirm the place of women in biodiversity conservation as part of their contribution towards realisation of the 2030 Agenda on sustainable development goals.

8.2. Gender Perspectives in Biodiversity Conservation: The Legal Framework

Gender is now considered to be a key consideration for equitable and effective biodiversity conservation practice since ethically, ensuring gender-equitable participation is a cornerstone for respecting, protecting, and promoting human rights and for not disadvantaging anyone in the process of conserving biodiversity.¹³

At the international law level, *CBD Decision XII/7 2* encourages Parties to give gender due consideration in their national biodiversity strategies and action plans and to integrate gender into the development of national indicators.¹⁴

Under the Constitution of Kenya, Article 10, the national values and principles of governance include—(a) *patriotism, national unity, sharing and devolution of power, the rule of law, democracy and participation of the people; b) human dignity,*

¹¹ *Ibid.*

¹² Zweifel H, 'The Gendered Nature of Biodiversity Conservation' (1997) 9 NWSA Journal 107, 109.

¹³ Lau JD, 'Three Lessons for Gender Equity in Biodiversity Conservation' (2020) 34 Conservation Biology 1589, 1589.

¹⁴ CBD Decision XII/7, para.2.

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equity, social justice, inclusiveness, equality, human rights, non-discrimination and protection of the marginalised.

Under Article 27(1), every person is equal before the law and has the right to equal protection and equal benefit of the law; (2) Equality includes the full and equal enjoyment of all rights and fundamental freedoms; (3) Women and men have the right to equal treatment, including the right to equal opportunities in political, economic, cultural and social spheres.

Article 59 establishes the Kenya National Human Rights and Equality Commission whose functions include inter alia promoting gender equality and equity generally and to coordinate and facilitate gender mainstreaming in national development. Article 175 (c) provides that one of the principles of principles of devolved government is that no more than two-thirds of the members of representative bodies in each county government should be of the same gender. In the spirit of equality and non-discrimination, gender mainstreaming in the agricultural sector becomes an important aspect of human rights approaches to biodiversity conservation.

The *National Gender and Equality Commission Act, 2011*¹⁵ was enacted to establish the National Gender and Equality Commission as a successor to the Kenya National Human Rights and Equality Commission pursuant to Article 59(4) of the Constitution; to provide for the membership, powers and functions of the Commission, and for connected purposes.

Some of the functions of the Commission under the Act include, inter alia, to – promote gender equality and freedom from discrimination in accordance with Article 27 of the Constitution; monitor, facilitate and advise on the integration of the principles of equality and freedom from discrimination in all national and county policies, laws, and administrative regulations in all public and private institutions; act as the principal organ of the State in ensuring compliance with all treaties and conventions ratified by Kenya relating to issues of equality and freedom from discrimination and relating to special interest groups including minorities and marginalised persons, women, persons with disabilities, and children; co-ordinate and facilitate

¹⁵ *National Gender and Equality Commission Act*, No. 15 of 2011, Laws of Kenya.

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mainstreaming of issues of gender, persons with disability and other marginalised groups in national development and to advise the Government on all aspects thereof; work with other relevant institutions in the development of standards for the implementation of policies for the progressive realization of the economic and social rights specified in Article 43 of the Constitution and other written laws; and co-ordinate and advise on public education programmes for the creation of a culture of respect for the principles of equality and freedom from discrimination.

Understanding gender roles and relation in agriculture along value chains and identifying key factors that contribute to gender gaps in agriculture is considered crucial for the design and formulation of gender inclusive policy and institutional innovations that equalize opportunities for women and men farmers and equally benefit women and men from the agricultural research for development and dissemination of technologies.¹⁶

It is worth pointing out that commentators in the last two decades observed that most sustainable development efforts, including biodiversity initiatives, derived from a gendered vision of segmented sustainability that divides home, habitat and workplace into separate domains, with women at 'home', men in the 'workplace' and protected 'habitats' devoid of humans.¹⁷ However, over the years, there has been a paradigm shift, at least theoretically on the relationship between men and women in relation to biodiversity as well as the general relationship between man's day to day life and the natural habitats, in light of the United Nations 2030 Agenda on Sustainable Development (SDGs Agenda).

The SDGs Agenda seeks to adopt a holistic approach to sustainability that not only includes both men and women but also recognises the interconnectivity

¹⁶ International Centre of Insect Physiology and Ecology (*icipe*), 'Gender Research and Mainstreaming,' available at <http://www.icipe.org/research/social-science-and-impact-assessment/gender-research-and-mainstreaming> Accessed on 13 July 2021.

¹⁷ Rocheleau DE, 'Gender and Biodiversity: A Feminist Political Ecology Perspective' (1995) 26 IDS bulletin 9, 9.

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between human life and the natural habitats.¹⁸ This was informed by the realisation that in many rural communities throughout the world women are responsible for the reproduction of the work force, the production of daily subsistence, and the maintenance of the complex ecosystems and particular species that support agriculture, livestock and forest production, yet, most women are legally landless and not officially part of the work force.¹⁹

The traditional stereotypical role of women in most African homes makes them important players in conservation and use of plant genetic resources (PGR) worldwide where they are often responsible for ensuring household food security and family health, which makes them have greater knowledge and a more diversified perspective than men on PGR because they are responsible for producing or procuring a large number of plant resources and for storing and transforming plants to meet household needs.²⁰

Notably, the Constitution of Kenya provides that the objects of devolved government are, *inter alia*, to promote democratic and accountable exercise of power; to foster national unity by recognising diversity; to give powers of self-governance to the people and enhance their participation in the exercise of the powers of the State and in making decisions affecting them; to recognise the right of communities to manage their own affairs and to further their development; to protect and promote the interests and rights of minorities and marginalised communities; to promote social and economic development and the provision of proximate, easily accessible services throughout Kenya; to ensure equitable sharing of national and local resources throughout Kenya;

¹⁸ See UNGA, *Transforming our world: the 2030 Agenda for Sustainable Development*, Resolution adopted by the General Assembly on 25 September 2015 [without reference to a Main Committee (A/70/L.1)].

¹⁹ Rocheleau DE, 'Gender and Biodiversity: A Feminist Political Ecology Perspective' (1995) 26 IDS bulletin 9, 9; see also Mackenzie AFD, 'Land Tenure and Biodiversity: An Exploration in the Political Ecology of Murang'a District, Kenya' (2005) 62 Human Organization 255; Verma R, "'Without Land You Are Nobody": Critical Dimensions of Women's Access to Land and Relations in Tenure in East Africa' [2007] Unpublished IDRC Scoping Study for East Africa on Women's Access and Rights to Land and Gender Relations in Tenure.

²⁰ Howard-Borjas P and Cuijpers W, 'Gender Relations in Local Plant Genetic Resource Management and Conservation' [2002] *Biotechnology*, in encyclopedia for life support systems. EOLSS Publishers, Cambridge.

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and to facilitate the decentralisation of State organs, their functions and services, from the capital of Kenya.²¹ In addition, it provides for participation of, *inter alia*, minorities and marginalized groups,²² in governance and all other spheres of life. The foregoing provisions are important especially in relation to the provisions of the *County Governments Act*,²³ which also affirm the fact that citizen participation in county governments should be based upon the principles of, *inter alia*, protection and promotion of the interest and rights of minorities, marginalized groups and communities; legal standing to interested or affected persons, organizations, and where pertinent, communities, to appeal from or, review decisions, or redress grievances, with particular emphasis on persons and traditionally marginalized communities, including women, the youth, and disadvantaged communities; reasonable balance in the roles and obligations of county governments and non-state actors in decision-making processes; promotion of public-private partnerships; and recognition and promotion of the reciprocal roles of non-state actors' participation and governmental facilitation and oversight.²⁴

Notably, United Nations *Agenda 21* requires that Governments at the appropriate level, with the support of the relevant international and regional organizations, should, *inter alia*, promote a multidisciplinary and cross-sectoral approach in training and the dissemination of knowledge to local people on a wide range of issues which include various resources management.²⁵ Further, *Agenda 21* states that Coastal States should promote and facilitate the organization of education and training in integrated coastal and marine management and sustainable development for scientists, technologists, managers (including community-based managers) and users, leaders, indigenous peoples, fisherfolk, *women* and youth, among others.

8.3. Gender Perspectives in Biodiversity Conservation

It has been recommended that some of the specific actions which need to be undertaken to create an enabling environment for biodiversity benefits and improved well-being to be enjoyed by all people, women and men, boys and

²¹ Art. 174, Constitution of Kenya 2010.

²² *Ibid*, Art. 56.

²³ *County Governments Act*, No. 17 of 2012, Laws of Kenya.

²⁴ *Ibid*, S. 87.

²⁵ Clause 13.22.

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girls, include: Mainstream gender consideration into all national and local biodiversity policies, programmes, budgeting and monitoring mechanisms; Make awareness-raising and capacity building components mandatory for conservation interventions to inform men and women, including indigenous, local and rural women of their roles, rights and benefits in relation to the intervention; Develop and provide training and capacity building on gender issues and mainstreaming in the context of biodiversity conservation and sustainable use, to policy-makers and those involved in planning and undertaking biodiversity-related projects and programmes; Facilitate evidence-based policies by developing gender-sensitive monitoring and reporting frameworks and promoting gender analysis, including in the National Reports of Parties to the CBD; and Dedicate or increase the allocation of financial resources and strengthen expertise to advance the collection and use of data disaggregated by sex, age, ethnicity, disability and other relevant factors, to inform the development and implementation of gender-responsive biodiversity policies and programmes; Identify opportunities to access climate finance to address relevant gender objectives, and ensure new and innovative biodiversity-related financing mechanisms include avenues for access by marginalized and small-scale actors, particularly women and women's organizations; Identify synergies and reinforce efforts to implement the gender-specific targets and/or mandates of the sustainable development goals and the Rio Conventions, including through collaboration with organizations leading the work on these initiatives, and the identification of approaches to mainstream biodiversity and apply common indicators for monitoring and assessing progress and gaps.²⁶

Some commentators have suggested that in order to advance gender equality and women's empowerment in the implementation of the post-2020 global biodiversity framework, there is need to ensure: equal opportunities for leadership, decision-making and effective engagement at all levels of decision-making in matters related to the three objectives of the Convention; equal access, ownership and control over biological resources; and equal access to

²⁶ UN-Women, "Towards a gender-responsive post-2020 global biodiversity framework: Imperatives and Key Components," *A submission by the United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women) as an input to the development of the post-2020 global biodiversity framework*, 1 May 2019, 8.

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benefits from biodiversity conservation and sustainable use, and from the utilization of genetic resources.²⁷

Gender roles affect economic, political, social and ecological opportunities and constraints faced by both men and women. Recognizing women's roles as primary land and resource managers is central to the success of biodiversity policy.²⁸ Because of the inherent connectedness between poverty, biodiversity use, and gender and the mutually self-reinforcing nature of these links, addressing rural poverty and environmental degradation requires a holistic, multidisciplinary approach and an understanding of gender in order to achieve successful sustained results.²⁹

There is need for governments to establish policies to incorporate gender and other special perspectives into all policies, laws, procedures, programmes and practices relating to ecosystem services, and to identify gaps in the protection of persons and groups of concern, in line with Aichi Biodiversity Target 14 which requires States to ensure that 'by 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.³⁰ The need for equal and active participation of women in sustainable use and conservation of biodiversity is pegged on the fact that they play critical roles as primary land managers and resource users, and they face disproportionate impacts both from biodiversity loss and gender-blind conservation measures.³¹ Governments should thus continually towards promoting equity and equality in biodiversity conservation efforts.

²⁷ UN-Women, "Integrating a gender perspective in the post-2020 global biodiversity framework," *Issues Brief* – January 2021.

²⁸ Secretariat of the Convention on Biological Diversity, "Gender and Biodiversity," www.cbd.int/gender.

²⁹ Bechtel JD, 'Gender, Poverty and the Conservation of Biodiversity' [2010] A review of issues and opportunities. MacArthur Foundation Conservation White Paper Series.

³⁰ United Nations Environment Programme, *Law and National Biodiversity Strategies and Action Plans*, 2018, Nairobi, Kenya, at 53.

³¹ 'The Role, Influence and Impact of Women in Biodiversity Conservation' (*International Institute for Environment and Development*, 9 October 2018)

8.4. Conclusion

It is no longer a secret that the recognition, reinforcement, and improvement of women's position, knowledge, and capabilities with respect to the sustainable management of biological diversity are key factors in the success of the conservation and use of natural resources, as well as in the empowerment of women.³² There is a need for efforts towards biodiversity conservation to ensure active and meaningful inclusion of all people, both men and women, as access to these resources affects men and women in different ways.

<<https://www.iied.org/role-influence-impact-women-biodiversity-conservation>>
accessed 15 September 2021.

³² Zweifel H, 'The Gendered Nature of Biodiversity Conservation' [1997] Nwsa Journal 107, 119.

CHAPTER NINE

Cleaner and Affordable Energy Sources for All as a Tool for Biodiversity Conservation

9.1. Introduction

Notably, many processes and resources in nature provide power that can be harnessed by human communities, especially wind, water and biomass combustion, and different geographical regions and countries at varying stages of development use varied methods of generating power, with over half of the world's population continually relying upon solid fuels for cooking and heating including wood, crop stubble and animal dung - a direct product of ecosystems.¹

The transition to cleaner technologies and cleaner and affordable sources of energy has been a major part of the sustainable development debate due to their effect on climate change mitigation efforts as well as degradation of environmental resources, such as forests, as well as the pollution effects.² As such, it is a major goal in the 2030 Agenda for sustainable development goals, as encapsulated under SDG 7 of the *United Nations 2030 Agenda for Sustainable Development Goals which seeks to 'ensure access to affordable, reliable, sustainable and modern energy for all'*. It has been argued that with the increasing recognition of the environmental damaged caused by fossil fuel use in transport and the depletion of global reserves, to some extent reflected in rising prices, the search for alternative, renewable sources of energy has moved to the top of the agenda in many countries, particularly those most dependent on imports or of fossil fuel energy sources.³

¹ Assessment ME, *Ecosystems and Human Well-Being*, vol 5 (Island press United States of America 2005), 3.

² Gasparatos, A., Doll, C. N., Esteban, M., Ahmed, A., & Olang, T. A., 'Renewable Energy and Biodiversity: Implications for Transitioning to a Green Economy' (2017) 70 *Renewable and Sustainable Energy Reviews* 161.

³ Slingenbergh, A., Braat, L., van der Windt, H., Rademaekers, K., Eichler, L. and Turner, K., 'Study on Understanding the Causes of Biodiversity Loss and the Policy Assessment Framework'.

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It has been observed that energy and more precisely, inequitable access to energy – represents one of Africa’s greatest obstacles to social and economic development.⁴ Notably, the Continent is largely divided into three regions namely: North Africa, which is heavily dependent on oil and gas, South Africa, which depends on coal and the rest of Sub-Saharan Africa, which is largely reliant on biomass.⁵ Kenya falls within the Sub-Saharan Africa which also means that most of its citizens especially within the rural regions rely mainly on biomass, (unprocessed wood, charcoal, agricultural residues and animal waste), which has adverse effects on their health.⁶ Thus, while the UN Secretary-General Ban Ki-Moon launched the Sustainable Energy for All Initiative (SE4All) in 2011, where he also declared 2012 the year for sustainable energy for all⁷, this has largely remained a mirage especially for the African region.

Notably, the *Kenya Sustainable Energy for All (SE4All) Action Plan*, was also launched by the Ministry of Energy and Petroleum as an Action Agenda (AA) with an energy sector-wide long-term vision spanning the period between 2015 to 2030, which outlines how Kenya will achieve her SE4All goals of 100% universal access to modern energy services, increase the rate of energy efficiency and increase to 80% the share of renewable energy in her energy mix, by 2030.⁸ In addition, the updated *Least cost power development plan 2017-2037* developed by the Ministry of Energy and Petroleum, which is an updated version of the 2015-2035 electricity Sector Master plan estimated peak demand for the period 2017-2037 ranges from 1,754MW to 6,638MW in the reference case scenario, 1,754MW to 9,790MW in the high case and between 1754MW in

⁴ Hafner M, Tagliapietra S and de Strasser L, ‘The Challenge of Energy Access in Africa’ in Manfred Hafner, Simone Tagliapietra and Lucia de Strasser (eds), *Energy in Africa: Challenges and Opportunities* (Springer International Publishing 2018) <https://doi.org/10.1007/978-3-319-92219-5_1> accessed 19 July 2021.

⁵ Karekezi, S., Kithyoma, W., & Energy Initiative, "Renewable energy development." In *workshop on African Energy Experts on Operationalizing the NEPAD Energy Initiative*, June, pp. 2-4. 2003, 2.

⁶ See Christine W Njiru and Sammy C Letema, ‘Energy Poverty and Its Implication on Standard of Living in Kirinyaga, Kenya’ (2018) 2018 *Journal of Energy*.

⁷ Republic of Kenya, *Kenya Sustainable Energy for All (SE4All) Action Plan*, January 2016 < https://www.seforall.org/sites/default/files/Kenya_AA_EN_Released.pdf> accessed 18 July 2021.

⁸ *Ibid.*

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2017 to 4,763MW in 2037 in the low case scenario.⁹ The energy sources considered in the system expansion plan for the different cases in the report included: Geothermal, nuclear, Wind, Solar, Import, Petrol-thermal plants, Hydropower, Coal and Natural gas.¹⁰ However, while Kenya has made significant steps towards increasing the power production, sustainability of some of these sources as well as affordability remains a challenge.¹¹ The challenges facing Kenya's energy sector have been summarized as including: low electrification rate, reliance on imported fossil fuels, transmission inefficiencies, frequent power outages, high cost of rural electrification, demand for electricity outstripping generation capacity, and inability of the power utility agency to connect all customers who apply for connection to the national grid.¹²

It has been noted that the energy use of human societies has historically been marked by four broad trends: Rising consumption as societies industrialize, gain wealth and shift from traditional sources of energy (mostly biomass-based fuels such as wood, dung and charcoal) to commercial forms of energy (primarily fossil fuels); steady increases in both the power and efficiency of energy-producing and energy-using technologies; de-carbonization and diversification of fuels, especially for the production of electricity, throughout most of the 20th century; and a reduction in the quantities of conventional pollutants associated with energy use.¹³ Arguably, Kenya's energy sector is still struggling with challenges that hinder the smooth transition through the stated trends, thus exposing its people to poverty and the potential adverse health effects as well as the continued adverse effects of biomass use on the environment.

⁹ Republic of Kenya, *Least cost power development plan 2017-2037*, p. xv <<http://gak.co.ke/wp-content/uploads/2019/02/Updated-Least-Cost-Power-Development-Plan-2017-2022-min.pdf>> accessed 18 April 2021.

¹⁰ *Ibid.*

¹¹ See Samoita D and others, 'Barriers and Solutions for Increasing the Integration of Solar Photovoltaic in Kenya's Electricity Mix' (2020) 13 *Energies* 5502.

¹² Christine W Njiru and Sammy C Letema, 'Energy Poverty and Its Implication on Standard of Living in Kirinyaga, Kenya' (2018) 2018 *Journal of Energy*, 2.

¹³ Dilip Ahuja and Marika Tatsutani, 'Sustainable energy for developing countries' [2009] S.A.P.I.E.N.S. *Surveys and Perspectives Integrating Environment and Society* <<http://journals.openedition.org/sapiens/823>> accessed 24 April 2021.

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This chapter explores how Kenya can fast-track its efforts towards achieving sustainable and affordable energy for all its people in line with the United Nations 2030 Agenda for Sustainable Development Goals (SDGs)¹⁴ Goal 7 which is based on this as a step towards fostering biodiversity conservation.

The chapter thus mainly focuses on addressing these challenges and proposes solutions to promote the uptake, access and use of sustainable and affordable cleaner sources of energy for the Kenyan people in line with SDG Goal 7.

9.2. Place of Clean and Affordable Energy in Sustainable Development Agenda

Right to energy is so important that some authors have argued that ‘food and energy are the two essential resources to support the modern and civilized society of the mankind’.¹⁵ The United Nations 2030 Agenda for Sustainable Development Goals (SDGs) Goal 7 obligates States to ‘ensure access to affordable, reliable, sustainable and modern energy for all’. The associated targets that are meant to create action to ensure universal access to sustainable energy include: By 2030, ensure universal access to affordable, reliable and modern energy services; by 2030, increase substantially the share of renewable energy in the global energy mix; by 2030, double the global rate of improvement in energy efficiency; By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology; and by 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support.¹⁶ This goal was informed by the fact that ‘the world has experienced a rapid demand of energy sources, both fossil fuels

¹⁴ UN General Assembly, *Transforming our world: the 2030 Agenda for Sustainable Development*, 21 October 2015, A/RES/70/1.

¹⁵ Tomabeche K, ‘Energy Resources in the Future’ *Energies* 2010, 3, 686-695, 686.

¹⁶ ‘Goal 7: Affordable and Clean Energy’ (*The Global Goals*)

<<https://www.globalgoals.org/7-affordable-and-clean-energy>> accessed 18 July 2021.

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and renewables'.¹⁷ In addition, 'as the population continues to grow, so will the demand for cheap energy, and an economy reliant on fossil fuels is creating drastic changes to our climate'.¹⁸ Urbanization and ambitions of economic development will also demand more energy.¹⁹

The United Nations rightly points out that while 'energy is central to social and economic well-being, 1.1 billion people have no access to electricity, while 2.9 billion have to cook with polluting, inefficient fuels such as firewood'.²⁰ Some commentators have observed that 'SDG 7 Affordable and Clean Energy ensures access to affordable, reliable, and sustainable energy and is crucial in achieving many of the SDGs – from poverty eradication via advancements in health, education, water supply, and industrialization to mitigating climate change'.²¹

Access to cleaner and affordable energy sources is thus an important part of the journey towards achieving the sustainable development goals.

¹⁷ Franco IB, Power C and Whereat J, 'SDG 7 Affordable and Clean Energy: EWisely: Exceptional Women in Sustainability Have Energy to Boost-Contribution of the Energy Sector to the Achievement of the SDGs'.

¹⁸ 'Goal 7: Affordable and Clean Energy' (UNDP)

<<https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-7-affordable-and-clean-energy.html>> accessed 18 July 2021.

¹⁹ Hafner M, Tagliapietra S and de Strasser L, 'The Challenge of Energy Access in Africa' in Manfred Hafner, Simone Tagliapietra and Lucia de Strasser (eds), *Energy in Africa: Challenges and Opportunities* (Springer International Publishing 2018) <https://doi.org/10.1007/978-3-319-92219-5_1> accessed 19 July 2021

²⁰ Valencia M, 'Sustainable Energy for All Shifts Gear to Speed Delivery of Affordable, Clean Energy' (*United Nations Sustainable Development*) <<https://www.un.org/sustainabledevelopment/blog/2016/06/sustainable-energy-for-all-shifts-gear-to-speed-delivery-of-affordable-clean-energy/>> accessed 18 July 2021.

²¹ Franco IB, Power C and Whereat J, 'SDG 7 Affordable and Clean Energy: EWisely: Exceptional Women in Sustainability Have Energy to Boost-Contribution of the Energy Sector to the Achievement of the SDGs', 106.

9.3. Accessing Clean and Affordable Energy Needs for All: The Kenyan Experience

Most developing countries are struggling with growing populations and it is expected that today's world population will increase by 1.26 times to reach 9.7 billion in 2050 with most of the world's population which include 90% of the population growth belonging to the developing countries.²²

Kenya, just like many other developing countries in Africa, is dealing with the burden of a growing population, environmental pollution, poverty, corruption and legal and policy framework inadequacies, among others, which all affect the achievement of clean and sustainable energy for all.²³ In addition, cultural perceptions (including myths about the flavour of food cooked on traditional stoves and the relative safety and cost of clean alternatives) have also been identified as a significant barrier to wider uptake of clean cooking fuels.²⁴

These challenges informed the drafting of the Sustainable Development Goals and specifically SDG 7 and the related targets. As a result, the environment, which is being increasingly polluted because of rapid industrialization and human work, is critical in the sustainable development agenda where sustainable development mainly covers the use of renewable energy, energy security, energy pricing, energy policy, renewable energy applications and smart grid technologies.²⁵ The World Health Organization, in a 2018

²² Salvarli MS and Salvarli H, *For Sustainable Development: Future Trends in Renewable Energy and Enabling Technologies* (IntechOpen 2020)

<<https://www.intechopen.com/books/renewable-energy-resources-challenges-and-applications/for-sustainable-development-future-trends-in-renewable-energy-and-enabling-technologies>> accessed 19 July 2021.

²³ Painuly JP, 'Barriers to Renewable Energy Penetration; a Framework for Analysis' (2001) 24 *Renewable energy* 73.

²⁴ Ngeno G and others, 'Opportunities for Transition to Clean Household Energy in Kenya: Application of the Household Energy Assessment Rapid Tool (HEART) ', *Opportunities for transition to clean household energy in Kenya: application of the household energy assessment rapid tool (HEART)* (2018), 1.

²⁵ Salvarli MS and Salvarli H, *For Sustainable Development: Future Trends in Renewable Energy and Enabling Technologies* (IntechOpen 2020)

<<https://www.intechopen.com/books/renewable-energy-resources-challenges-and-applications/for-sustainable-development-future-trends-in-renewable-energy-and-enabling-technologies>> accessed 19 July 2021.

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Household Energy Assessment Rapid Tool (HEART) developed in Kenya, highlights human health issues from non-renewable energy sources where it points out that ‘household air pollution (HAP) from inefficient fuel combustion is one of the most important global environmental health risks today’ especially in low- and middle income countries such as Kenya, where majority of the population still rely on solid fuels (wood, animal dung, charcoal, crop wastes and coal) burnt in inefficient, highly polluting stoves for cooking and heating.²⁶ Indeed, this trend is expected to go on for longer in Kenya, if the latest reports are anything to go by. It is reported that Kenyans are expected to pay higher for liquefied petroleum gas from 1st July 2021 following the reinstatement of value-added tax (VAT) on liquefied petroleum gas (LPG) through the Finance Act 2020, the implementation of the charges had been deferred to the second half of 2021 due to the Covid-19 crisis.²⁷

This is a retrogressive move by the Government from the earlier development where ‘Kenyan households had since June 2016 been enjoying low cooking gas prices after the Treasury scrapped the tax on LPG to cut costs and boost uptake among the poor who rely on dirty kerosene and charcoal for cooking’, a move that was in line with the country’s commitment to achievement of SDG Goal 7.²⁸ With affordability being a key access barrier to clean cooking fuels, such as liquefied petroleum gas (LPG), this move is likely to erode the gains made in transitioning the country to cleaner technologies.²⁹

²⁶ Ngeno G and others, ‘Opportunities for Transition to Clean Household Energy in Kenya: Application of the Household Energy Assessment Rapid Tool (HEART) ’, *Opportunities for transition to clean household energy in Kenya: application of the household energy assessment rapid tool (HEART)* (2018), vi.

²⁷ July 23 2021 F, ‘Cooking Gas Prices to Rise Sh350 on New Tax’ (*Business Daily*) <<https://www.businessdailyafrica.com/bd/economy/cooking-gas-prices-rise-sh350-on-new-tax-3373296>> accessed 23 July 2021; Kerubo MJ and B, ‘Higher Gas Costs: What You’ll Pay to Refill Your Cylinders Beginning July’ (*The Standard*) <<https://www.standardmedia.co.ke/nairobi/article/2001410538/kenyans-to-pay-more-for-cooking-gas-beginning-july>> accessed 23 July 2021.

²⁸ June 11 2020 T, ‘Kenyans to Pay Sh300 More for Cooking Gas’ (*Business Daily*) <<https://www.businessdailyafrica.com/bd/economy/kenyans-to-pay-sh300-more-for-cooking-gas-2292630>> accessed 23 July 2021.

²⁹ Shupler M and others, ‘Pay-As-You-Go Liquefied Petroleum Gas Supports Sustainable Clean Cooking in Kenyan Informal Urban Settlement during COVID-19 Lockdown’ [2021] *Applied Energy* 116769.

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It has been suggested that while many developing countries have been apparently trying to restructure their energy sectors, it is difficult to realize innovations in the energy sector as they struggle with cost, market share and policy as the main barriers for the development of renewable energy.³⁰ This is especially important since the reserves of fossil fuels are naturally expected to come to an end.³¹

Kenya's major sources of energy for the main economic production are oil, geothermal and hydro resources for electricity production where oil-based electricity generation is environmentally harmful, expensive and a burden to the national trade balance; the rivers for hydropower and their tributaries are found in arid and semi-arid areas with erratic rainfall leading to problems of supply security, and geothermal exploitation has cost and risk issues, amongst others.³² The cost of electricity generation and supply is also affected by the overdependence on Hydroelectric Power (HEP) as the main source of renewable energy, which is weather dependent and the unpredictable weather, due to climate change has made power rationing a common phenomenon in a number of Sub-Saharan Africa countries during the dry seasons.³³ It has been observed that while 'Renewable Energy Technologies (RETs) provide attractive environmentally sound technology options for Africa's electricity industry, the success of RETs in the region has been limited by a combination of factors which include: poor institutional framework and infrastructure; inadequate RET planning policies; lack of co-ordination and linkage in the RET programme; pricing distortions which have placed renewable energy at a disadvantage; high initial capital costs; weak dissemination strategies; lack of skilled manpower;

³⁰ Salvarli MS and Salvarli H, *For Sustainable Development: Future Trends in Renewable Energy and Enabling Technologies* (IntechOpen 2020)

<<https://www.intechopen.com/books/renewable-energy-resources-challenges-and-applications/for-sustainable-development-future-trends-in-renewable-energy-and-enabling-technologies>> accessed 19 July 2021.

³¹ *Ibid.*

³² Samoita D and others, 'Barriers and Solutions for Increasing the Integration of Solar Photovoltaic in Kenya's Electricity Mix' (2020) 13 *Energies* 5502, 1.

³³ ISSAfrica.org, 'Monopoly on Electricity Supply Contributes to Deforestation' (*ISS Africa*, 9 March 2010) <<https://issafrica.org/amp/iss-today/monopoly-on-electricity-supply-contributes-to-deforestation>> accessed 22 July 2021.

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poor baseline information; and, weak maintenance service and infrastructure'.³⁴

The challenges of energy cost and reliability in Kenya are made worse by the energy transmission and distribution virtual monopoly currently existing in Kenya.³⁵ Kenya Electricity Generating Company (KenGen), generates about 70% of Kenya's electricity.³⁶ On the same breadth, Kenya Power owns and operates most of the electricity transmission and distribution system in the country and sells electricity to over 8 million as at end of June 2020.³⁷ The Government of Kenya has a controlling stake at 50.1% of shareholding with private investors at 49.9%.³⁸ Lack of competition in the electricity generation and supply sector has been blamed for inefficiency and high costs of energy.³⁹

The *Energy Act, 2019*⁴⁰ was enacted to consolidate the laws relating to energy, to provide for National and County Government functions in relation to energy, to provide for the establishment, powers and functions of the energy sector entities; promotion of renewable energy; exploration, recovery and commercial utilization of geothermal energy; regulation of midstream and downstream petroleum and coal activities; regulation, production, supply and use of electricity and other energy forms; and for connected purposes.⁴¹ While the citizenry was hoping that the enactment of this law would liberalize the energy market in Kenya and eliminate Kenya Power's monopoly in

³⁴ Karekezi, S., Kithyoma, W., & Energy Initiative, "Renewable energy development." In *workshop on African Energy Experts on Operationalizing the NEPAD Energy Initiative, June*, pp. 2-4. 2003, 1.

³⁵ Owiro, D., Poquillon, G., Njonjo, K. S., & Oduor, C., 'Situational Analysis of Energy Industry, Policy and Strategy for Kenya' [2015] Institute of Economic Affairs.

³⁶ 'Who We Are' <<https://www.kengen.co.ke/index.php/our-company/who-we-are.html>> accessed 22 July 2021.

³⁷ 'Who We Are | Kplc.Co.Ke' <<https://www.kplc.co.ke/content/item/14/about-kenya-power>> accessed 22 July 2021.

³⁸ *Ibid.*

³⁹ ISSAfrica.org, 'Monopoly on Electricity Supply Contributes to Deforestation' (*ISS Africa*, 9 March 2010) <<https://issafrika.org/amp/iss-today/monopoly-on-electricity-supply-contributes-to-deforestation>> accessed 22 July 2021.

⁴⁰ Energy Act, No. 1 of 2019, Laws of Kenya.

⁴¹ *Ibid.*, Preamble.

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transmission and distribution of electricity in the country through licensing of other companies, the Government seemed to only affirm the same.⁴²

KenGen is among the companies that have been seeking to enter the retail market and sell electricity directly to consumers.⁴³ However, to the disappointment of many Kenyans, the Government declined to license other companies, as yet.⁴⁴

In summary, therefore, Kenya's energy sector still suffers from consistent power outages especially during dry seasons, high electricity tariffs specially exacerbated by high poverty and employment rates, energy retail sector monopoly, and cultural issues and biases that affect uptake of cleaner energy technologies, among others.⁴⁵ Notably, as far as the use of clean energy is concerned, it is estimated that two-thirds of Kenya's energy currently comes from bioenergy.⁴⁶

In addition, as Kenya seeks to move from non-renewable energy sources to renewable energy sources as envisaged under the United Nations 2030 Agenda for Sustainable Development Goals, moving an economy which relies heavily on wood fuel and biomass as its largest energy source, to achieve sustainable energy use through the gradual increase in the use of renewable

⁴² 'Now Government Reaffirms Kenya Power's Monopoly' (*The East African*) <<https://www.theeastafrican.co.ke/tea/business/now-government-reaffirms-kenya-power-s-monopoly-1408382>> accessed 22 July 2021.

⁴³ 'KenGen Moves to End Kenya Power's Monopoly by Selling Electricity Directly to Consumers' (*Sun-Connect East Africa News*, 26 November 2020) <<https://sun-connect-ea.org/kengen-moves-to-end-kenya-powers-monopoly-by-selling-electricity-directly-to-consumers/>> accessed 22 July 2021; Siele M, 'Kengen to Begin Direct Power Sales Ending KPLC Monopoly - Business Today Kenya' <<https://businesstoday.co.ke/kengen-to-begin-direct-power-sales-ending-kplc-monopoly/>> accessed 22 July 2021;

⁴⁴ 'Now Government Reaffirms Kenya Power's Monopoly' (*The East African*) <<https://www.theeastafrican.co.ke/tea/business/now-government-reaffirms-kenya-power-s-monopoly-1408382>> accessed 22 July 2021.

⁴⁵ Avila, N., Carvallo, J. P., Shaw, B., & Kammen, D. M., "The energy challenge in sub-Saharan Africa: A guide for advocates and policy makers." *Generating Energy for Sustainable and Equitable Development, Part 1* (2017): 1-79.

⁴⁶ 'Kenya Energy Outlook - Analysis' (IEA) <<https://www.iea.org/articles/kenya-energy-outlook>> accessed 21 September 2020.

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energy sources that are often expensive due to the technology deployed, in the face of oil and coal discoveries that could be more readily accessible in spite of its known effects on the environment is a great challenge.⁴⁷ This is mainly due to higher poverty levels in many households in developing countries, such as Kenya thus making it nearly impossible to afford the renewable and cleaner energy sources.⁴⁸ This is what is also mainly referred to as energy poverty, which the World Economic Forum in 2010 defined as ‘the lack of access to sustainable modern energy services and products’.⁴⁹ Related to this definition is the observation that ‘it is not only a matter of sustainability: energy poverty can be found in all conditions where there is a lack of adequate, *affordable*, reliable, quality, safe and environmentally sound energy services to support development.(emphasis added).⁵⁰ The connection between energy poverty and socio-economic development is that ‘insufficient energy usually translates into the impossibility to develop agriculture and manufacturing, thus keeping the poorest countries trapped in a vicious circle: they cannot afford the energy that can drive them out of poverty’.⁵¹

It is, therefore, safe to conclude that as the situation currently stands, majority of Kenyan population are suffering from energy poverty that needs to be addressed.

9.4. Delivering Clean and Affordable Energy for All: The Global Trends and the Lessons

While it has been argued that there is no “one size fits all” approach to successful clean household energy initiatives, some commentators have

⁴⁷ Owiro, D., G. Poquillon, K. S. Njonjo, and C. Oduor. "Situational analysis of energy industry, policy and strategy for Kenya." *Institute of Economic Affairs* (2015), p. 7.

⁴⁸ Karekezi, S., Kithyoma, W., & Energy Initiative, "Renewable energy development." In *workshop on African Energy Experts on Operationalizing the NEPAD Energy Initiative, June*, pp. 2-4. 2003; Christine W Njiru and Sammy C Letema, ‘Energy Poverty and Its Implication on Standard of Living in Kirinyaga, Kenya’ (2018) 2018 Journal of Energy.

⁴⁹ ‘Energy Poverty’ (*Habitat For Humanity*) <<https://www.habitat.org/emea/about/what-we-do/residential-energy-efficiency-households/energy-poverty>> accessed 23 July 2021.

⁵⁰ *Ibid.*

⁵¹ *Ibid.*

observed that a suite of options targeted to different sociocultural environments is likely to have wider acceptance.⁵²

9.4.1. Transition to Cleaner Energy Models

It has been observed that ‘one of the biggest limitations to achieving the SDGs is linked to the geography: the population in need is mostly located in rural areas, where there is no grid-electricity, and its expansion is often financially and logistically infeasible’.⁵³ In light of this, it has been suggested that ‘off-grid power has been instrumental in addressing this problem, notably stand-alone solutions, such as solar panels, hydro mini-grids, biogas mini-grids, among others, all of which comes from renewable sources, and which makes it the perfect alternative to obtain a reliable and sustainable energy service, at a considerably low price’.⁵⁴ As such, ‘off-grid renewables give developing countries the opportunity to erase the electricity gap without passing through a phase of fossil fuels that would be hard to sustain in terms of cost, natural resources, and global environment’.⁵⁵

There has been calls for ‘pro-poor access to electricity measures that will ensure that there is access that provides poor people with energy services enabling poverty reduction, which services include, for example: light, information and communications technologies, mechanical power for productive uses, and refrigeration or water pumping, as their poverty impacts may consist of income generation, female empowerment, or better education and health’.⁵⁶ This can be achieved in what is referred to as ‘energy transition’, defined as the global energy sector’s shift from fossil-based systems of energy production

⁵² Ngeno G and others, ‘Opportunities for Transition to Clean Household Energy in Kenya: Application of the Household Energy Assessment Rapid Tool (HEART)’, *Opportunities for transition to clean household energy in Kenya: application of the household energy assessment rapid tool (HEART)* (2018), 1.

⁵³ ‘Energy Poverty’ (*Habitat For Humanity*) <<https://www.habitat.org/emea/about/what-we-do/residential-energy-efficiency-households/energy-poverty>> accessed 23 July 2021.

⁵⁴ *Ibid.*

⁵⁵ *Ibid.*

⁵⁶ Pueyo, A., *Pro-poor access to green electricity in Kenya*. No. IDS Evidence Report; 135. IDS, 2015, 3.

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and consumption – including oil, natural gas and coal – to renewable energy sources like wind and solar, as well as lithium-ion batteries.⁵⁷

Notably, Sweden was listed in 2020 Energy Transition Index (ETI) ranking for the third consecutive year as the country most ready to transition to clean energy, followed by Switzerland and Finland.⁵⁸ The ETI analyzes each country's readiness to adopt clean energy using three criteria: energy access and security; environmental sustainability; and economic development and growth.⁵⁹ Conspicuously, the top ten countries in the ranking were from the developed world, showing their readiness to transition.⁶⁰ Most African countries were ranked lowly or not considered at all, as demonstrated in the map below.

⁵⁷ 'Global Energy Transition Index, 2020 and Its Highlights - Civildaily' <<https://www.civildaily.com/news/global-energy-transition-index-2020-and-its-highlights/>> accessed 19 July 2021.

⁵⁸ 'These Countries Are Leading the Transition to Sustainable Energy' (*EcoWatch*, 14 May 2020) <<https://www.ecowatch.com/sustainable-energy-countries-2645997492.html>> accessed 19 July 2021.

⁵⁹ *Ibid.*

⁶⁰ *Ibid.*

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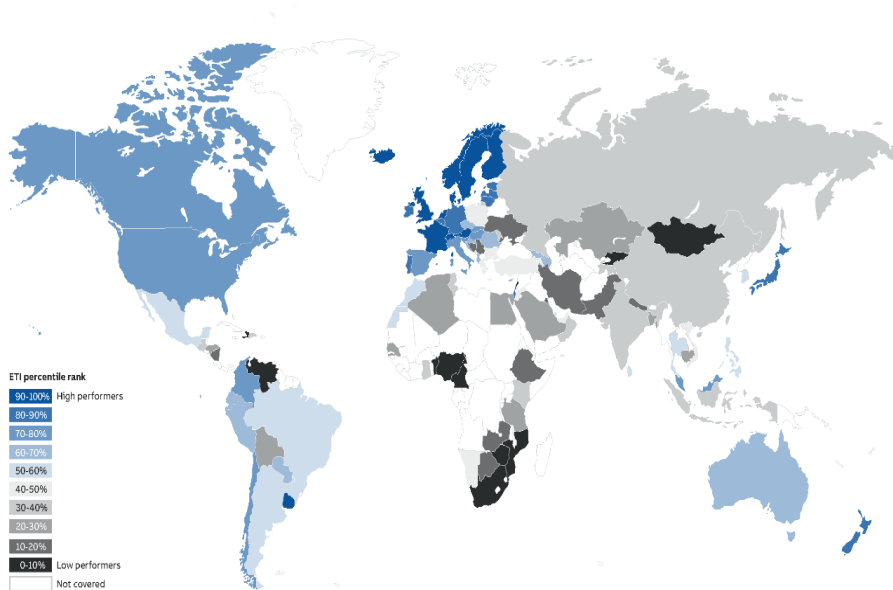


Fig. 1.

Source: *World Economic Forum, Fostering Effective Energy Transition 2020*⁶¹

Currently, Sweden boasts of about 54% energy that comes from renewable energy sources, with the country having attained the government’s 2020 target of 50 per cent in 2012, while the power sector targeting to get to 100 per cent renewable electricity production by 2040.⁶² Notably, Sweden’s high share of renewable energy is attributed to hydropower (water) and bioenergy which are the top renewable sources in Sweden – hydropower mostly for electricity production and bioenergy for heating.⁶³ Sweden’s success has been attributed to, inter alia, its market-based approach to energy policy, which is focused on creating well-functioning and competitive energy markets.⁶⁴ The

⁶¹ ‘Energy Transition Index 2020’ <<https://new.abb.com/news/detail/67960/energy-transition-index-2020>> accessed 19 July 2021.

⁶² ‘Energy Use in Sweden’ (*sweden.se*, 23 December 2015) <<https://sweden.se/nature/energy-use-in-sweden/>> accessed 19 July 2021.

⁶³ *Ibid.*

⁶⁴ International Energy Agency, *Energy Policies of IEA Countries: Sweden 2019 Review* <https://www.connaissancedesenergies.org/sites/default/files/pdf-actualites/Energy_Policies_of_IEA_Countries_Sweden_2019_Review.pdf> accessed 19 July 2021.

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Swedish energy policy agreement of 10 June 2016 set the path for the current success, based on reconciling: ecological sustainability; competitiveness; and security of supply.⁶⁵ In addition, the Policy was meant to create a basis for ensuring that 'Sweden achieves a robust electricity system with high reliability, low environmental impact and with access to electricity at competitive prices and also create long-term perspectives and clarity for market participants and bring new jobs and investments to Sweden.⁶⁶

Kenya can learn a lot from the Swedish experience and it is high time that the stakeholders embark on the necessary steps to move the country towards consistent transition towards cleaner renewable energy sources for all.

9.4.2. Investing in Science, Technology and Innovation for Provision of Sustainable Energy for All

It has been agreed by many commentators that in order to meet the ever escalating energy needs of the growing population, energy solutions should be supported by utilizing renewable energy sources even though currently, the contribution of renewable energy to the world primary energy is not high to meet the primary energy and electricity supplies.⁶⁷

It has been observed that 'energy markets across the world are in the middle of a revolution, triggered by the pursuit of decarbonization and fueled by innovation'.⁶⁸ Some commentators have pointed out that 'new enabling

⁶⁵ Swedish Nuclear Society and Analys gruppen, *The Swedish energy policy agreement of 10 June 2016 – unofficial English translation* <https://balticbrilliantproject.eu/onewebmedia/Swedish_political_energy_agreement_2016.pdf> accessed 19 July 2021.

⁶⁶ *Ibid.*

⁶⁷ Salvarli MS and Salvarli H, *For Sustainable Development: Future Trends in Renewable Energy and Enabling Technologies* (IntechOpen 2020) <<https://www.intechopen.com/books/renewable-energy-resources-challenges-and-applications/for-sustainable-development-future-trends-in-renewable-energy-and-enabling-technologies>> accessed 19 July 2021.

⁶⁸ Woodhouse S and Bradbury S, 'Chapter 2 - Innovation, Disruption, and the Survival of the Fittest' in Fereidoon P Sioshansi (ed), *Innovation and Disruption at the Grid's Edge* (Academic Press 2017)

<<https://www.sciencedirect.com/science/article/pii/B9780128117583000024>> accessed 22 July 2021.

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technologies related to renewable energies will help to reduce environmental costs, and thus the energy systems will be operated as both securely and economically without environmental problems, making new renewable energy markets a necessity in both the wholesale and retail markets.⁶⁹

Kenya has been making some commendable steps towards its transition to cleaner energy technologies since June 2016 when the Ministry of Finance zero-rated LPG gas to boost uptake by the poorer households. Notably, this has also seen the introduction of Pay-As-You-Go (PAYG) LPG smart meter technology in Kenya, enabling more Kenyans to embrace and enjoy the use of LPG for cooking and lighting as a cleaner and cheaper energy option.⁷⁰ Notably, across the world digitisation has driven and enabled the transformation of energy systems with many new companies entering the market with innovative products based on digital solutions, and companies from the information and communication sector and other companies from outside the industry increasingly driving the change.⁷¹

There is also a need for continued investment in fuel efficient cook stoves improvements in developing countries as part of efforts to reduce indoor pollution and improve cooking efficiency.⁷² This calls for a greater role of the Government and private sector to encourage use of energy efficient stoves and other related innovations.⁷³

⁶⁹ Salvarli MS and Salvarli H, *For Sustainable Development: Future Trends in Renewable Energy and Enabling Technologies* (IntechOpen 2020)

<<https://www.intechopen.com/books/renewable-energy-resources-challenges-and-applications/for-sustainable-development-future-trends-in-renewable-energy-and-enabling-technologies>> accessed 19 July 2021.

⁷⁰ Shupler M and others, 'Pay-as-You-Go Liquefied Petroleum Gas Supports Sustainable Clean Cooking in Kenyan Informal Urban Settlement during COVID-19 Lockdown' [2021] *Applied Energy* 116769.

⁷¹ Johannes Giehl and others, 'Survey and Classification of Business Models for the Energy Transformation' (2020) *13 Energies* 2981, 12.

⁷² Manibog, Fernando R. "Improved cooking stoves in developing countries: problems and opportunities." *Annual Review of Energy* 9, no. 1 (1984): 199-227.

⁷³ 'The Livelihoods Carbon Fund Doubles Its Investment in an Energy Efficiency Project to Reach 600,000 People in Kenya - Livelihoods Funds' <<https://livelihoods.eu/the-livelihoods-carbon-fund-doubles-its-investment-in-an-energy-efficiency-project-to-reach-600000-people-in-kenya/>> accessed 24 July 2021; Lucy Stevens and others, 'Market Mapping for Improved Cookstoves: Barriers and

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Decarbonisation, decentralisation and digitalisation have been flaunted as part of the future of the global energy sector.⁷⁴ Decarbonisation is defined as the reduction of carbon dioxide emissions through the use of low carbon power sources, achieving a lower output of greenhouse gasses into the atmosphere.⁷⁵ Notably, decarbonisation involves increasing the prominence of low-carbon power generation, and a corresponding reduction in the use of fossil fuels which means increased use of renewable energy sources like wind power, solar power, and biomass.⁷⁶ Decarbonising the power sector is used to mean reducing its carbon intensity: that is, reducing the emissions per unit of electricity generated (often given in grams of carbon dioxide per kilowatt-hour).⁷⁷

It is important to point out that the Paris Agreement was created to hold nations accountable in their efforts to decrease carbon emissions, with the central goal of ensuring that temperatures do not rise 2 degrees Celsius above pre-industrial level.⁷⁸ It has been observed that the growth of renewable sources of power, such as wind turbines, solar panels and coal-to-biomass upgrades as well as other innovations, such as using batteries and allowing

Opportunities in East Africa' (2020) 30 Development in Practice 37; 'Improved Cookstoves, Kenya | Natural Capital Partners' <<https://www.naturalcapitalpartners.com/projects/project/kenya-improved-cookstoves>> accessed 24 July 2021.

⁷⁴ 'Decarbonisation, Decentralisation and Digitalisation: The Big Drivers at PowerGen 2017'

<<https://www.power-technology.com/features/featuredecarbonisation-decentralisation-and-digitalisation-the-big-drivers-at-powergen-2017-5856615/>> accessed 23 July 2021.

⁷⁵ 'What Is Decarbonisation?' <<https://www.twi-global.com/technical-knowledge/faqs/what-is-decarbonisation.aspx>> accessed 24 July 2021.

⁷⁶ *Ibid.*

⁷⁷ 'What Is "Decarbonisation" of the Power Sector? Why Do We Need to Decarbonise the Power Sector in the UK?' (*Grantham Research Institute on climate change and the environment*)

<<https://www.lse.ac.uk/granthaminstitute/explainers/what-is-decarbonisation-of-the-power-sector-why-do-we-need-to-decarbonise-the-power-sector-in-the-uk/>> accessed 24 July 2021.

⁷⁸ 'What Is Decarbonisation?' (*Drax*, 21 August 2020)

<<https://www.drax.com/sustainability/what-is-decarbonisation/>> accessed 24 July 2021.

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homes to generate and share their own power, can also lead to higher rates of decarbonisation.⁷⁹

Arguably, new digital tools can promote sustainability, including satellites to verify greenhouse gas emissions and technologies to track air pollution at the neighbourhood level.⁸⁰ The digitalization of the power sector is associated with greater transparency into operations, which greatly increases efficiency and reliability while decreasing costs and consequently; consumers will not only see the benefits of digitalization through lower monthly utility bills but also reduced outages and faster response times.⁸¹

It has been observed that 'the digitalisation of the power sector has already begun, with block chain and smart meters becoming commonplace as well as there being a possibility of virtual power plants replacing traditional ones, interlinking small scale solar and wind with base load to create a reliable power system.'⁸²

The International Energy Agency recommends some policy actions that governments can take to prepare for digitalisation which include: Build digital expertise within their staff; ensure appropriate access to timely, robust, and verifiable data; build flexibility into policies to accommodate new technologies and developments; experiment, including through 'learning by doing' pilot projects; participate in broader inter-agency discussions on digitalisation; focus on the broader, overall system benefits; monitor the energy impacts of digitalisation on overall energy demand; incorporate digital resilience by design into research, development and product manufacturing; provide a level

⁷⁹ *Ibid.*

⁸⁰ ESI Africa, 'How Digitalisation Is Reshaping the Energy Sector' (*ESI-Africa.com*, 30 July 2020)

<<https://www.esi-africa.com/smart-grids/how-digitalisation-is-reshaping-the-energy-sector/>> accessed 23 July 2021.

⁸¹ 'What Could Digitalization Achieve in the Power Sector?' (*Alliance to Save Energy*, 10 December 2020) <<https://www.ase.org/blog/what-could-digitalization-achieve-power-sector>> accessed 23 July 2021.

⁸² 'Decarbonisation, Decentralisation and Digitalisation: The Big Drivers at PowerGen 2017' <<https://www.power-technology.com/features/featuredcarbonisation-decentralisation-and-digitalisation-the-big-drivers-at-powergen-2017-5856615/>> accessed 23 July 2021.

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playing field to allow a variety of companies to compete and serve consumers better; and learn from others, including both positive case studies along with more cautionary tales.⁸³

9.4.3. Newer Business Models in Energy Sector: Opening Up the Energy Sector

It has been argued that ‘the ongoing energy system transformation across the world, and especially in developed world, and the growth of renewable energies are changing the structure and value creation of the energy industry with adopted business model classes showing that traditional business models are affected by the decarbonisation, decentralisation and digitisation of the energy system in all segments and economic sectors.⁸⁴

There is a need for the stakeholders in the energy sector to adopt business models that ensure that consumers get value, one that encourages consumers to pay for value, and one that converts those payments to profits.⁸⁵ Liberalization and energy system transformation can arguably significantly increase the pace of change and have impact on the business model landscape substantially.⁸⁶

In many countries around the world, especially in the developed world, there has been a trend of liberalization, unbundling and deregulation of the energy sector in order to improve access to energy.⁸⁷ The liberalization of the energy market is defined to mean the opening of the electricity and gas market to free

⁸³ ESI Africa, ‘How Digitalisation Is Reshaping the Energy Sector’ (*ESI-Africa.com*, 30 July 2020)

<<https://www.esi-africa.com/smart-grids/how-digitalisation-is-reshaping-the-energy-sector/>> accessed 23 July 2021.

⁸⁴ Johannes Giehl and others, ‘Survey and Classification of Business Models for the Energy Transformation’ (2020) 13 *Energies* 2981, 12.

⁸⁵ Fuentes-Bracamontes R, ‘Is Unbundling Electricity Services the Way Forward for the Power Sector?’ (2016) 9 *The Electricity Journal* 16.

⁸⁶ Giehl J and others, ‘Survey and Classification of Business Models for the Energy Transformation’ (2020) 13 *Energies* 2981.

⁸⁷ Fuentes-Bracamontes R, ‘Is Unbundling Electricity Services the Way Forward for the Power Sector?’ (2016) 29 *The Electricity Journal* 16.

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competition where existing monopolies are broken and the market is opened to more participants.⁸⁸

Liberalization in regard to the energy markets and specifically electricity and gas mainly refers to “the opening up of an industry to more competition, often involving the relaxing of government restrictions to break up existing monopolies and open the market to more participants.”⁸⁹ Liberalization has been characterized as involving the introduction of competition (via structural changes such as the removal of subsidies, vertical unbundling of integrated utilities to facilitate non-discriminatory access to monopoly networks and horizontal unbundling of incumbents to create viable competitors) and the establishment of independent energy sector regulators.⁹⁰ Expressed differently, in electricity and downstream gas supply, liberalization has often involved privatization (and/or the introduction of new private entrants) and structural reform of national industries to create competitive wholesale and retail markets with regulated non-discriminatory third party access to monopoly transmission and distribution networks.⁹¹

Where liberalization has been achieved such as the European Union energy markets, it was done to benefit consumers through; raising employment levels, increasing business efficiency and increasing a country's potential economic development and GDP growth.⁹² Thus, “opening up these markets to competition allows consumers to benefit from lower prices and new services...more efficient and consumer-friendly than before” and consumers benefit because a breaking up of a monopoly and introducing competition will

⁸⁸ ‘Liberalization & Unbundling of Energy Markets | Definition’ (25 March 2020) <<https://www.next-kraftwerke.com/knowledge/liberalization-energy-markets>> accessed 22 July 2021.

⁸⁹ ‘GRIN - Liberalisation of Energy Markets. Effects on Gas and Electricity Generation, Distribution and Supply’ <<https://www.grin.com/document/323337>> accessed 23 July 2021.

⁹⁰ Michael G Pollitt, ‘The Role of Policy in Energy Transitions: Lessons from the Energy Liberalisation Era’ (2012) 50 Energy policy 128.

⁹¹ Michael G Pollitt, ‘The Role of Policy in Energy Transitions: Lessons from the Energy Liberalisation Era’ (2012) 50 Energy policy 128, 3.

⁹² ‘GRIN - Liberalisation of Energy Markets. Effects on Gas and Electricity Generation, Distribution and Supply’ <<https://www.grin.com/document/323337>> accessed 23 July 2021.

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help give consumers savings in price but also choice of what service they demand.⁹³ It has also been argued that ‘potential economic development and GDP growth is likely to occur as shown by the benefits to consumers, employment and efficiency because of increased employment which will cause more people to spend disposable income; an increase in companies also increases employment but also the reduction in market prices will result in consumers having more disposable income to be spent on other goods and services, and this will lead to economic development in other industries and businesses and is likely to increase GDP.’⁹⁴ It has also been observed that ‘the introduction of competition in downstream energy sectors, such as electricity and gas supply, facilitates competition in upstream gas and coal production sectors; while the general increase in energy trading facilitates the introduction of emissions markets’.⁹⁵

Notably, while Kenya may have attained some milestone as far as unbundling (encouraging private generators of power, and separating generation from distribution) is concerned, the same cannot be said about liberalization (which is visibly missing from the Vision 2030). Notably, the electricity sector is unbundled and generation by independent power producers is permitted by law and is regulated, whereas at 2018, it was estimated that the private sector produces 28% of Kenya’s centralised electricity supply.⁹⁶ This was enabled through Feed-in tariffs (FITs) Regulations which were introduced in 2008 and revised in 2010 and 2012 to enable independent power producers to sell electricity to KPLC at a fixed price for a fixed term of 20 years.⁹⁷ Despite the commendable considerable success of this development, there has been challenges in uptake of this generated power. For instance, it is estimated that Kenya's Lake Turkana wind farm and its 365 turbines make for a generating capacity of more than 300MW, creating one of the most productive projects

⁹³ *Ibid.*

⁹⁴ *Ibid.*

⁹⁵ Michael G Pollitt, ‘The Role of Policy in Energy Transitions: Lessons from the Energy Liberalisation Era’ (2012) 50 *Energy policy* 128, pp. 2-3.

⁹⁶ Kees Mokveld & Steven von Eije, *Final Energy report Kenya*, Commissioned by the Netherlands Enterprise Agency 2018, 13

<<https://www.rvo.nl/sites/default/files/2019/01/Final-Energy-report-Kenya.pdf>> accessed 19 July 2021.

⁹⁷ *Ibid.*, 13.

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anywhere in the world.⁹⁸ Wind power has become a key contributor to the national grid to the extent that where there is interruption in its production, consumers have ended paying more for electricity in the country.⁹⁹

Notably, the Lake Turkana Wind Power (LTWP) has been allocated a maximum production quota of 210MW, against an installed capacity of 310MW.¹⁰⁰ While independent power producers have made considerable efforts to produce enough power to run the country, there have been problems with uptake of the same by the Kenya Power and Lighting Company Plc (KPLC). For instance, in the recent times and partly due to the Corona Virus (Covid-19) pandemic, there have been reports that measures to contain the pandemic have led to reduced demand for power especially among the commercial consumers who account for over 65% of the power use in the country.¹⁰¹ Reports also indicate that KPLC has prioritized the uptake of geothermal at 39.5 per cent, hydro at 33.9 per cent, wind at 14 per cent, diesel at 9.7 per cent with other sources like solar, imports from Uganda and co-generation accounting for about three per cent.¹⁰² This has thus left some of the producers with excess power.¹⁰³ This shows that Kenya's main consumers of electricity are commercial businesses and when these run into difficulties, the independent power producers are left stranded.¹⁰⁴ This happens while there

⁹⁸ 'What's Driving Wind Power in Kenya and What Challenges Lie in Wait?' <<https://www.nenergybusiness.com/features/wind-power-kenya-challenges/>> accessed 24 September 2020.

⁹⁹ 'Consumers Pay the Price as Covid Electricity Cuts Hit Turkana Project - The East African' <<https://www.theeastafrican.co.ke/tea/business/consumers-pay-the-price-as-covid-electricity-cuts-hit-turkana-project-1939124>> accessed 19 July 2021.

¹⁰⁰ 'Consumers Pay the Price as Covid Electricity Cuts Hit Turkana Project - The East African' <<https://www.theeastafrican.co.ke/tea/business/consumers-pay-the-price-as-covid-electricity-cuts-hit-turkana-project-1939124>> accessed 1 October 2020.

¹⁰¹ 'Consumers Pay the Price as Covid Electricity Cuts Hit Turkana Project - The East African' Monday September 14 2020 <<https://www.theeastafrican.co.ke/tea/business/consumers-pay-the-price-as-covid-electricity-cuts-hit-turkana-project-1939124>> accessed 1 October 2020.

¹⁰² 'Consumers Pay the Price as Covid Electricity Cuts Hit Turkana Project - The East African' Monday September 14 2020 <<https://www.theeastafrican.co.ke/tea/business/consumers-pay-the-price-as-covid-electricity-cuts-hit-turkana-project-1939124>> accessed 1 October 2020.

¹⁰³ *Ibid.*

¹⁰⁴ "The Seven Major Threats to Kenya's Power Sector." *Energy For Growth*,

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are still reports that there are homes in Kenya still not connected to the grid despite the Government's best efforts to do so.¹⁰⁵ Thus, even as the Government looks for ways to produce cleaner power, there is also a need to address the disconnect between production and distribution of the power possibly through liberalization of the energy sector.¹⁰⁶

While this has been attributed to the Covid-19 pandemic that afflicted almost the whole world in 2020, it raises a concern as to whether the power producers' major customers are only the commercial users.¹⁰⁷ This is because, it has already been pointed out that there are households in Kenya that still mainly rely on kerosene and biomass (firewood and charcoal) as their main source of energy for their inability to afford electricity.¹⁰⁸ Thus, even as we vouch for increased transition to renewable energy by way of increased production, this scenario points out the fact that there is more than availability of the renewable energy: the same must not only be made available but must also be made affordable to the local 'mwananchi' (citizen). Affordability of energy is key.

While the Energy Ministry had expressed optimism of introducing net metering for customer-sites generation (dependent on the enactment of the energy bill), establish regulations for mini-grids, and had started exploring the idea of local-currency-denominated tariffs in a bid to encourage local commercial banks to participate in energy projects,¹⁰⁹ this was however not

<https://www.energyforgrowth.org/memo/the-seven-major-threats-to-kenyas-power-sector/>. Accessed 24 Apr. 2021; Avila, Nkiruka, Juan Pablo Carvallo, Brittany Shaw, and Daniel M. Kammen. "The energy challenge in sub-Saharan Africa: A guide for advocates and policy makers." *Generating Energy for Sustainable and Equitable Development, Part 1* (2017): 1-79.

¹⁰⁵ *Kenya Energy Situation - Energypedia.Info*.

https://energypedia.info/wiki/Kenya_Energy_Situation. Accessed 24 Apr. 2021.

¹⁰⁶ 'Liberalization & Unbundling of Energy Markets | Definition' (25 March 2020) <<https://www.next-kraftwerke.com/knowledge/liberalization-energy-markets>> accessed 22 July 2021.

¹⁰⁷ "The Seven Major Threats to Kenya's Power Sector." *Energy For Growth*, <https://www.energyforgrowth.org/memo/the-seven-major-threats-to-kenyas-power-sector/>. Accessed 24 Apr. 2021.

¹⁰⁸ *Kenya Energy Situation - Energypedia.Info*.

https://energypedia.info/wiki/Kenya_Energy_Situation. Accessed 24 Apr. 2021.

¹⁰⁹ Kees Mokveld & Steven von Eije, *Final Energy report Kenya*, Commissioned by the Netherlands Enterprise Agency 2018, 13.

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achieved after the enactment of the Energy Act, 2019¹¹⁰. Liberalization of the sector would make all of these easier to actualize, for the benefit of consumers. Arguably, the current unbundling structure has not achieved a lot for the Kenyan people as the high cost and unreliability of electricity supply in the country are still major issues, as these are greatly affected by state monopoly mainly through Kenya Power, a vertically integrated company.¹¹¹ Liberalization would ensure that for all forms of energy - gas, electricity, coal and oil - industrial and domestic consumers would be free to choose their supplier.¹¹² Kenya needs to borrow a leaf from some of the most successful countries in this sector such as Sweden and Singapore, among others.

In order to improve energy security and affordability, Singapore began to deregulate its electricity market since 2003, with the creation of the National Electricity Market of Singapore (NEMS) allowing for bid-ask offers to be made for the dispatch of electricity supply on the wholesale side and subsequently, the retail market liberalized in tranches, with 80% of electricity consumers currently already given an option to select their electricity retailers since late 2014.¹¹³ As result, as at 2018, it was reported that 'supply competition and the retail liberalization efforts had possibly led to a combinatorial decrease in wholesale electricity prices by up to 9.11%, accounting for the influence of oil prices and volatility components'.¹¹⁴ The country has also attracted investors in the sector making it more competitive for the retail consumer as far as choice

¹¹⁰ No. 1 of 2019, Laws of Kenya.

¹¹¹ Tarver, Evan. "Horizontal vs. Vertical Integration: What's the Difference?" *Investopedia*, <https://www.investopedia.com/ask/answers/051315/what-difference-between-horizontal-integration-and-vertical-integration.asp>. Accessed 24 Apr. 2021.

¹¹² World Trade Organization, "The Social Effects of Energy Liberalisation: The UK Experience," *Launching a Common European Energy Market*, Lisbon 5/6 June 2000, 2 <https://www.wto.org/english/tratop_e/serv_e/symp_mar02_uk_social_effects_energ_lib_e.pdf> accessed 19 July 2021.

¹¹³ Loi TSA and Jindal G, 'Electricity Market Deregulation in Singapore - Initial Assessment of Wholesale Prices' (2019) 127 *Energy Policy* 1.

¹¹⁴ *Ibid.*

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of energy supplier is concerned.¹¹⁵ Notably, 14 electricity providers participated in the pilot phase, including units of infrastructure companies.¹¹⁶

Kenya should follow in the footsteps of Singapore and other countries that have liberalized their energy markets in order to address the gap between generation, transmission and distribution of energy and particularly electricity and consequently ensure that all people in the country have access to cleaner, affordable energy.

9.4.4. Enhancing the Role of Private Sector in Renewable Energy Sector

Notably, *Energy Act, 2019* provides for the establishment of the Rural Electrification and Renewable Energy Corporation which is charged with, *inter alia*, harnessing opportunities offered under clean development mechanism and other mechanisms including, but not limited to, carbon credit trading to promote the development and exploitation of renewable energy sources.¹¹⁷ The Nuclear Power and Energy Agency is also mandated to, *inter alia*, put in place mechanisms to attract private sector funding in research and human resource development for matters relating to energy.¹¹⁸

With introduction of market liberalization in Kenya's energy sector, a robust carbon credit trading system in Kenya could achieve the twin goals of raising funds and climate change mitigation in the energy sector.¹¹⁹ According to the International Finance Corporation (IFC), the estimated total investment potential for the climate-smart needs of Côte d'Ivoire, Kenya, Nigeria, and

¹¹⁵ 'Singapore Electricity Market Deregulation Attracts DBS, StarHub' (*Nikkei Asia*) <<https://asia.nikkei.com/Business/Markets/Nikkei-Markets/Singapore-electricity-market-deregulation-attracts-DBS-StarHub>> accessed 19 July 2021.

¹¹⁶ *Ibid.*

¹¹⁷ Sec. 44(1) (q), Energy Act, No. 1 of 2019, Laws of Kenya.

¹¹⁸ Sec. 55(2) (k), Energy Act, No. 1 of 2019

¹¹⁹ 'Kenyans Earn First Ever Carbon Credits From Sustainable Farming' (*World Bank*) <<https://www.worldbank.org/en/news/press-release/2014/01/21/kenyans-earn-first-ever-carbon-credits-from-sustainable-farming>> accessed 23 July 2021; Yiting Wang and Catherine Corson, 'The Making of a "charismatic" Carbon Credit: Clean Cookstoves and "Uncooperative" Women in Western Kenya' (2014) 0 Environment and Planning A 0; Kioko Nzuki Mwanja, 'Carbon Trading In Kenya: A Critical Review'; Kanyinke Sena, 'Carbon Credit Schemes and Indigenous Peoples in Kenya: A Commentary' (2015) 32 *Ariz. J. Int'l & Comp. L.* 257.

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South Africa is \$783 billion by 2030.¹²⁰ Sixteen percent of this potential is for renewable energy generation (\$123 billion), while well over half (\$499 billion) is for the transportation sector.¹²¹ Regarding clean energy access in Sub-Saharan Africa, it is estimated that 600 million people in the region have no access to basic electricity services, and this number will increase with a projected 2.3 percent annual population growth, with only seven Sub-Saharan countries presently having electricity-access rates exceeding 50 percent; the rest have an average grid access rate of just 20 percent.¹²² In addition, the annual investment in the Sub-Saharan African power system is currently estimated at around \$8 billion per year, or 0.5 percent of GDP while electricity demand in Africa is projected to triple by 2030, representing huge potential for investment in renewable energy.¹²³ It is also estimated that Africa's power sector requires investments of \$70 billion per year, on average, between now and 2030, which can be split into about \$45 billion per year for generation capacity and \$25 billion for transmission and distribution, creating a huge opportunity for investments.¹²⁴

Kenya would greatly benefit from this opportunity considering that it requires huge investments in the energy sector, especially in the area of renewables considering that Kenya's development blueprint, Vision 2030 which seeks to create "a globally competitive and prosperous country with a high quality of life by 2030" and it aims to transform Kenya into "a newly-industrialising,

¹²⁰ International Finance Corporation, *Climate Investment Opportunities in Emerging Markets: An IFC Analysis*, 2016, 60.

<https://www.ifc.org/wps/wcm/connect/59260145-ec2e-40de-97e6-3aa78b82b3c9/3503-IFC-Climate_Investment_Opportunity-Report-Dec-FINAL.pdf?MOD=AJPERES&CVID=IBLd6Xq> accessed 19 July 2021; Kludovacz T, Stein P and Rooprai G, 'Raising US \$23 Trillion: Greening Banks and Capital Markets for Growth' (World Bank, 2018).

¹²¹ International Finance Corporation, *Climate Investment Opportunities in Emerging Markets: An IFC Analysis*, 2016, 60.

<https://www.ifc.org/wps/wcm/connect/59260145-ec2e-40de-97e6-3aa78b82b3c9/3503-IFC-Climate_Investment_Opportunity-Report-Dec-FINAL.pdf?MOD=AJPERES&CVID=IBLd6Xq> accessed 19 July 2021.

¹²² *Ibid*, 61.

¹²³ *Ibid*, 61.

¹²⁴ *Ibid*, 61.

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middle income country providing a high quality of life to all its citizens in a clean and secure environment".¹²⁵

Notably, one of the foundations for Kenya Vision 2030 upon which the economic, social and political pillars of Kenya Vision 2030 will be anchored on include energy where the 'the Government of Kenya committed to continued institutional reforms in the energy sector, including a strong regulatory framework, encouraging private generators of power, and separating generation from distribution, with new sources of energy will be found through exploitation of geothermal power, coal, renewable energy sources, and connecting Kenya to energy-surplus countries in the region.¹²⁶

There is a need for the Government of Kenya to recognise and reach out to the private sector through creating a conducive legal and policy environment for investments in the country's energy sector in order to enable it achieve its objectives in the energy sector for achievement of clean and affordable energy for its people.¹²⁷ This is because, as it has been suggested that 'that effective policies and institutions are the best way to enable developing countries, and the private sector operating in those countries, to attract private finance to drive sustained growth'.¹²⁸ Arguably, 'the private sector is critical to economic growth and poverty reduction, where sustainable and inclusive private sector-led growth can contribute to reducing poverty'.¹²⁹ In addition, 'partnerships between donors, partner governments and the private sector are being used to achieve private sector development objectives which enables governments to access private sector ideas, innovations and business models in search of solutions to intractable development problems'.¹³⁰

¹²⁵ Government of the Republic of Kenya, *Kenya Vision 2030: A Globally Competitive and Prosperous Kenya* (Government Printer Nairobi 2007).

¹²⁶ *Ibid.*

¹²⁷ Tewes-Grادل, Christina, Anna Peters, Karin Vohla, and L. Lütjens-Schilling. "Inclusive Business Policies: How Governments Can Engage Companies in Meeting Development Goals." *Endeva UG, Berlin* (2013).

¹²⁸ Tess ewton Cain, 'The Role of the Private Sector in Promoting Economic Growth and Reducing Poverty in the Indo-Pacific Region', 1.

¹²⁹ *Ibid*, 1.

¹³⁰ *Ibid*, 2.

9.4.5. Promoting Energy Efficiency in Kenya

While availability and affordability of energy is an important step towards attaining energy security for all, there is also a need to put equal emphasis on enhancing energy efficiency in the country.¹³¹ Arguably, energy-efficiency or 'demand-side management' programs can provide a number of benefits in developing countries, including lower costs to customers, an fewer electrical supply problems, greater system reliability and a more moderate growth in demand.¹³² Energy efficiency can be achieved through use of more energy efficient gadgets and appliances as well as employing everyday power saving practices especially in households.¹³³

9.4.6. Addressing Barriers in Renewable Energy Uptake in Kenya

Renewable energy technologies (RETs) have been defined as energy-providing technologies that utilize energy sources in ways that do not deplete the Earth's natural resources and are as environmentally benign as possible.¹³⁴ Some of the earliest barriers to embracing renewable energy technologies have been identified as cost-effectiveness, technical barriers, and market barriers such as inconsistent pricing structures, institutional, political and regulatory barriers, and social and environmental barriers where some may be specific to a technology, while others may be specific to a country or a region.¹³⁵

Some of the barriers that are relevant to Kenya and ought to be taken up include: highly controlled energy sector where governmental monopoly of energy sector restricts private sector entry; monopoly of energy supplier and/

¹³¹ Patterson, Murray G. "What is energy efficiency? Concepts, indicators and methodological issues." *Energy policy* 24, no. 5 (1996): 377-390.

¹³² Dilip Ahuja and Marika Tatsutani, 'Sustainable energy for developing countries' [2009] S.A.P.I.E.N.S. Surveys and Perspectives Integrating Environment and Society <<http://journals.openedition.org/sapiens/823>> accessed 24 July 2021.

¹³³ Attendant, An Automated, et al. *How You Can Help Reduce Greenhouse Gas Emissions at Home - Point Reyes National Seashore (U.S. National Park Service)*. https://www.nps.gov/pore/learn/nature/climatechange_action_home.htm. Accessed 24 Apr. 2021.

¹³⁴ Jim Watson, Oliver Johnson and Dong Wu, 'Renewable Energy Technologies for Rural Development' [2010] UNCTAD Current Studies on Science, Technology and Innovation.

¹³⁵ Painuly JP, 'Barriers to Renewable Energy Penetration; a Framework for Analysis' (2001) 24 *Renewable energy* 73, 75.

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or distributor, electricity generation, transmission and distribution; controlled and lack of private sector investment.¹³⁶ There is also the problem of lack of involvement of stakeholders in decision-making processes leading to clash of interests where stakeholders' consultation culture is missing, stakeholders are dispersed, there is difficulty in communication, and there is fear of opposition.¹³⁷ Related to this and relevant to Kenya is the observation that there is also renewable energy technologies competing with conventional energy, leading to them being treated as a threat to utility dominance, threat to utility profit, powerful lobbies against renewable energy technologies, threat of transfer of control over energy, powerful lobbies for conventional energy and decoupling of investor-consumer interests.¹³⁸

It has been documented that while the government of Kenya has a history of welcoming private investment in the energy sector, the nature of the political system presents challenges –not least over corruption and access to land thus making investments carry higher risks for large, on-grid projects than they are for off-grid and micro-grid investments.¹³⁹

While Kenya has made some impressive steps towards investing in renewable energy technologies such as wind power and geothermal, and which has seen electricity tariffs reduce during certain periods,¹⁴⁰ the reduction in prices has

¹³⁶ *Ibid*, 83.

¹³⁷ *Ibid*, 83.

¹³⁸ *Ibid*, 83.

¹³⁹ Gordon E, 'The Politics of Renewable Energy in East Africa' (2018), 15<<https://www.oxfordenergy.org/wpcms/wp-content/uploads/2018/08/The-politics-of-renewable-energy-in-East-Africa-EL-29.pdf>> accessed 19 July 2021.

¹⁴⁰ 'KENYA: 8% Reduction in Electricity Rates Thanks to Renewable Energies' (*Afrik* 21, 30 July 2018) <<https://www.afrik21.africa/en/kenya-8-reduction-in-electricity-rates-thanks-to-renewable-energies/>> accessed 22 July 2021; October 23 2020 F, 'Uhuru Tariff Cut Dims Kenya Power Revenue by Sh4.8bn' (*Business Daily*) <<https://www.businessdailyafrica.com/bd/economy/uhuru-tariff-dims-kenya-power-revenue-by-sh4-8bn-2719632>> accessed 22 July 2021; <https://www.the-star.co.ke/authors/gilbertkoech>. "Kenya Keen to Prioritise Clean, Renewable Energy." *The Star*, <https://www.the-star.co.ke/sasa/technology/2020-04-24-kenya-keen-to-prioritise-clean-renewable-energy/>. Accessed 24 Apr. 2021; Mactilda Mbenywe, "Uhuru addresses world forum, commits to mitigate climate change", *Saturday Standard*, 24 July 2021.

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not been consistent.¹⁴¹ There is a need for the country to continually invest in renewable sources of energy to boost reliability and hopefully reduce the cost of electricity due to reduction in production costs.¹⁴² The legal, policy, institutional and technical barriers should be addressed to tap into the benefits of using renewable energy sources.¹⁴³ There is also a need for digitalization, liberalization, civic education and deregulation of energy sector, among others in order to address the above mentioned challenges.¹⁴⁴

9.5. Conclusion

Provision of adequate and sustainable energy supplies is considered to be fundamental not only to economic development, but also to health and well-being.¹⁴⁵ The United Nations Development Programme (UNDP) has rightly pointed out that ‘investing in solar, wind and thermal power, improving energy productivity, and ensuring energy for all is vital if we are to achieve SDG 7 by 2030’. In addition, ‘expanding infrastructure and upgrading technology to provide clean and more efficient energy in all countries will encourage growth and help the environment’.¹⁴⁶

<<https://www.standardmedia.co.ke/kenya/article/2001410702/uhuru-commits-to-renewable-energy>> 24 July 2021.

¹⁴¹ November 05 2020 T, ‘Regulator Agrees to Kenya Power 20pc Electricity Bill Increase’ (*Business Daily*)

<<https://www.businessdailyafrica.com/bd/economy/regulator-kenya-power-20pc-electricity-bill-hike-2731164>> accessed 22 July 2021; Theuri P, ‘Rising Electricity Bills Push Manufacturers to the Wall’ (*The Standard*)

<<https://www.standardmedia.co.ke/business/business-news/article/2001385332/rising-electricity-bills-push-manufacturers-to-the-wall>> accessed 22 July 2021;

¹⁴² June 15, and 2018 Lora Shinn. “Renewable Energy: The Clean Facts.” *NRDC*, <https://www.nrdc.org/stories/renewable-energy-clean-facts>. Accessed 24 Apr. 2021.

¹⁴³ *Barriers to Renewable Energy Technologies | Union of Concerned Scientists*. <https://ucsusa.org/resources/barriers-renewable-energy-technologies>. Accessed 24 Apr. 2021.

¹⁴⁴ “The General Framework for Liberalization and Regulation of Public Utilities in Countries of Ex-Yugoslavia.” *Florence School of Regulation*, 21 Mar. 2017, <https://fsr.eui.eu/niq19-1-liberalization-ex-yugoslavia/>.

¹⁴⁵ Assessment ME, *Ecosystems and Human Well-Being*, vol 5 (Island press United States of America 2005), 3.

¹⁴⁶ ‘Goal 7: Affordable and Clean Energy’ (*UNDP*)

<<https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-7-affordable-and-clean-energy.html>> accessed 18 July 2021.

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It has also been observed that ‘policy and market design are vital to steering digitally enhanced energy systems onto an efficient, secure, accessible and sustainable path’.¹⁴⁷ It is time for the stakeholders and especially the Government to consider liberalization of the country’s energy sector, especially in electricity generation, transmission and distribution. Liberalization of Kenya’s energy sector also calls for ‘a strong framework for regulation which is essential together with the benefits of a more efficient, innovative, and customer-focused industry’.¹⁴⁸ There is a need for rethinking the current approaches in energy generation, transmission and distribution if the goal and dream of cleaner and affordable energy sources for all Kenyans are to be achieved as part of realisation of the 2030 Agenda on SDGs as well as Kenya’s Vision 2030. Without implementing radical changes in the sector, SDG Goal 7 will remain a mirage.

Delivering Clean and Affordable Energy for all is a noble dream that is achievable. Cleaner sources of energy will potentially mean lower levels of pollution, less interference with forest resources and consequently, improve biodiversity conservation for the sake of current and future generations.

¹⁴⁷ ESI Africa, ‘How Digitalisation Is Reshaping the Energy Sector’ (*ESI-Africa.com*, 30 July 2020) <<https://www.esi-africa.com/smart-grids/how-digitalisation-is-reshaping-the-energy-sector/>> accessed 23 July 2021.

¹⁴⁸ ‘How Strong Regulatory Frameworks Support Development’ (*NARUC*) <<https://www.naruc.org/international/news/how-strong-regulatory-frameworks-support-development/>> accessed 24 July 2021.

CHAPTER TEN

Contemporary Issues in Biodiversity Conservation

10.1. Introduction

This chapter highlights some of the contemporary issues that arise from biological diversity debates, that are likely to affect how countries respond to the conservation of biodiversity responsibilities as envisaged under the international, regional and national environmental regulatory frameworks.

10.2. Contemporary Issues in Biodiversity Conservation

10.2.1. Sustainable Trade and Investment Regimes

Kenya's position as a global investment destination has been improving significantly, with the World Bank's latest 'Ease of Doing Business' ratings identifying Kenya as one of the most notably improved countries globally, progressing 24 places in two years from 80th in 2017 to 56th in 2019.¹ During the said period, the flow of foreign direct investment also saw a significant step up in 2018, increasing by 27 per cent to \$1.6 billion, according to the United Nations Conference on Trade and Development (UNCTAD).² In order to strengthen the private sector which is considered to be crucial to implementing the President's Big Four Agenda, and foreign direct investment which has a key role in increasing private sector activity, the Kenyan Government has been working towards increased foreign direct investment by taking steps to facilitate private enterprise and foreign investment, for instance, through predictable regulatory and tax practices.³

¹ 'What's the Role of an Impact Investor like CDC in Kenya?' (CDC Group) <<https://www.cdcgroup.com/en/news-insight/insight/articles/whats-the-role-of-an-impact-investor-like-cdc-in-kenya/>> accessed 23 July 2021.

² *Ibid.*

³ 'What's the Role of an Impact Investor like CDC in Kenya?' (CDC Group) <<https://www.cdcgroup.com/en/news-insight/insight/articles/whats-the-role-of-an-impact-investor-like-cdc-in-kenya/>> accessed 23 July 2021.

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The Presidency's *Big Four Agenda* which is a 5-year development plan under 4 key pillars, namely: food security, affordable housing, manufacturing, and affordable healthcare for all.⁴

The *Kenya national action plan on business and human rights For the Implementation of the United Nations Guiding Principles on Business and Human Rights*⁵ (NAP) was drafted to domesticate the UN Guiding Principles on Business and Human Rights focusing on five thematic issues identified by stakeholders, namely: Land and Natural Resources; labour rights; revenue transparency; environmental protection; and access to remedy.⁶ The objectives of this NAP are: To guide the State as it fulfils its duty to protect individuals and communities from business-related human rights abuses, consistent with its domestic and international obligations; To guide businesses on the measures they should undertake to meet their responsibility to respect human rights in their operations; To offer a roadmap of strengthening access to State-based judicial and non-judicial remedies for victims of business-related harm and to promote human rights due diligence by businesses, ensuring that they play their role in the attainment of SDGs in a manner that respects human rights; and to form a basis for dialogue between the State, businesses, individuals and communities whose rights are adversely impacted by business operations, and civil society organisations on promoting respect for human rights by businesses.⁷

The NAP outlines policy actions aimed at enhancing State duty to protect human rights as well as those aimed at enhancing and upholding corporate responsibility to respect human rights.⁸ It is a step in the right direction and has the potential to enhance respect for human rights in the country. Notably, businesses must also ensure that their business operations and decisions are

⁴ 'The Big 4 - Empowering the Nation' <<https://big4.delivery.go.ke/>> accessed 25 December 2020.

⁵ Republic of Kenya, *Kenya national action plan on business and human rights for the Implementation of the United Nations Guiding Principles on Business and Human Rights*, June 2019 <https://www.ohchr.org/Documents/Issues/Business/NationalPlans/2019_FINAL_BHR_NAP.PDF> accessed 23 July 2021.

⁶ *Ibid*, p. ii.

⁷ *Ibid*, p. 11.

⁸ *Ibid*, chapter two.

friendly and indeed promote biodiversity conservation. In light of this, it has been suggested that for a business to establish whether their actions are contributing to the strategic goals, they must: (a) make a clear commitment to balance or outweigh any negative impacts on biodiversity through mitigation activities (e.g., no net loss or net gain for biodiversity); (b) quantify their impacts on biodiversity, and the biodiversity benefits that are derived from their actions; and (c) determine the net outcome of their biodiversity performance at site, supply chain or organizational level, thus advancing business accountability.⁹

There is a need for continued development of a trade and investment regime aimed at enhancing and promoting public participation in development as part of ensuring that there is encouragement and realization of development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed, as envisaged under SDG 17, Target 17.7. Notably, the push for economic growth cannot only be driven by Kenya's Government but also by its people, hence the need for a regime that promotes active and meaningful participation of the people in these activities.¹⁰ The Convention on Biological Diversity (CBD) Aichi Target 3 also requires that "by 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions".¹¹

In order to achieve the sustainable development goals, the *2015 Addis Ababa Action Agenda on Financing for Development* captured the importance of

⁹ Smith, T., Beagley, L., Bull, J., Milner-Gulland, E.J., Smith, M., Vorhies, F. and Addison, P.F., 'Biodiversity Means Business: Reframing Global Biodiversity Goals for the Private Sector' (2020) 13 Conservation Letters e12690, 7.

¹⁰ 'What's the Role of an Impact Investor like CDC in Kenya?' (*CDC Group*) <<https://www.cdcgroup.com/en/news-insight/insight/articles/whats-the-role-of-an-impact-investor-like-cdc-in-kenya/>> accessed 23 July 2021.

¹¹Unit B, 'Aichi Biodiversity Targets' (18 September 2020) <<https://www.cbd.int/sp/targets/>> accessed 8 September 2021.

domestic resource mobilization, noting that the “mobilization and effective use of domestic resources ... are central to our common pursuit of sustainable development.”¹² Notably, it has also been rightly pointed out that the only reliable and sustained sources of government revenue are taxes and some non-tax revenue instruments, such as royalties and resource rents from extractive industries and, to a limited extent, user fees for public services, generally delivered by local governments.¹³ However, most African countries have been over relying on foreign aid and loans to fund their ever expanding national budgets, and Kenya is no exception.¹⁴ With the pressure and the 2030 deadline to achieve the sustainable development goals, the need for alternative funding will only grow. As such, there is a need for these countries to not only look for alternative sources of the required financial resources but also the ones that come with less complications and strings attached. It is for this reason that these countries need to focus more on capitalizing on domestic resource mobilization as a source of funding development projects.

This is important as Official development assistance (ODA) is finite and fluctuates over time, creating uncertainty for recipient countries about planning, budgeting, and expenditures in the public sector.¹⁵ External debt burdens have an impact on biodiversity conservation as both climate and biodiversity targets require countries to mobilise resources to meet those ambitions.¹⁶ Some researchers have even suggested that forgiving developing countries’ debts, such as Kenya’s hefty foreign debt, in exchange for the government devoting those resources to fighting climate change threats and

¹² Junquera-Varela, R. F., Verhoeven, M., Shukla, G. P., Haven, B., Awasthi, R., & Moreno-Dodson, B., *Strengthening Domestic Resource Mobilization: Moving from Theory to Practice in Low-and Middle-Income Countries* (The World Bank 2017), chapter Two.

¹³ *Ibid*, 5.

¹⁴ Kwemo AB, ‘Making Africa Great Again: Reducing Aid Dependency’ (*Brookings*, 20 April 2017)

<<https://www.brookings.edu/blog/africa-in-focus/2017/04/20/making-africa-great-again-reducing-aid-dependency/>> accessed 8 September 2021.

¹⁵ Junquera-Varela, R. F., Verhoeven, M., Shukla, G. P., Haven, B., Awasthi, R., & Moreno-Dodson, B., *Strengthening Domestic Resource Mobilization: Moving from Theory to Practice in Low-and Middle-Income Countries* (The World Bank 2017), 6.

¹⁶ ‘Time for Solutions to Tackle the Twin Sovereign Debt and Nature Crises’ (*Green Fiscal Policy Network*) <<https://greenfiscalspolicy.org/blog/time-for-solutions-to-tackle-the-twin-sovereign-debt-and-nature-crises/>> accessed 8 September 2021.

biodiversity loss, could tackle several big problems at once, in what is referred to as debt swaps.¹⁷

However, while debt-for-nature and debt-for-climate swaps are a relatively new idea, they hold a potential to tackling biodiversity loss challenges through funding, while promoting sustainable development.¹⁸

It is documented that when the investment requirements for the Sustainable Development Goals (SDGs) were first assessed in the United Nations Conference on Trade and Development's (UNCTAD's) World Investment Report 2014, at least 10 relevant sectors (encompassing all 17 SDGs) were identified and the report projected an annual investment gap of \$2.5 trillion in developing countries.¹⁹ While this projection remains valid today, according to a recent review (UNCTAD, 2020), the SDGs have significant resource implications across developed and developing countries and require a step-change in levels of both public and private investment in the SDGs.²⁰ In line with this, the CBD post-2020 biodiversity framework negotiations have increased attention on opportunities for increased businesses engagement with, and accountability for, their interdependencies.²¹

¹⁷ 'Debt Swaps Could Free Funds to Tame Climate, Biodiversity and Virus Threats' *Reuters* (7 September 2020) <<https://www.reuters.com/article/us-global-debtrenegotiation-nature-clima-idUSKBN25Y26P>> accessed 8 September 2021.

¹⁸ *Ibid*; Yue M and WANG CN, 'Debt-For-Nature Swaps: A Triple-Win Solution for Debt Sustainability and Biodiversity Finance in the Belt and Road Initiative (BRI)? – Green Belt and Road Initiative Center' <<https://green-bri.org/debt-for-nature-swaps-in-the-belt-and-road-initiative-bri/>> accessed 8 September 2021; Smith, T., Beagley, L., Bull, J., Milner-Gulland, E.J., Smith, M., Vorhies, F. and Addison, P.F., 'Biodiversity Means Business: Reframing Global Biodiversity Goals for the Private Sector' (2020) 13 *Conservation Letters* e12690; Bishop J, *The Economics of Ecosystems and Biodiversity in Business and Enterprise* (Routledge 2013); Arlaud M and others, 'The Biodiversity Finance Initiative: An Approach to Identify and Implement Biodiversity-Centered Finance Solutions for Sustainable Development' [2018] *Towards a Sustainable Bioeconomy: Principles, Challenges and Perspectives* 77.

¹⁹ Zhan JX and Santos-Paulino AU, 'Investing in the Sustainable Development Goals: Mobilization, Channeling, and Impact' (2021) 4 *Journal of International Business Policy* 166.

²⁰ *Ibid*.

²¹ Smith, T., Beagley, L., Bull, J., Milner-Gulland, E.J., Smith, M., Vorhies, F. and Addison, P.F., 'Biodiversity Means Business: Reframing Global Biodiversity Goals for the Private Sector' (2020) 13 *Conservation Letters* e12690, 2.

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The need for enhanced domestic resource mobilization is also more urgent in light of the UNCTAD's observations that the COVID-19 shock has exacerbated existing constraints for the SDGs and could undo the progress made in the last six years in SDG investment and the international private sector investment flows to developing and transition economies in sectors relevant for the SDGs were also expected to fall by about one-third in 2020 because of the COVID-19 pandemic, posing a risk to delivering on the 2030 agenda for sustainable development.²²

Thus, as part of laying the groundwork for the achievement of SDGs, there is a need for countries, including Kenya, to review their domestic resource mobilization efforts and work towards enhancing the same, aimed at reducing over-reliance on external debt which may come with conditions and subsequently affect a country's commitment to climate change and biodiversity conservation.

The unveiling of the SDGs in 2015 meant that most developing countries would have to step up their efforts to raise domestic resources to finance needed domestic investment as support from development partners and private sector investors would not be enough.²³

While there are various external mechanisms of funding that are available to countries for exploitation, there is a need for countries such as Kenya to enhance their domestic resources mobilization mechanisms. Domestic trade and investments that financially and socially empower communities will mean that their over-reliance on environmental resources will decrease and subsequently reduce over-exploitation of these resources, which usually has a great impact on biodiversity. This is protecting, restoring, and managing key ecosystems helps biodiversity and people to adjust to changing climatic conditions.

²² Zhan JX and Santos-Paulino AU, 'Investing in the Sustainable Development Goals: Mobilization, Channeling, and Impact' (2021) 4 *Journal of International Business Policy* 166.

²³ 'Heightening Domestic Resource Mobilization in Africa During COVID-19' (*Center for Global Development*) <<https://www.cgdev.org/blog/heightening-domestic-resource-mobilization-africa-during-covid-19>> accessed 22 March 2021.

10.2.2. Climate Change Mitigation and Biodiversity Conservation

Climate change is one of the factors that affect agricultural production and therefore critical in understanding biodiversity mainstreaming and conservation in the agricultural sector.

The Convention on Biological Diversity (CBD) Aichi Target 15 obligates States to ensure that “by 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification”.²⁴ Current reports also indicate that countries need to decrease greenhouse gas emissions by 25% by 2030 compared to 1990 levels to achieve the 2 degrees Celsius (°C) target of the Paris Agreement and 55% to reach the 1.5°C target, and this can arguably be achieved through, *inter alia*, conserving, sustainably managing and restoring ecosystems as plants and soils in terrestrial ecosystems absorb an estimated 9.5 billion tonnes of carbon dioxide equivalent every year.²⁵

This is especially important considering that land-use change and poor management have depleted carbon stocks in terrestrial ecosystems, resulting in large emissions of carbon into the atmosphere, with deforestation and forest degradation accounting for around 12% of global emissions of carbon dioxide (CO₂).²⁶

The *Climate Change Act 2016* is to be applied for the development, management, implementation and regulation of mechanisms to enhance climate change resilience and low carbon development for the sustainable development of Kenya. The Act is to be applied in all sectors of the economy by the national and county governments to mainstream climate change responses into development planning, decision making and implementation; build resilience and enhance adaptive capacity to the impacts of climate

²⁴ Unit B, ‘Aichi Biodiversity Targets’ (18 September 2020)

<<https://www.cbd.int/sp/targets/>> accessed 8 September 2021.

²⁵ OECD (2019), *Biodiversity: Finance and the Economic and Business Case for Action*, report prepared for the G7

Environment Ministers’ Meeting, 5-6 May 2019, 31.

²⁶ *Ibid*, 31.

change; formulate programmes and plans to enhance the resilience and adaptive capacity of human and ecological systems to the impacts of climate change; mainstream and reinforce climate change disaster risk reduction into strategies and actions of public and private entities; mainstream intergenerational and gender equity in all aspects of climate change responses and provide incentives and obligations for private sector contribution in achieving low carbon climate resilient development.

The National Policy for the Sustainable Development of Northern Kenya and other Arid Lands affirms that in Kenya, the ASALs occupy 89% of the country and are home to about 36% of the population, 70% of the national livestock herd and 90% of the wild game that supports the country's tourism industry. The objectives of this policy are to: provide a framework for ASAL development coordination, resource mobilization, research, monitoring and evaluation; strengthen cohesion and integration of ASAL with the rest of the country and address inequality including gender, youth and vulnerable groups; improve the enabling environment for development in the ASALs by establishing the necessary foundations for development and bridge development gaps; develop alternative approaches to service delivery in Pastoral Areas; provide a policy framework for enhancing synergy on ending drought emergencies; promote sustainable utilization of existing land and land based resources to facilitate national economic development; and to provide an enabling environment for sustainable agriculture, livestock, trade and tourism development in the ASALs.

Arguably, climate change adaptation actions that do not consider the role of, and potential impacts on, biodiversity can have adverse effects – increasing rather than reducing climate change vulnerability.²⁷ Thus, an effective climate change response requires consideration of the role of, and potential impacts on, biodiversity and ecosystem services, where biodiversity and ecosystem services support people to adapt to climate change through approaches collectively called ecosystem-based adaptation.²⁸ Ecosystem-Based Adaptation (EBA) has been defined as the adaptation policies and measures

²⁷ Mant, R., Perry, E., Heath, M., Munroe, R., Väänänen, E., Großheim, C., & Kümper-Schlake, L., 'Addressing Climate Change – Why Biodiversity Matters' [2014] UNEP-WCMC: Cambridge, UK, 3.

²⁸ *Ibid*, 2.

that take into account the role of ecosystem services in reducing the vulnerability of society to climate change, in a multi-sectoral and multi-scale approach, where BA involves national and regional governments, local communities, private companies and NGOs in addressing the different pressures on ecosystem services, including land use change and climate change, and managing ecosystems to increase the resilience of people and economic sectors to climate change.²⁹ Arguably, ecosystem based approaches to adaptation harness the capacity of nature to buffer human communities against the adverse impacts of climate change through the sustainable delivery of ecosystem services.³⁰ This is because, deployed with focus on specific ecosystem services with the potential to reduce climate change exposures, the forms used are targeted management, conservation and restoration activities.³¹

Ecosystems are important to not only important to sustenance of human life but they also deliver services that can help meet adaptation needs across multiple human development sectors including disaster risk reduction (through flood regulation and storm surge protection), food security (from fisheries to agro-forestry), sustainable water management and livelihood diversification (through increasing resource-used options) and can also generate significant multiple benefits such as carbon sequestration and other social, economic and cultural benefits.³² In short, healthy ecosystems and their services provide opportunities for sustainable economic prosperity while providing defence against the negative effects of climate change.³³ It has thus been posited that EBA integrates the use of biodiversity and ecosystem services into an overall strategy to help people adapt to the adverse impacts of climate change and it includes the sustainable management, conservation and restoration of ecosystems to provide services that help people adapt to both current climate variability, and climate change, consequently contributing to

²⁹ Vignola, R., Locatelli, B., Martinez, C., & Imbach, P., 'Ecosystem-Based Adaptation to Climate Change: What Role for Policy-Makers, Society and Scientists?' (2009) 14 *Mitigation and adaptation strategies for global change* 691, 692.

³⁰ Richard Munang and others, 'Climate Change and Ecosystem-Based Adaptation: A New Pragmatic Approach to Buffering Climate Change Impacts' (2013) 5 *Current Opinion in Environmental Sustainability* 67, 68.

³¹ *Ibid*, 68.

³² *Ibid*, 68.

³³ *Ibid*, 68.

reducing vulnerability and increasing resilience to both climate and non-climate risks and provides multiple benefits to society and the environment.³⁴

Due to the important connection between climate change mitigation and biodiversity conservation, it has been observed that the multiple international agreements and national processes relevant to climate change and biodiversity should be implemented in ways that are coordinated, mutually supportive and enhance synergies.³⁵ It follows that protecting, restoring, and managing key ecosystems helps biodiversity and people to adjust to changing climatic conditions.³⁶ It has thus been argued that 'ecosystem-based Adaptation can be embedded into national, regional and local policy and practice by adopting an integrated, participatory and ecosystem-based approach to territorial planning'.³⁷ Policy makers must, however, be aware of the fact that 'unlike some adaptation measures, while Ecosystem-based Adaptation can be readily implemented, adopting best practice approaches for the sustainable management of, for example, fisheries, forests, agricultural systems, river catchments, and coastlines, Ecosystem-based Adaptation initiatives still face a range of barriers, which can include a lack of finance, land use conflict and community opposition and knowledge gaps, where there is lack of information about the costs and benefits of EBA measures.³⁸

10.2.3. Global Partnerships for Biodiversity Conservation and Sustainable Development

As already pointed out, the CBD calls for cooperation among Contracting States in conservation and sustainable use of biological diversity.³⁹ The 2030 Agenda for SDGs⁴⁰ and specifically SDG 17 also requires state parties to create

³⁴ A Colls, Neville Ash and Ninni Ikkala, *Ecosystem-Based Adaptation: A Natural Response to Climate Change*, vol 21 (Iucn Gland 2009), 1.

³⁵ Mant, R., Perry, E., Heath, M., Munroe, R., Väänänen, E., Großheim, C., & Kümper-Schlake, L., 'Addressing Climate Change – Why Biodiversity Matters' [2014] UNEP-WCMC: Cambridge, UK.

³⁶ A Colls, Neville Ash and Ninni Ikkala, *Ecosystem-Based Adaptation: A Natural Response to Climate Change*, vol 21 (Iucn Gland 2009), 2.

³⁷ *Ibid*, 3.

³⁸ *Ibid*, 15.

³⁹ Article 5, Convention on Biological Diversity.

⁴⁰ United Nations, *Transforming our world: the 2030 Agenda for Sustainable Development*, Resolution adopted by the General Assembly on 25 September 2015, A/RES/70/1.

partnerships for the Goals and specially to strengthen the means of implementation and revitalize the global partnership for sustainable development.⁴¹ The United Nations reports that as at 2021, 'Kenya aimed to attract more than USD 30 billion in manufacturing investments over the next 5 years by focusing on sectors with high growth potential' by 'boosting domestic manufacturing which is believed to have huge potential to attract investment, create employment, stimulate growth, and linkages to all other sectors of the economy'.⁴²

SDG Goal 17 related targets are spread over several target areas namely: finance; technology; Capacity-Building; Trade; and Systemic issues which entail, Policy and institutional coherence, multi-stakeholder partnerships, and Data, monitoring and accountability.⁴³

10.2.4. Upholding Human Rights and Meaningful Public Participation in Development Projects

The Convention on Biological Diversity (CBD) Aichi Target 2 requires that "by 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems".⁴⁴ This, arguably, combines sustainability in environmental aspirations as well as social sustainability, as part of promoting biodiversity conservation for the achievement of the sustainable development agenda.

Articles 2(5) and (6) of the Constitution of Kenya 2010⁴⁵ provide that the general rules of international law, and any treaty or convention ratified by Kenya, form part of the laws of Kenya, thus binding Kenya to observe its

⁴¹ SDG 17.

⁴² 'United Nations Supporting Kenya's Post COVID-19 Industrial Recovery and Growth to Achieve Inclusive and Sustainable Growth | United Nations in Kenya' <<https://kenya.un.org/en/126013-united-nations-supporting-kenyas-post-covid-19-industrial-recovery-and-growth-achieve>> accessed 23 July 2021.

⁴³ 'SDG 17: Strengthen the Means of Implementation and Revitalize the Global Partnership for Sustainable Development - SDG Compass' <<https://sdgcompass.org/sdgs/sdg-17/>> accessed 8 July 2021.

⁴⁴ Unit B, 'Aichi Biodiversity Targets' (18 September 2020) <<https://www.cbd.int/sp/targets/>> accessed 8 September 2021.

⁴⁵ Republic of Kenya, Constitution of Kenya 2010 (Government Printer, Nairobi, 2010).

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human rights obligations under international bill of human rights.⁴⁶ In addition, Article 20 of the Constitution of Kenya states that the Bill of Rights binds all state organs and all persons, which persons are defined under Article 260 as including a “company, association or other body of persons whether incorporated or unincorporated.”

Arguably, there is a need for governments together with their development partners to solicit proposals and suggestions from indigenous and local communities about policies, the Constitution, and development strategies to encourage communities to express their views and increase their sense of ownership and responsibility in the future of their country.⁴⁷ While Kenya has been making tremendous steps towards opening up the marginalised parts of the country such as the North Eastern parts of Kenya, there have been concerns about violation of human rights of the locals in these areas.⁴⁸ For instance, there have been reports that while Kenya’s newest mega infrastructure project, the Lamu port, is aimed at integrating marginalised northern Kenya into the Kenyan economy and the nation, the planning and construction of the port have yielded a wide range of concerns and contestations, particularly on land rights, the environment, local livelihoods and security.⁴⁹ There have been documented reports by different rights groups from the residents about compulsory land acquisition with the government being accused of having taken more land than it paid compensation for.⁵⁰ If such reports on forceful acquisition of property were to be true, then such actions would be against Article 40 of the Constitution of Kenya 2010.⁵¹ There have also been major

⁴⁶ See also Treaty Making and Ratification Act, No. 45 of 2012, Laws of Kenya.

⁴⁷ Environmental Research Institute Science Technology and Environment Agency Lao People’s Democratic Republic, “Public Participation in Development Projects in LAO PDR” < http://pdf.wri.org/mekong_governance_mreg_eri.pdf> accessed 21 July 2021.

⁴⁸ Benard Musembi Kilaka and Jan Bachmann, ‘Kenya Launches Lamu Port. But Its Value Remains an Open Question’ (*The Conversation*) <<http://theconversation.com/kenya-launches-lamu-port-but-its-value-remains-an-open-question-161301>> accessed 24 July 2021.

⁴⁹ *Ibid.*

⁵⁰ *Ibid.*

⁵¹ 40. Protection of right to property

(1) Subject to Article 65, every person has the right, either individually or in association with others, to acquire and own property--

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concern on the environmental impact of the port's construction⁵², and local protests against the project have been met with harassment by Kenyan security forces.⁵³ There were also growing concerns about employment opportunities

-
- (a) of any description; and
 - (b) in any part of Kenya.

(2) Parliament shall not enact a law that permits the State or any person--

- (a) to arbitrarily deprive a person of property of any description or of any interest in, or right over, any property of any description; or
- (b) to limit, or in any way restrict the enjoyment of any right under this Article on the basis of any of the grounds specified or contemplated in Article 27 (4).

(3) The State shall not deprive a person of property of any description, or of any interest in, or right over, property of any description, unless the deprivation--

- (a) results from an acquisition of land or an interest in land or a conversion of an interest in land, or title to land, in accordance with Chapter Five; or
- (b) is for a public purpose or in the public interest and is carried out in accordance with this Constitution and any Act of Parliament that--

- (i) requires prompt payment in full, of just compensation to the person; and
- (ii) allows any person who has an interest in, or right over, that property a right of access to a court of law.

(4) Provision may be made for compensation to be paid to occupants in good faith of land acquired under clause (3) who may not hold title to the land.

(5) The State shall support, promote and protect the intellectual property rights of the people of Kenya.

(6) The rights under this Article do not extend to any property that has been found to have been unlawfully acquired.

⁵² See *Mohamed Ali Baadi and others v Attorney General & 11 others* [2018] eKLR where the Petitioners averred that the LAPSSET Project was designed and implemented in violation of the Constitution and statutory law; the project would have far reaching consequences on the marine ecosystem of the Lamu region in terms of the destruction of the mangrove forests, discharge of industrial effluents into the environment, and effects of the fish species and marine life; and if the project was to be implemented as designed, it would affect their cultural heritage and way life as well as their livelihoods.

⁵³ Benard Musembi Kilaka and Jan Bachmann, 'Kenya Launches Lamu Port. But Its Value Remains an Open Question' (*The Conversation*)

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to residents.⁵⁴ Arguably, such allegations against the government, that is, inadequate meaningful public participation may raise concerns on the government's commitment to protection and promotion of human rights of the affected communities.

The United Nations *Declaration on the Right to Development*⁵⁵ states that development is a comprehensive economic, social, cultural and political process, which aims at the constant improvement of the well-being of the entire population and of all individuals on the basis of their active, free and meaningful participation in development and in the fair distribution of benefits resulting therefrom.⁵⁶ The *Declaration* also provides that the right to development is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized.⁵⁷ The need for public participation is well captured in the following quote:

"People today have an urge - an impatient urge - to participate in the events and processes that shape their lives. And that impatience brings many dangers and opportunities. It can dissolve into anarchy, ethnic violence or social disintegration. But if properly nurtured in a responsive national and global framework, it can also become a source of tremendous vitality and innovation for the creation of new and more just societies." (UNDP, 1993: 1)⁵⁸

<<http://theconversation.com/kenya-launches-lamu-port-but-its-value-remains-an-open-question-161301>> accessed 24 July 2021.

⁵⁴ *Ibid.*

⁵⁵ UN General Assembly, *Declaration on the Right to Development: resolution / adopted by the General Assembly*, 4 December 1986, A/RES/41/128.

⁵⁶ *Ibid*, Preamble.

⁵⁷ Article 1.1, *Declaration on the Right to Development: resolution / adopted by the General Assembly*, 4 December 1986, A/RES/41/128.

⁵⁸ 'Human Development Report 1993 | Human Development Reports' <<http://hdr.undp.org/en/reports/global/hdr1993>> accessed 16 July 2021; Giles Mohan, 'Participatory Development' [2002] *The companion to development studies* 49.

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The international human rights law is designed primarily to protect individuals and groups from abusive action by states and state agents.⁵⁹

While it is true that most of the investment projects are financed and carried out by international companies, with Development Financial Institutions (DFIs) and multi-national development banks having long track records of being critical providers of financing in Africa, supplying riskier, longer term investment capital that tends to focus on sustainability⁶⁰, some commentators have accused some international and multinational investors of alleged human rights and environmental abuses, including using child labor to clean toxic materials, failing to repair pipeline leakages, and operating in protected indigenous lands without authorization especially in developing countries.⁶¹

As far as trade agreements are concerned, there have also been worldwide concerns in relation to the lack of transparency of the negotiations as far as citizens are concerned, in contrast with the fundamental role being played by the large multinationals.⁶² Notably, the negotiations are the result of long-term efforts by ultraliberal circles, politicians and directors of multinationals, working through many common bodies and the treaties are not published until, at best, the negotiations have been concluded.⁶³

⁵⁹ Shelton Dinah, 'Protecting Human Rights in a Globalized World', *Human Rights and Corporations* (Routledge 2017).

⁶⁰ 'ESG Investments Will Fuel Africa's Post-Pandemic Recovery' (13 July 2021) <<https://www.internationalinvestment.net/opinion/4031186/esg-investments-fuel-africa-post-pandemic-recovery>> accessed 23 July 2021.

⁶¹ 'Foreign Investors Gone Wild' <<https://archive.globalpolicy.org/soecon/develop/democracy/2007/0507wild.htm>> accessed 21 July 2021; 'What Are the Main Criticisms of the World Bank and the IMF?' (*Bretton Woods Project*, 4 June 2019) <<https://www.brettonwoodsproject.org/2019/06/what-are-the-main-criticisms-of-the-world-bank-and-the-imf/>> accessed 24 July 2021; see also 'Globalization, Tourism, and Indigenous Peoples: What You Should Know About the World's Largest Industry - Planeta.Com' <<https://www.planeta.com/globalization-1999/>> accessed 24 July 2021.

⁶² Robert Joumard, 'The Free Trade Agreements: Contempt for Citizens, Sovereignty for Multinationals' (*CADTM*, 23 July 2021) <<https://www.cadtm.org/The-free-trade-agreements-contempt>> accessed 24 July 2021.

⁶³ *Ibid*; see also Eric Toussaint, 'The World Bank, the IMF and the Respect of Human Rights' (*CADTM*, 23 July 2021) <<https://www.cadtm.org/The-World-Bank-the-IMF-and-the-respect-of-human-rights>> accessed 24 July 2021.

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It has been argued that the international protection of human rights and environmental protection represent two of the fundamental values and aims of modern international society.⁶⁴ It has been opined that 'the rights to the highest attainable standard of health and to an adequate standard of living depend on a certain degree of environmental quality and in several cases, environmental degradation or destruction has been viewed as a violation of these human rights'.⁶⁵ In addition to this, destruction of the environment through such problems as pollution or global warming can directly interfere with the enjoyment of communities' fundamental human rights including a wide range of social and cultural right as well.⁶⁶

Notably, among the extraordinary achievements of the *Declaration on the Right to Development*⁶⁷ is the advancement of a human rights-based approach to development.⁶⁸ For those who advocate for this approach, 'development from a human rights perspective embraces as key attributes: Social justice (through inclusion, equality and non-discrimination, taking the human person as the central subject of development and paying special attention to the most deprived and excluded); Participation, accountability and transparency (through free, meaningful and active participation, focusing on empowerment); and international cooperation (as the right to development is a solidarity-based right).⁶⁹

⁶⁴ Dinah Shelton, *A Rights-Based Approach to Public Participation and Local Management of Natural Resources* (2008), 20

<https://www.iges.or.jp/en/publication_documents/pub/conferenceproceedings/en/739/3ws-26-dinah.pdf> Accessed 16 July 2021.

⁶⁵ Bridget Lewis, 'Environmental Rights or a Right to the Environment? Exploring the Nexus between Human Rights and Environmental Protection.' (2012) 8 *Macquarie Journal of International and Comparative Environmental Law* 36.

⁶⁶ *Ibid*, 36.

⁶⁷ UN General Assembly, *Declaration on the Right to Development: resolution / adopted by the General Assembly*, 4 December 1986, A/RES/41/128

⁶⁸ Flávia Piovesan, 'Active, Free and Meaningful Participation in Development' (2013) 25 *Office of the High Commissioner for Human Rights, Realizing the Right to Development: Essays in Commemoration of*, 103

<<https://www.ohchr.org/Documents/Issues/Development/RTDBook/PartIIChapter6.pdf>> Accessed 16 July 2021.

⁶⁹ Flávia Piovesan, 'Active, Free and Meaningful Participation in Development' (2013) 25 *Office of the High Commissioner for Human Rights, Realizing the Right to Development: Essays in Commemoration of*, 104.

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Participatory development, as it is popularly referred to, has been defined as: “development that seeks to give the poor a part in initiatives and projects that are designed by outside organizations in the hopes that these projects will be more sustainable and successful by involving local stakeholders in the projects goals.”⁷⁰

Community participation has been defined as the involvement of people in a community in projects to solve their own problems, where people should be given the opportunity where possible to participate as a basic human right and a fundamental principle of democracy.⁷¹

The need for public participation and respect for human rights is important for development projects to gain social license to operate.⁷² This is because as it has been observed, ‘a development process often has four phases: articulation of demand, knowledge generation, dissemination and knowledge utilization where the result of the development cycle is that the solutions are implemented, and the more ownership is felt in all steps of this process, the more applicable the solutions are.’⁷³ Thus, rapid and sustained economic growth (“development”), popular political participation (“democracy”), and respect for the rights of their citizens (“human rights”) are considered to be hegemonic political ideals all around the world.⁷⁴ A Social License to Operate

⁷⁰ ‘Why Is Participatory Development So Important for Your Nonprofit?’ (*grassrootscollective*) <<https://www.thegrassrootscollective.org/what-is-participatory-development>> accessed 22 July 2021.

⁷¹ “Chapter 12 Community participation,” *Manual*, 2005 <https://ec.europa.eu/echo/files/evaluation/watsan2005/annex_files/WEDC/es/ES12CD.pdf> accessed 21 July 2021.

⁷² Kathleen Wilburn and Ralph Wilburn, ‘Achieving Social License to Operate Using Stakeholder Theory’ (2011) 4 *J. Int. Bus. Ethics* 3; Emmanuel Raufflet and others, ‘Social License’ in Samuel O Idowu and others (eds), *Encyclopedia of Corporate Social Responsibility* (Springer 2013) <https://doi.org/10.1007/978-3-642-28036-8_77> accessed 24 July 2021; Lain Dare, Jacki Schirmer and Frank Vanclay, ‘Community Engagement and Social Licence to Operate’ (2014) 32 *Impact Assessment and Project Appraisal* 188.

⁷³ Chris J Koopmans, K van Veluw and FG Wijnands, ‘Participatory Development as a Way to Innovations: Five Key Elements for Success’ (2014) 3 *Building Organic Bridges* 791, at 792.

⁷⁴ Jack Donnelly, ‘Human Rights, Democracy, and Development’ (1999) 21 *Human Rights Quarterly* 608.

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(SLO) refers to the perceptions of local stakeholders that a project, a company, or an industry that operates in a given area or region is socially acceptable or legitimate.⁷⁵ Companies can gain the social license through: maintaining positive corporate reputation; understanding culture, customs, language history and history of communities, among others;⁷⁶ educating local stakeholders about project; ensuring open communication amongst all stakeholders;⁷⁷ business partnerships with communities; workforce training; community support and capacity building; and employing innovation and technology.⁷⁸ Arguably, these activities are capable of enhancing respect for human rights. As for communities, for them to grant the social license, they ask themselves the following questions: Do they Respect us? Are they Listening? Do they let us Participate? Do they let us Participate? Are they Transparent with us? Can we Believe what they say? Are they Responsive to our issues? Can we Trust them?⁷⁹ Companies must ensure that the answers to all these questions remain continually affirmative.

It has been argued that ‘democratic governance and human rights are critical components of sustainable development and lasting peace’, where ‘countries with ineffective government institutions, rampant corruption, and weak rule of law are estimated to have a 30-to-45 percent higher risk of civil war and a higher risk of extreme criminal violence than other developing countries’.⁸⁰ In addition, public involvement in decision-making processes is not only important for development projects affecting the environment, but is also necessary for identifying the impact projects will have on communities.⁸¹

⁷⁵ Emmanuel Raufflet and others, ‘Social License’ in Samuel O Idowu and others (eds), *Encyclopedia of Corporate Social Responsibility* (Springer 2013) <https://doi.org/10.1007/978-3-642-28036-8_77> accessed 24 July 2021.

⁷⁶ Ian Thomson and Susan Joyce, ‘The Social Licence to Operate: What It Is and Why Does It Seem so Difficult to Obtain?’, *Prospectors and Developers Association of Canada Convention, Toronto, Ontario, Canada* (2008).

⁷⁷ *Ibid.*

⁷⁸ *Ibid.*

⁷⁹ *Ibid.*

⁸⁰ ‘Democracy, Human Rights and Governance | U.S. Agency for International Development’ (26 March 2021) <<https://www.usaid.gov/democracy>> accessed 21 July 2021.

⁸¹ Environmental Research Institute Science Technology and Environment Agency Lao People’s Democratic Republic, ‘Public Participation in Development Projects in LAO PDR’ <http://pdf.wri.org/mekong_governance_mreg_eri.pdf> accessed 21 July 2021.

Arguably, development, particularly at the local level, can be made much more effective by active public participation where effective civic action can hold governments accountable⁸² and ensure that the decisions of government are in line with the needs of citizens and thus potentially solve failures in government that plague most poor countries including; wastage and leakage, unequal access, corruption, and poor coordination.⁸³

Communities are mostly impacted upon by investments and development projects through what is popularly known as the impact investing, defined which is “part of the decades-old tradition of corporate social responsibility that holds domestic and international financial institutions and corporations accountable for harmful employment, community, or environmental impacts.”⁸⁴ Impact investments have also defined as “investments made into companies, organizations, and funds with the intention to generate social and environmental impact alongside a financial return.”⁸⁵ As far as impact investment in Kenya is concerned, Kenya has in the recent past been ranked highly compared to its East African counterparts, with Kenya representing nearly half of impact capital disbursed in East Africa – more than USD 650 million by non-development finance institutions (non-

⁸²How Can Participatory Development Be Improved? | Devex' <<https://www.devex.com/news/how-can-participatory-development-be-improved-80472>> accessed 24 July 2021; 'Determinants of Public Participation in Kenya County Governments - Antony Mbithi, Damiana Ndambuki, Fredrick Owino Juma, 2019' <<https://journals.sagepub.com/doi/full/10.1177/0021909618794028>> accessed 24 July 2021; Berner, M. M., Amos, J. M., & Morse, R. S., "What constitutes effective citizen participation in local government? Views from city stakeholders." *Public Administration Quarterly* (2011): 128-163; Alessandra Ricciardelli, 'Governance, Local Communities, and Citizens Participation' in Ali Farazmand (ed), *Global Encyclopedia of Public Administration, Public Policy, and Governance* (Springer International Publishing 2017) <https://doi.org/10.1007/978-3-319-31816-5_3221-1> accessed 24 July 2021.

⁸³ Devex Editor // 11 March 2013, 'How Can Participatory Development Be Improved?' (*Devex*, 11 March 2013) <<https://www.devex.com/news/sponsored/how-can-participatory-development-be-improved-80472>> accessed 21 July 2021.

⁸⁴ Ronald Phillips, 'Impact Investing and Community Development' (2016) 25 *Maine Policy Review* 63, 63.

⁸⁵ Castano, T., "Preparing for Impact: Five Ideas to Maximize the Potential of Impact Investing", *New Start New Jersey*, April 2017, 1< <https://ideas.nsnj.org/wp-content/uploads/2017/08/NSNJ-Preparing-for-Impact.pdf>> accessed 21 July 2021.

DFIs) impact investors and more than USD 3 billion by development finance institutions (DFIs), and more than triple the amount deployed in each of Uganda and Tanzania, the countries with the next highest amounts at around 13% and 12% respectively.⁸⁶

It has been observed that ‘while governments at every level –local, state, national –determine how to meet fundamental needs with constrained resources, impact investing continues to mature into a vehicle for innovative, socially oriented enterprises, where the convergence of these two macro-level developments can create opportunities for stakeholders and communities.’⁸⁷

The success of development activities is thus closely linked with the status of respect for human rights for concerned communities as well as how effectively these communities are involved in the processes leading to the negotiations leading to the seating up and operation of investment and development projects.

10.2.5. Funding Biodiversity Conservation Efforts

CBD Decision XIII/3 called for Parties to encourage public and private sources of finance to be channelled into practices that improve the sustainability of production while reducing biodiversity loss, and to promote and support the restoration of ecosystems that provide essential services in a way that provides for the needs of indigenous peoples and local communities, does not cause harm to other ecosystems.⁸⁸

⁸⁶ ‘Kenya Tops East Africa Blocs in Impact Investment - Ministry of Industrialization, Trade and Enterprise Development (MoITED)’ <<https://www.industrialization.go.ke/index.php/media-center/blog/240-kenya-tops-east-africa-bloc-in-impact-investment>> accessed 23 July 2021; ‘Kenya: The Country Impact Investors Cannot Afford to Ignore’ (20 January 2020) <<https://www.pioneerspost.com/news-views/20200120/kenya-the-country-impact-investors-cannot-afford-ignore>> accessed 23 July 2021; Global Impact Investing Network and Open Capital Advisors, *The Landscape for Impact Investing in East Africa* (ETHIOPIA 2015).

⁸⁷ Castano, T., “Preparing for Impact: Five Ideas to Maximize the Potential of Impact Investing”, New Start New Jersey, April 2017, 1< <https://ideas.nsnj.org/wp-content/uploads/2017/08/NSNJ-Preparing-for-Impact.pdf>> accessed 21 July 2021.

⁸⁸ CBD Decision XIII/3, para 32.

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The CBD Aichi Target 20 also requires countries to ensure that “by 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

Closer home, the *National Horticulture Policy, 2012* states that: - *horticulture Research will be financed through the Government of Kenya, private sector, development partners, trust funds, royalties and competitive grants. Partnerships with relevant public and private institutions will be promoted to increase funding for germplasm conservation and to protect plant varieties with potential for commercial value.*

The *Kenya Agricultural and Livestock Research Act, 2013* establishes the Kenya Agricultural and Livestock Research Organisation, whose object and function is to – promote, streamline, co-ordinate and regulate research in crops, livestock, genetic resources and biotechnology in Kenya; promote, streamline, co-ordinate and regulate research in crops and animal diseases; and expedite equitable access to research information, resources and technology and promote the application of research findings and technology in the field of agriculture.

The unveiling of the Sustainable Development Goals (SDGs) in 2015 meant that most developing countries would have to step up their efforts to raise domestic resources to finance needed domestic investment as support from development partners and private sector investors would not be enough.⁸⁹

The SDG Goal 17 acknowledges that the SDGs cannot be realised without the global cooperation amongst countries as well as mobilizing the relevant resources necessary to achieve these goals.⁹⁰ Target 17.1 seeks to strengthen

⁸⁹ ‘Heightening Domestic Resource Mobilization in Africa During COVID-19’ (*Center For Global Development*) <<https://www.cgdev.org/blog/heightening-domestic-resource-mobilization-africa-during-covid-19>> accessed 22 March 2021.

⁹⁰ Martin, ‘Global Partnerships’ (*United Nations Sustainable Development*)

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domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection.

Domestic Resource Mobilization remains essential to accelerate economic growth and lift people from extreme poverty, particularly in the low-income countries, an important component of the SDGs.⁹¹ Lower poverty levels means better response to conservation measures by the general public.

In order to achieve the sustainable development goals, the 2015 Addis Ababa Action Agenda on Financing for Development captured the importance of domestic resource mobilization, noting that the “mobilization and effective use of domestic resources ... are central to our common pursuit of sustainable development.”⁹² Notably, it has rightly been pointed out that the only reliable and sustained sources of government revenue are taxes and some non-tax revenue instruments, such as royalties and resource rents from extractive industries and, to a limited extent, user fees for public services, generally delivered by local governments.⁹³ However, most African countries have been over relying on foreign aid and loans to fund their ever expanding national budgets. Kenya is no exception. With the pressure and the 2030 deadline to achieve the sustainable development goals, the need for alternative funding will only grow. As such, there is a need for these countries to not only look for alternative sources of the required financial resources but also the ones that come with less complications and strings attached.

It is for this reason that these countries need to focus more on capitalizing on domestic resource mobilization as a source of funding development projects. This is important as Official development assistance (ODA) is finite and

<<https://www.un.org/sustainabledevelopment/globalpartnerships/>> accessed 8 July 2021.

⁹¹ Yamada K, 'Financing Sustainable Development with Enhanced Domestic Resource Mobilization: Transitional Role of International Cooperation' (2017) 23 Asia-Pacific Development Journal 61, at 61.

⁹² Junquera-Varela, R. F., Verhoeven, M., Shukla, G. P., Haven, B., Awasthi, R., & Moreno-Dodson, B., *Strengthening Domestic Resource Mobilization: Moving from Theory to Practice in Low-and Middle-Income Countries* (The World Bank 2017), chapter Two.

⁹³ *Ibid*, 5.

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fluctuates over time, creating uncertainty for recipient countries about planning, budgeting, and expenditures in the public sector.⁹⁴

It is documented that when the investment requirements for the SDGs were first assessed in the United Nations Conference on Trade and Development's (UNCTAD's) World Investment Report 2014, at least 10 relevant sectors (encompassing all 17 SDGs) were identified and the report projected an annual investment gap of \$2.5 trillion in developing countries.⁹⁵ While this projection remains valid today according to a recent review (UNCTAD, 2020), the SDGs have significant resource implications across developed and developing countries and require a step-change in levels of both public and private investment in the SDGs.⁹⁶

The need for enhanced domestic resource mobilization is also more urgent in light of the UNCTAD's observations that the COVID-19 shock has exacerbated existing constraints for the SDGs and could undo the progress made in the last six years in SDG investment and the international private sector investment flows to developing and transition economies in sectors relevant for the SDGs were also expected to fall by about one-third in 2020 because of the COVID-19 pandemic, posing a risk to delivering on the 2030 agenda for sustainable development.⁹⁷

Thus, as part of laying the groundwork for the achievement of SDGs, there is a need for countries, including Kenya, to review their domestic resource mobilization efforts and work towards enhancing the same. While there are various external mechanisms of funding that are available to countries for exploitation, there is a need for countries such as Kenya to enhance their domestic resources mobilization mechanisms. Indeed, this is acknowledged by the UNCTAD which points out that 'strengthening domestic public resource

⁹⁴ Ibid, 6.

⁹⁵ Zhan JX and Santos-Paulino AU, 'Investing in the Sustainable Development Goals: Mobilization, Channeling, and Impact' (2021) 4 Journal of International Business Policy 166.

⁹⁶ Ibid.

⁹⁷ Zhan JX and Santos-Paulino AU, 'Investing in the Sustainable Development Goals: Mobilization, Channeling, and Impact' (2021) 4 Journal of International Business Policy 166.

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mobilization is crucial for Governments in financing national sustainable development strategies and implementing Agenda 2030 for Sustainable Development and the Addis Ababa Action Agenda.

In addition, the particular role of fiscal revenues in public resource mobilization lies in their greater stability and predictability compared to other sources of long-term finance. According to International Monetary Fund (IMF) estimates, for low-income countries, average domestic taxes would have to increase by about 5 percentage points if they were to meet the SDGs in five key areas (education, health, roads, electricity, and water), with the financing needed in sub-Saharan Africa being larger given their development level.⁹⁸ It is also worth pointing out that investment in human, social, and physical capital, are at the core of sustainable and inclusive growth and represent an important share of national budgets—specifically, education, health, roads, electricity, and water and sanitation.⁹⁹ IMF estimates that delivering on the SDG agenda will require additional spending in 2030 of US\$0.5 trillion for low-income developing countries and US\$2.1 trillion for emerging market economies.¹⁰⁰

To achieve this, IMF points out that countries themselves own the responsibility for achieving the SDGs, especially through reforms to foster sustainable and inclusive growth that will in turn generate the tax revenue needed, and their efforts should focus on strengthening macroeconomic management, combating corruption and improving governance, strengthening transparency and accountability, and fostering enabling business environments.¹⁰¹

⁹⁸ 'Heightening Domestic Resource Mobilization in Africa During COVID-19' (*Center For Global Development*) <<https://www.cgdev.org/blog/heightening-domestic-resource-mobilization-africa-during-covid-19>> accessed 22 March 2021.

⁹⁹ 'Fiscal Policy and Development: Human, Social, and Physical Investments for the SDGs' (*IMF*) <<https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2019/01/18/Fiscal-Policy-and-Development-Human-Social-and-Physical-Investments-for-the-SDGs-46444>> accessed 22 March 2021.

¹⁰⁰ *Ibid*, 5.

¹⁰¹ *Ibid*.

The IMF considers domestic resources as the largest untapped source of financing to fund national development plans.¹⁰² Arguably, the Global Goals can only be met if countries work together, where international investments and support is needed to ensure innovative technological development, fair trade and market access, especially for developing countries.¹⁰³ It has been argued that domestic resource mobilization will be crucial not only to meet the sheer scale of investment needed to implement the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs), but also because it holds its own broader promise for transformative change.¹⁰⁴ Transformative change will give rise to stronger Environmental Democracy, lower poverty levels and more effective biological diversity conservation by all stakeholders.

10.3. Conclusion

This chapter has highlighted some of the contemporary issues that either directly or indirectly affect efforts aimed at sustainable biodiversity utilisation and conservation. This is a demonstration that biodiversity conservation should not be treated as an independent issue but a complex one that involves various actions spanning across sectors. The issues touch on environmental, social, political and economic spheres of development. This is why previous chapters of this book have called for adoption of integrated approaches to management of various environmental and biodiversity resources.

¹⁰² 'Tax Policy for Domestic Resource Mobilization | ADB Knowledge Event Repository' <<https://events.development.asia/learning-events/tax-policy-domestic-resource-mobilization>> accessed 24 March 2021.

¹⁰³ 'Goal 17: Partnerships for the Goals' (The Global Goals) <<https://www.globalgoals.org/17-partnerships-for-the-goals>> accessed 8 March 2021.

¹⁰⁴ 'Mobilizing Domestic Resources for Sustainable Development: Toward a Progressive Fiscal Contract | United Nations ILibrary' <<https://www.un-ilibrary.org/content/books/9789210601023c009>> accessed 24 March 2021.

CHAPTER ELEVEN

Fostering Environmental Democracy and Biological Diversity in Kenya

11.1 Introduction

It has been argued that the key to sustainable development is achieving a balance between the exploitation of natural resources for economic development and conserving ecosystem services that are critical to everyone's wellbeing and livelihoods.¹ This chapter offers some recommendations on how countries, and Kenya in particular, can achieve sustainable development agenda through promoting Environmental Democracy and enhancing biodiversity conservation which is a prerequisite to not only healthy environment but also important for replenishing the ecosystem services which meet the basic human needs as captured in the United Nations 2030 Agenda for Sustainable Development Agenda.

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11.2.1. Enhancing Environmental Education in School Curricula for Environmental Awareness and Environmental Ethics

Agenda 21 recognises the role of education in achieving sustainable livelihoods and thus calls for "re-orientation" of all education toward sustainability.² It states that both formal education and non-formal education are indispensable to changing people's attitudes so that they have the capacity to assess and address their sustainable development concerns as well as achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making.³

Environmental education has been defined as a process that allows individuals to explore environmental issues, engage in problem solving, and take action to

¹ McCartney, M., Finlayson, M., de Silva, S., Amerasinghe, P., & Smakhtin, V., 'Sustainable Development and Ecosystem Services'. *Sustainable development and ecosystem services* (No. 612-2016-40661).

² Chapter 36, Agenda 21.

³ *Ibid*, para. 36.3.

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improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions.⁴ Students are expected to be equipped with the following: awareness and sensitivity to the environment and environmental challenges; knowledge and understanding of the environment and environmental challenges; attitudes of concern for the environment and motivation to improve or maintain environmental quality; skills to identify and help resolve environmental challenges; and participation in activities that lead to the resolution of environmental challenges.⁵

Notably, while environmental information is important, environmental education is more than that as it goes beyond the citizens' right to giving their opinion to incorporate: increased public awareness and knowledge of environmental issues; building up critical thinking capacity; enhanced individuals' problem-solving and decision-making skills; and it does not advocate a particular viewpoint.⁶ Environmental education is thus important for creating awareness and understanding about environmental issues which eventually leads to responsible individual and group actions.⁷ As far as the role of education in achieving sustainable development is concerned, education is considered to play an important role in ensuring that human beings acquire knowledge, skills, attitudes, and values necessary to shape a sustainable future.⁸ Continued enhanced and effective environmental education in Kenyan school curricula is important if Kenyans are to appreciate from their formative years the need to protect and conserve their environment

⁴ OA US EPA, 'What Is Environmental Education?' (*US EPA*, 13 December 2012) <<https://www.epa.gov/education/what-environmental-education>> accessed 3 June 2021.

⁵ *Ibid.*

⁶ OA US EPA, 'What Is Environmental Education?' (*US EPA*, 13 December 2012) <<https://www.epa.gov/education/what-environmental-education>> accessed 3 June 2021.

⁷Beatus Mwendwa, 'Learning for Sustainable Development: Integrating Environmental Education in the Curriculum of Ordinary Secondary Schools in Tanzania.' [2017] *Journal of Sustainability Education*.

⁸ *Ibid.*

and biodiversity in particular, as a prerequisite for achieving sustainable development.⁹

11.2.2. Adopting Rights-Based Approaches to Biological Diversity Conservation

Rights-based approaches to conservation have been defined to mean “integrating rights norms, standards, and principles into policy, planning, implementation, and outcomes assessment to help ensure that conservation practice respects rights in all cases, and supports their further realisation where possible”.¹⁰

Conservation of ecosystem goods and services is considered important for upholding economic, social and cultural rights, such as the rights to health, an adequate standard of living, freedom from hunger and cultural freedom.¹¹ The discussion on human rights approaches to conservation is usually informed by the procedural rights, such as to participate in decision making, acquire information and access justice; and the substantive rights, such as to life, personal security, health, an adequate standard of living, education, freedom to practice culture and freedom from all forms of discrimination, amongst others.¹²

⁹ AM Karugu, ‘Aspects of Environmental Education in Kenya’s Preschool Curriculum’ <<https://ir-library.ku.ac.ke/handle/123456789/8020>> accessed 3 June 2021; see also Unger, Suanne, "Environmental education in Kenya: the need for a community-based biology curriculum in the secondary schools." (1993) *Graduate Student Theses, Dissertations, & Professional Papers*. 7615 <<https://scholarworks.umt.edu/cgi/viewcontent.cgi?article=8650&context=etd>> accessed 3 June 2021; Matthias Winfried Kleespies and Paul Wilhelm Dierkes, ‘Impact of Biological Education and Gender on Students’ Connection to Nature and Relational Values’ (2020) 15 PLOS ONE e0242004.

¹⁰ ‘Rights-Based Approaches to Conservation’ (IUCN, 14 December 2015) <<https://www.iucn.org/theme/governance-and-rights/about/our-work/governance-and-rights-based-approaches/rights-based-approaches-conservation>> accessed 4 June 2021.

¹¹ Campese, J., Sunderland, T., Greiber, T. and Oviedo, G. (eds.), *Rights-based approaches: Exploring issues and opportunities for conservation*. (CIFOR and IUCN. Bogor, Indonesia, 2009), p.1.

¹² *Ibid*, p. 2.

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Notably, many international human rights instruments and multilateral environmental agreements now recognise rights to participation in environmental decision making, the importance of the environment for sustainable development and substantive rights to a clean and healthy environment.¹³ Furthermore, at the national level, many national constitutions, including Kenya's, explicitly recognise rights to a clean or healthy environment and acknowledge the need for environmental protection and conservation as a prerequisite for the fulfillment of other social and economic rights. For instance, the Constitution of Kenya provides that:

19. (1) *The Bill of Rights is an integral part of Kenya's democratic state and is the framework for social, economic and cultural policies.*
(2) *The purpose of recognising and protecting human rights and fundamental freedoms is to preserve the dignity of individuals and communities and to promote social justice and the realisation of the potential of all human beings.*

At the international law level, CBD Decision XII/7 2, encourages Parties to give gender due consideration in their national biodiversity strategies and action plans and to integrate gender into the development of national indicators.¹⁴ Adopting a rights-based approach to biodiversity conservation can go a long way in enhancing the rights of both men and women. These rights include both procedural and substantive rights.¹⁵ Procedural rights relate to access to the processes by which people can assert their rights where procedural rights are important in themselves, and also help ensure the realization of substantive rights, including by informing rights-holders and duty-bearers about their respective rights and responsibilities, and giving rights-holders space to make effective claims in systems of mutual accountability.¹⁶ The relevant procedural

¹³ *Ibid*, p. 5.

¹⁴ CBD Decision XII/7, para.2.

¹⁵ UN Environment, 'What Are Environmental Rights?' (*UNEP - UN Environment Programme*, 2 March 2018) <<http://www.unep.org/explore-topics/environmental-rights-and-governance/what-we-do/advancing-environmental-rights/what>> accessed 7 June 2021.

¹⁶ Jenny Springer, Jessica Campese and M Painter, 'Conservation and Human Rights: Key Issues and Contexts. Scoping Paper for the Conservation Initiative on Human Rights' [2011] Unpublished report. Conservation Initiative on Human Rights Working Group, 16-17.

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rights conservation include: Right to information¹⁷; Right to participation¹⁸; and the right to access to justice (including redress)¹⁹.

On the other hand, substantive rights are defined as rights to the “substance” of human wellbeing (such as rights to life, housing, water and a healthy environment) and contextually include:²⁰ Right to life;²¹ Right to health;²² Right to an adequate standard of living, including food;²³ Right to water;²⁴ Right to

¹⁷ See Article 10 of the Constitution on national values and principles of governance; Article 33 on freedom of expression; Article 35 on access to information; Article 69 on State obligations in respect of the State; *Access to Information Act*, No. 31 of 2016, Laws of Kenya.

¹⁸ See Article 10 of the Constitution on national values and principles of governance; Article 33 on freedom of expression; Article 69;

¹⁹ Article 10 of the Constitution on national values and principles of governance; Article 21 on implementation of rights and fundamental freedoms; Article 22 on enforcement of Bill of rights; Article 23 on authority of Courts to uphold and enforce the Bill of Rights; Article 27 on equality and freedom from discrimination; Article 48 on access to justice; Article 70 on enforcement of environmental rights; and Article 159 on judicial authority.

²⁰ Jenny Springer, Jessica Campese and M Painter, ‘Conservation and Human Rights: Key Issues and Contexts. Scoping Paper for the Conservation Initiative on Human Rights’ [2011] Unpublished report. Conservation Initiative on Human Rights Working Group.

²¹ See Article 26 of the Constitution of Kenya 2010 on right to life; see also the case of *Peter K. Waweru v Republic* [2006] eKLR12 where the Court relied on, inter alia, case law from India to equate right to life to the right to clean and healthy environment.

²² See Article 42 of the Constitution of Kenya on right to clean and healthy environment; see also Article 43(1) (a) on the economic and social rights which include the right- to the highest attainable standard of health, which includes the right to health care services, including reproductive health care.

²³ See Article 43(1) (b) (c) on the economic and social rights which include the right- (b) to accessible and adequate housing, and to reasonable standards of sanitation; and (c) to be free from hunger, and to have adequate food of acceptable quality.

²⁴ See Article 43(1) (d) on the economic and social rights which include the right- o clean and safe water in adequate quantities.

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development;²⁵ Right to practice one's culture;²⁶ Right to work;²⁷ Right to property;²⁸ and the peoples' right to self-determination, use of natural wealth and resources, and not to be deprived of means of subsistence.²⁹

As already pointed out, biodiversity and generally ecosystem services are important in fulfilment of the foregoing substantive rights and hence, any efforts towards conservation of biodiversity should bear this in mind not only for the sake of fulfilling human rights but also to ensure that the benefiting group of persons have the incentive to participate in conservation measures as envisaged under Article 69(2) of the Constitution of Kenya.³⁰ This is also in line with the Aichi targets of the Convention on Biological Diversity (CBD) which calls upon States to ensure that biodiversity resources are "effectively and equitably managed", where equity or justice is conceptualized in three areas of concern: (i) distribution of costs and benefits from conservation; (ii)

²⁵ See Article 10 of the Constitution on national values and principles of governance; see also Article 27 on the equality and freedom from discrimination; Part 3 of the constitution on the specific application of rights relating to persons with disabilities, youth, minorities and marginalised groups, older members of society and specifically in reference to their right to participate in national development affairs.

²⁶ See Article 11 of the Constitution of Kenya; Article 32 on freedom of conscience, religion, belief and opinion; and Article 44 on language and culture.

²⁷ See Article 41 of the Constitution of Kenya on labour relations; Employment Act, 2007, Cap 226; Employment and Labour Relations Court Act, No. 20 of 2011; Labour Relations Act, 2007.

²⁸ See Article 40 of the Constitution on protection of property rights.

²⁹ See United Nations. Declaration on the Rights of Indigenous Peoples, 2007; *International Covenant on Civil and Political Rights*, 16 December 1966, United Nations, Treaty Series, vol. 999, p. 171; *International Covenant on Economic, Social and Cultural Rights*, 16 December 1966, United Nations, Treaty Series, vol. 993, p. 3; *Charter of the United Nations*, 24 October 1945, 1 UNTS XVI.

³⁰ 69. Obligations in respect of the environment:

(2) Every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources; see also Emily Woodhouse and J Terrence McCabe, 'Well-Being and Conservation: Diversity and Change in Visions of a Good Life among the Maasai of Northern Tanzania' (2018) 23 *Ecology and Society*.

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procedure referring to participation in decision making; (iii) recognition of social and cultural difference.³¹

Thus, building strategies for the protection of ecosystem services into conservation and land-use planning is essentially the promotion of human survival, and not merely a luxury task.³² The *Natural Resources (Benefit Sharing) Bill, 2018* is meant to establish a system of benefit sharing in resource exploitation between resource exploiters, the national government, county governments and local communities; and for connected purposes.³³ The legislation is to apply to: sunlight; water resources; forests, biodiversity and genetic resources; wildlife resources; industrial fishing; and wind.³⁴ Its application is to be guided by the following principles: transparency and inclusivity; revenue maximization and adequacy; efficiency and equity; accountability and participation of the people; rule of law and respect for human rights of the people; and sustainable natural resources management.³⁵ Once enacted, this legislation has the potential to entrench a rights-based approach to natural resources management in Kenya.

11.2.3. Effective Pest Control for Biodiversity Conservation

Pests have a negative effect not only on agricultural production but also on biodiversity conservation. It has been observed that the damage caused by pest organisms is one of the most important factors in the reduced productivity of any crop plant species, losses can occur in the field (pre-harvest) and during storage (post-harvest).³⁶ However, accurate estimates of agricultural losses caused by insects are difficult to obtain because the damage caused by these

³¹ Emily Woodhouse and J Terrence McCabe, 'Well-Being and Conservation: Diversity and Change in Visions of a Good Life among the Maasai of Northern Tanzania' (2018) 23 *Ecology and Society*, 52.

³² Wenny, D.G., Devault, T.L., Johnson, M.D., Kelly, D., Sekercioglu, C.H., Tomback, D.F. and Whelan, C.J., 'The Need to Quantify Ecosystem Services Provided by Birds' (2011) 128 *The Auk* 1.

³³ Preamble, *Natural Resources (Benefit Sharing) Bill, 2018*.

³⁴ *Ibid*, clause 3.

³⁵ *Ibid*, clause 4.

³⁶ Oliveira, C. M., A. M. Auad, S. M. Mendes, and M. R. Frizzas, "Crop Losses and The Economic Impact of Insect Pests on Brazilian Agriculture," *Crop Protection* 56 (2014), pp. 50-54, p.51.

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organisms depends on a number of factors related to environmental conditions, the plant species being cultivated, the socioeconomic conditions of farmers, and the level of technology used.³⁷ It is important to address the problem of pests if food security and biodiversity conservation are to be achieved. Pest control is part of the ecosystem services that improve and sustain human life.³⁸

One of the possible and effective approaches in pest control for biodiversity conservation is the integrated pest control. Integrated Pest Control (IPM) is an ecosystem approach to crop production and protection that combines different management strategies and practices to grow healthy crops and minimize the use of pesticides.³⁹ IPM has been developed as a way to control pests without relying solely on pesticides.

FAO promotes IPM as the preferred approach to crop protection and regards it as a pillar of both sustainable intensification of crop production and pesticide risk reduction.⁴⁰ FAO defines Integrated Pest Management to mean *'the careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimize risks to human health and the environment. IPM emphasizes the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms.'*⁴¹

The *Protection of Traditional Knowledge and Cultural Expressions Act, 2016*⁴² was enacted to provide a framework for the protection and promotion of traditional knowledge and cultural expressions; to give effect to Articles 11, 40 and 69(L) (c) of

³⁷ *Ibid.*

³⁸ Philpott Stacy M., Biodiversity and Pest Control Services. In: Levin S.A. (ed.), *Encyclopedia of Biodiversity*, second edition, Waltham, MA: Academic Press, 2013, Volume 1, pp. 373-385.

³⁹ FAO, 'AGP - Integrated Pest Management,' available at <http://www.fao.org/agriculture/crops/core-themes/theme/pests/ipm/en/>.

⁴⁰ *Ibid.*

⁴¹ Plant Production and Protection Division: Integrated Pest Management' <<http://www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/ipm/en/>> accessed 7 June 2021.

⁴² Protection of Traditional Knowledge and Cultural Expressions Act, No. 33 of 2016, Laws of Kenya.

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*the Constitution; and for connected purposes. The Act defines "traditional knowledge" to include any knowledge contained in the codified knowledge systems passed on from one generation to another including agricultural, environmental or medical knowledge, knowledge associated with genetic resources or other components of biological diversity, and know-how of traditional architecture, construction technologies, designs, marks and indications.*⁴³

*Similarly, Aichi Target 18 envisages that by 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.*⁴⁴

CBD Decision XIII/15 calls for Parties to encourage businesses involved in the development, manufacturing and sale of pesticides to develop and revise risk assessments of products, applying the precautionary approach and be fully transparent in releasing the results of all toxicity studies.⁴⁵ The *Plan of Action on Pollinators* includes suggestions to identify and promote possible improvements in the policy environment, including consideration of how existing or new certification schemes might contribute to the conservation and sustainable use of pollinator diversity.⁴⁶

CBC Decision XIII/3 and CBD Decision X/32⁴⁷ called for Parties to make use of voluntary sustainability standards and/or of voluntary certification schemes, and promote their further development for sustainably produced goods and services.⁴⁸

⁴³ Protection of Traditional Knowledge and Cultural Expressions Act, s.2.

⁴⁴ 'Target 18 - Traditional Knowledge and Customary Sustainable Use - Local Biodiversity Outlooks' <<https://localbiodiversityoutlooks.net/targets/target-18-traditional-knowledge-and-customary-sustainable-use/>> accessed 7 June 2021.

⁴⁵ CBD Decision XIII/15, para. 6.

⁴⁶ CBD Decision VI/5, Annex II, Element 3, capacity-building, para. 3.2.

⁴⁷ CBD Decision X/32, para. 2(i).

⁴⁸ CBD Decision XIII/3, para. 17(h).

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Farmers should be encouraged to use the least harmful approaches to pest control, including applying indigenous methods of pest control.⁴⁹

11.2.4. Biodiversity Mainstreaming for Food and Nutrition Security

The Constitution of Kenya guarantees the right of every person to be free from hunger and thirst: Every person has the right – (c) to be free from hunger, and to have adequate food of acceptable quality; (d) to clean and safe water in adequate quantities.⁵⁰ Conservation of biodiversity for securing food and nutrition security in Kenya thus becomes an important step towards guaranteeing human rights of all.

Biodiversity for food and agriculture includes the variability among living organisms contributing to food and agriculture, including also the forestry and fisheries sectors.⁵¹ The sustainable use of genetic resources for food and agriculture will be the foundation for many of the adaptation strategies required in food and agriculture. Arguably, in order to adapt to climate change, plants and animals important for food security will need to adjust to abiotic changes such as heat, drought, floods and salinity.⁵²

Genetic resources are generally seen as the living material that local communities, breeders and researchers use to adapt to changing socio-economic needs and ecological challenges. Maintaining and using a wide basket of genetic diversity at a time of climate change is considered an essential insurance policy for the food and agriculture sectors.⁵³ Crop genetic diversity is considered a source of continuing advances in yield, pest resistance and

⁴⁹ D Grzywacz and others, 'The Use of Indigenous Ecological Resources for Pest Control in Africa' (2014) 6 Food Security 71; 'Cultural Methods of Pest, Primarily Insect, Control' <<https://eap.mcgill.ca/publications/eap58.htm>> accessed 6 June 2021.

⁵⁰ Article 43, Constitution of Kenya 2010.

⁵¹ FAO, 'Climate Change and Biodiversity for Food and Agriculture,' Technical Background Document

From The Expert Consultation Held on 13 to 14 February 2008, p.1.

Available at http://www.fao.org/uploads/media/FAO_2008a_climate_change_and_biodiversity_02.pdf

⁵² *Ibid.*

⁵³ *Ibid.*, p.3.

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quality improvement, and it is widely accepted that greater varietal and species diversity would enable agricultural systems to maintain productivity over a wide range of conditions.⁵⁴ It has been argued that maintaining and enhancing the diversity of crop genetic resources is of increasing importance to ensure the resilience of food crop production particularly in light of climate change challenges.⁵⁵ One of the ways of promoting food security in the face of climate change is adoption of climate smart agriculture.

FAO defines Climate-Smart Agriculture (CSA) as an approach that helps to guide actions needed to transform and reorient agricultural systems to effectively support development and ensure food security in a changing climate.⁵⁶ CSA aims to tackle three main objectives: sustainably increasing agricultural productivity and incomes; adapting and building resilience to climate change; and reducing and/or removing greenhouse gas emissions, where possible. CSA is an approach for developing agricultural strategies to secure sustainable food security under climate change. CSA provides the means to help stakeholders from local to national and international levels identify agricultural strategies suitable to their local conditions.⁵⁷

Pollinators are part of the food production chain and must therefore be taken care of. Experts have warned that climate change will profoundly impact insects, including their physiology (how they live and reproduce), their behaviour and physical features, as well as relationships with other species (like host plants and natural enemies).⁵⁸ As a result, immense shifts are predicted in population dynamics, abundance and geographical spread of insects. In turn, these alterations will have positive and negative outcomes for

⁵⁴ Carpenter, Janet E., "Impact of GM crops on biodiversity," *GM crops* 2, no. 1 (2011): 7-23, p.7.

⁵⁵ *Ibid*, P.7.

⁵⁶ 'Climate-Smart Agriculture | Food and Agriculture Organization of the United Nations' <<http://www.fao.org/climate-smart-agriculture/en/>> accessed 7 June 2021.

⁵⁷ FAO, "Climate-Smart Agriculture," available at <http://www.fao.org/climate-smart-agriculture/en/>

⁵⁸ 'Insects and Climate Change | Icipe - International Centre of Insect Physiology and Ecology' <<http://www.icipe.org/news/insects-and-climate-change>> accessed 7 June 2021.

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people, livestock and crops, in terms of vulnerability to insect-transmitted diseases, and availability of essential services provided by insects such as pollination and pest regulation.⁵⁹ Thus, this must form part of the wider debate in the quest for food and nutrition security.

11.2.5. Place of Indigenous Knowledge in Biodiversity Conservation

The rights of Indigenous Peoples are considered to be of special relevance to conservation for two main reasons: The first is that priority sites for biodiversity conservation frequently overlap with the territories of Indigenous Peoples. This is often because of Indigenous Peoples' custodianship of those lands which has meant that they have retained their value for biodiversity; and secondly, Indigenous Peoples very often have a close relationship to the land and to nature and, therefore, conservation has the potential to affect that relationship – both positively and negatively.⁶⁰

It has rightly been observed that the livelihoods of indigenous peoples, custodians of the world's forests since time immemorial, were eroded as colonial powers claimed *de jure* control over their ancestral lands, where the continuation of European land regimes in Africa and Asia meant that the withdrawal of colonial powers did not bring about a return to customary land tenure.⁶¹ This is despite the acknowledgement that the rights of indigenous peoples' are often particularly relevant for conservation and sustainable use of natural resources, due to the frequent overlap of high-biodiversity areas and indigenous lands, and the vulnerability of natural resource-dependent customary livelihoods to changes in access or use.⁶² In addition, indigenous peoples' traditional ecological knowledge, traditional systems of control, use

⁵⁹ International Centre of Insect Physiology and Ecology (*icipe*), '*Insects and Climate Change*,' available at <http://www.icipe.org/news/insects-and-climate-change> Accessed on 6/06/2021.

⁶⁰ BirdLife International, International B, '*An Introduction to Conservation and Human Rights for BirdLife Partners*', 9.

⁶¹ Domínguez L and Luoma C, '*Decolonising Conservation Policy: How Colonial Land and Conservation Ideologies Persist and Perpetuate Indigenous Injustices at the Expense of the Environment*' (2020) 9 *Land* 65, 65.

⁶² Jenny Springer and Jessica Campese with Michael Painter, "*Conservation and Human Rights: Key Issues and Contexts*," *Scoping Paper for the Conservation Initiative on Human Rights*, October 2011, 19.

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and management of lands and resources, and traditional institutions for self-governance also contribute substantially to conservation.⁶³

While across sub-Saharan Africa, natural resources remain central to rural people's livelihoods with local norms and customs shaping people's everyday forms of resource use, the commercial uses of natural resources often remain highly centralized, conditioned by government policies of the colonial and post-colonial eras.⁶⁴

Notably, the term "indigenous knowledge" is generally used refer to how members of a community perceive and understand their environment and resources, particularly the way they convert those resources through labour.⁶⁵ Indigenous groups should be included in reforestation and forest management plans as they can potentially offer alternative knowledge and perspectives based on their own locally developed practices of resource use.⁶⁶ Indigenous knowledge is the local knowledge that is unique to a culture or society,⁶⁷ seen as the social capital of the poor since it is their main asset to invest in the struggle for survival, to produce food, to provide for shelter and to achieve control of their own lives.⁶⁸ The SDGs recognises the importance of this body of knowledge as it has several goals that seek to incorporate the knowledge vested in indigenous people in order to achieve its main agenda. Indigenous knowledge has been hailed as capable of solving local problems, as it offers a

⁶³ Ibid, 19.

⁶⁴ Roe D, Nelson F and Sandbrook C, *Community Management of Natural Resources in Africa: Impacts, Experiences and Future Directions* (IIED 2009).

⁶⁵ Castro, A.P. & Ettenger, K., 'Indigenous Knowledge And Conflict Management: Exploring Local Perspectives And Mechanisms For Dealing With Community Forestry Disputes,' *Paper Prepared for the United Nations Food and Agriculture Organization, Community Forestry Unit, for the Global Electronic Conference on "Addressing Natural Resource Conflicts Through Community Forestry,"* (FAO, January-April 1996) <http://www.fao.org/docrep/005/ac696e/ac696e09.htm> >Accessed on 20 August 2021.

⁶⁶ Berkes, F., et. al., 'Rediscovery of Traditional Ecological Knowledge as Adaptive Management,' *Ecological Applications*, Vol. 10, No. 5., October 2000, pp. 1251-1262 at p. 1251.

⁶⁷ SGJN Senanayake, 'Indigenous Knowledge as a Key to Sustainable Development' (2006) 2 *Journal of Agricultural Sciences-Sri*

Lanka <https://www.researchgate.net/publication/265197993_Indigenous_knowledge_as_a_key_to_sustainable_development> accessed 16 July 2020.

⁶⁸ Ibid.

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resource to help grow more and better food, adds to maintain healthy lifestyles, and it provides opportunities to share wealth and prevent conflicts.⁶⁹ For instance, some commentators have observed that: with regard to agro-ecology, indigenous people practised mixed farming where organic manure in the form of plant remains, cow dung and urine, and chicken droppings was applied to gardens to improve soil fertility as they are good sources of organic fertilizer which tended to promote organic farming; the use of nitrogen fixing pulses in mixed cropping, growing of plants of different patterns, maturity and duration assisted significantly in stabilizing soil fertility and prevention of soil erosion; in addition, the practice was an effective way, biologically, of managing pests and diseases; it also conserved biodiversity of animal and biannual crops and plants while reducing labour costs; in addition, trees were planted in gardens to provide shade for the plants, to act as wind breaks, and also to demarcate people's farmlands and homes; and as such, reviving organic agriculture would help conserve water, mitigate climate change and ensure sustained biodiversity.⁷⁰

Some of the main ways through which indigenous knowledge may be used in promoting biodiversity conservation include but not limited to: trees which were traditionally regarded as housing spirits or sacred were not be felled without performing rituals, thus achieving a protective effect on trees such as *mugumo* tree (*Ficus natalensis*/*Ficus thonningii*) among the Gikuyu community of Kenya;⁷¹ animals in a particular habitat may be regarded as sacred and are therefore protected from hunting; sacred groves or forests are pieces of land set aside for spiritual purposes, as shrines; traditional farming practices are champions in sustainable land and water management as they involve land

⁶⁹ Hens L, 'Indigenous Knowledge and Biodiversity Conservation and Management in Ghana' (2006) 20 *Journal of Human Ecology* 21, 22.

⁷⁰ Gathogo J, 'Environmental Management and African Indigenous Resources: Echoes from Mutira Mission, Kenya (1912-2012)' (2013) 39 *Studia Historiae Ecclesiasticae* 33, at 37.

⁷¹ Gathogo J, 'Environmental Management and African Indigenous Resources: Echoes from Mutira Mission, Kenya (1912-2012)' (2013) 39 *Studia Historiae Ecclesiasticae* 33; Karangi M, 'Revisiting the Roots of Gikūyū Culture through the Sacred Mūgumo Tree' (2008) 20 *Journal of African Cultural Studies* 117; Karangi MM, *The Sacred Mugumo Tree: Revisiting the Roots of Gikuyu Cosmology and Worship: A Case Study of the Gicugu Gikuyu of Kirinyaga District in Kenya* (University of London, School of Oriental and African Studies (United Kingdom) 2005).

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rotation and shifting cultivation allowing the land for more than 10 years to restore its natural fertility; all over sub-Saharan Africa indigenous plants are used in preventing and curing diseases in plants, animals and humans thus guaranteeing their protection and conservation.⁷²

Arguably, while there is a need for deeper research to demonstrate to what extent indigenous knowledge rules are able to realize targets of sustainable use and the questions on effectiveness and efficiency of community based approaches to biodiversity conservation and management arise, in theory, when biodiversity can be maintained and monitored through customary laws, this is preferable over maintenance through codified law.⁷³ Notwithstanding this, the provisions in the *Protection of Traditional Knowledge and Traditional Cultural Expressions Act, 2016* offer a rare opportunity for the state to realize the vision of the 2030 SDGs by incorporating Kenyan communities' indigenous knowledge in the roadmap to the achievement of the sustainable development agenda. By including these communities and their knowledge, any development policies aimed to benefit these communities will be more likely to not only respond to their cultural needs and preferences but will also enable them meaningfully participate.

Some commentators rightly argue that, despite any gaps in knowledge in the place of indigenous knowledge in biodiversity conservation for realisation of SDGs, the following indigenous and other traditional communities' rights should be respected, in relation to the lands, territories, waters, coastal seas and other resources which they traditionally own or otherwise occupy or use, and which fall within protected areas, subject to agreements with the agencies in charge of national protected area systems, and in the context of agreed management regulations and plans: rights with regard to sustainable, traditional use of their lands and resources; rights to participate in management; rights to participate in decision-making; rights to participate in

⁷² Hens L, 'Indigenous Knowledge and Biodiversity Conservation and Management in Ghana' (2006) 20 *Journal of Human Ecology* 21, 24; Brown, C., Tacio, H. D., & Ishikawa, M. (eds), *In Search of Excellence: Exemplary Forest Management in Asia and the Pacific* (FAO, Regional Office for Asia and the Pacific 2005).

⁷³ Hens L, 'Indigenous Knowledge and Biodiversity Conservation and Management in Ghana' (2006) 20 *Journal of Human Ecology* 21, 28.

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determining priorities and strategies for the development or use of their lands; rights to use their own traditional institutions and authorities to co-manage their lands and resources; rights to require that States obtain the free and informed consent of the respective communities, prior to the approval of any project affecting their lands and resources; rights to improve the quality of their lives, and to benefit directly and equitably from the conservation and ecologically sustainable use of natural resources; collective rights to maintain and enjoy their cultural and intellectual heritage, and the knowledge related to biodiversity and natural resource management; and rights not to be removed from the zones they have traditionally occupied within protected areas.⁷⁴ Some, however, argue that protected areas and community agriculture can indeed co-exist. As the number of crop species and varieties declines, local nitrogen-fixing bacteria, mycorrhizae, predators, pollinators, seed dispersers and other species that co-evolved over centuries with traditional agricultural systems die out.⁷⁵

In addition, the use of fertilizers, pesticides and high-yielding varieties to maximize production and profits over the short term exacerbates this loss of biodiversity. Arguably, diversity of crop species and the diversity of varieties within a species have traditionally strengthened the resilience of agriculture, and Protected areas can contribute to this effort through maintaining wild relatives of crops. As such, the agricultural community should be seen as part of a larger and more comprehensive ecosystem which provides both goods and services from nature through a well-managed protected system. Fostering this positive relationship between agriculture and protected areas may however require broader adoption of the new approaches.⁷⁶

⁷⁴ BirdLife International, International B, 'An Introduction to Conservation and Human Rights for BirdLife Partners', 10.

⁷⁵ McNeely JA, 'The Role of Protected Areas for Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture', *DSE/ATSAF/IPGRI Workshop in situ Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture in Developing Countries, Bonn (Germany), 2-4 May 1995* (IPGRI 1996).

⁷⁶ *Ibid.*

11.3. Conclusion

This chapter has made some recommendations on some of the approaches that Kenya, and indeed any other country keen on enhancing its biodiversity conservation efforts, can adopt. The recommendations are notably cross-cutting, ranging from economic, social, environmental and political measures. It is hoped that exploring these recommendations within the context of Environmental Democracy will go a long way in achieving biodiversity conservation, as a prerequisite for realisation of SDGs.

CHAPTER TWELVE

Conclusion and Way Forward- Looking into the Future

12.1. Conclusion

Biodiversity conservation is often associated with a biocentric perspective that assigns an intrinsic value to all life on Earth.¹ However, this book has explored both ecocentric and anthropocentric reasons for conservation, using the theme of Environmental Democracy. This is because ecosystem services, are associated with an anthropocentric perspective in which biodiversity has instrumental value because it contributes services that improve human well-being.² While the place of democracy in promoting sustainable environmental conservation practices remains a contentious subject,³ it is not wrong to state that Environmental Democracy creates an opportunity for citizens to meaningfully participate in biodiversity conservation for both anthropocentric and ecocentric reasons, where an anthropocentric mindset predicts a moral obligation only towards other human beings, and ecocentrism includes all living beings.⁴

The UN Charter for Nature (1982) envisages an ecocentric approach to biodiversity conservation and provides that: “every form of life is unique, warranting respect regardless of its worth to man....All persons, in accordance with their national legislation, shall have the opportunity to participate, individually or with others, in the formulation of decisions of direct concern to their environment, and shall have access to means of redress when their environment has suffered damage or degradation.”⁵ However, this book adopts both ecocentric and anthropocentric reasons for biodiversity

¹ Reyers, B., Polasky, S., Tallis, H., Mooney, H.A. and Larigauderie, A., ‘Finding Common Ground for Biodiversity and Ecosystem Services’ (2012) 62 *BioScience* 503.

² Ibid.

³ Cf. Honnacker A, ‘Environmentalism and Democracy’ (2020) XII *European Journal of Pragmatism and American Philosophy* <<https://journals.openedition.org/ejpap/2132>> accessed 9 September 2021.

⁴ Rülke, J., Rieckmann, M., Nzau, J.M. and Teucher, M., ‘How Ecocentrism and Anthropocentrism Influence Human-Environment Relationships in a Kenyan Biodiversity Hotspot’ (2020) 12 *Sustainability* 8213, 3.

⁵ UN General Assembly, *World Charter for Nature.*, 28 October 1982, A/RES/37/7, Preamble; Principle 23.

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conservation and this is justified by the notion that 'where mutually beneficial relationships between biodiversity and ecosystem services exist (win-win), there will be much larger and more powerful sets of potential partners in conservation'.⁶

This book has offered a critical discussion on the role of Environmental Democracy in fostering effective conservation of biodiversity as a way of securing the future, both for the sake of human beings as well as all other living organisms. As discussed in the book, biodiversity is an important part of the efforts towards achieving Sustainable Development agenda as it is the source of all life and all raw materials required to meet human needs. Any efforts to secure human life for both the present and future generations must, therefore, should include conservation of biodiversity as a matter of necessity.

Conserving Biodiversity for a Better Future is thus an idea that we must deeply reflect on as a matter of urgency. Apart from the moral and legal grounds for respect for human rights in conservation efforts, it has been opined that practically, conservation will often be more effective if people's rights are respected and fulfilled: Local people who benefit from conservation and who are better able to meet their needs and achieve their development objectives are more likely to change any behaviour that damage the environment through overexploitation; local and indigenous people often have knowledge, skills and organisational capacities that are useful and relevant in resource management; people are more likely to follow resource management agreements and rules if they have had input into these agreements. Participation in decision-making makes it more likely that the agreements will meet their needs and will reflect what is achievable.⁷

It is imperative that all stakeholders join hands in conservation of biodiversity. Environmental Democracy can be used as a tool for promoting the active participation of all parties and especially communities whose livelihoods directly depend on the sustainable management of these resources. As for businesses and the private sector in general, they need to complement the

⁶ Reyers, B., Polasky, S., Tallis, H., Mooney, H.A. and Larigauderie, A., 'Finding Common Ground for Biodiversity and Ecosystem Services' (2012) 62 *BioScience* 503.

⁷ BirdLife International, International B, 'An Introduction to Conservation and Human Rights for BirdLife Partners', 11.

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government efforts in achieving these goals. However, while there is need for continued enhancement of the regulatory frameworks to enhance businesses' role in promoting sustainability, it has been pointed out that true systems-level change and mainstreaming biodiversity for business will only occur once we have mutual reinforcement between strengthened regulatory regimes and voluntary business action.⁸

It is also important to point out that in addition to mitigation, biodiversity and ecosystem services play an important role in adapting to the impacts of climate change, and reducing the risk of climate-related and non-climate-related disasters.⁹ One way of ensuring that all human activities foster Environmental Democracy and biodiversity conservation is introducing pricing of biodiversity and actively assessing biodiversity's contribution to economic growth.

However, it has been pointed out that while establishing the value of biodiversity to economies is important, as it may partly help policymakers in all countries to appreciate that there's a cost to losing nature, at the same time, an economic assessment must take into account the perspectives of the humanities, of developing countries and of members of indigenous communities.¹⁰ Notably, undervaluing the economic and societal values of biodiversity is believed to pose a threat to biodiversity and investment in conservation, and while the value of conventional natural resources such as forestry, fisheries, and wildlife is well appreciated the wider ecological services that biodiversity provides which include water catchments, a natural cleansing of the air, water and soils we pollute, carbon sequestration and, in developing

⁸ Smith T and others, 'Biodiversity Means Business: Reframing Global Biodiversity Goals for the Private Sector' (2020) 13 Conservation Letters e12690, 8.

⁹ OECD (2019), *Biodiversity: Finance and the Economic and Business Case for Action*, report prepared for the G7

Environment Ministers' Meeting, 5-6 May 2019, 31.

¹⁰ 'The Value of Biodiversity Is Not the Same as Its Price' (2019) 573 Nature 463; Costanza, R., d'Arge, R., De Groot, R., Farber, S., Grasso, M., Hannon, B., Limburg, K., Naeem, S., O'Neill, R.V., Paruelo, J. and Raskin, R.G., 'The Value of the World's Ecosystem Services and Natural Capital' (1997) 387 Nature 253.

economies such as Kenya, the biomass energy that fuels the lives of most Kenyans in the form of wood and charcoal, are seldom valued.¹¹

12.2. Looking into the Future: Environmental Democracy and Biodiversity Conservation

It has been suggested that in order to enhance effective public participation, the duty bearers should do the following: ensuring that as duty bearers (leaders) they are accessible to and represent citizens; ensuring existence of forums and opportunities for citizens to participate and engage in matters affecting their lives; providing civic education; developing effective communication channels with citizens; providing timely information to citizens on critical and emerging issues; and providing resources to facilitate public participation.¹²

There is a need for promoting effective and meaningful public participation of communities in development activities in order to ensure that their rights are not only protected but that they also benefit from the targeted development projects in order to improve their livelihoods.¹³ Leaders should work closely with their constituents as a way of not only identifying their challenges but also ensuring that any investment projects within their localities are held accountable as per the law.

In addition to the foregoing, the United Nations Environmental Assembly (UNEA) asserts that this development path should maintain, enhance and, where necessary, rebuild natural capital as a critical economic asset and source

¹¹ Wakhungu, J.W., Waruingi, L., Agwanda, B., Awori, P., Isiche, J., Itela, S. and Njumbi, S., 'Towards a National Biodiversity Conservation Framework: Policy Implications of Proceedings of the International Conference on Biodiversity, Land-Use and Climate Change', 5.

¹²Uraia, 'What is Public Participation?' <https://uraia.or.ke/wp-content/uploads/2016/11/Citizen-Participation-BOOKLET.pdf> accessed 21 July 2021.

¹³Rural Development.. Sustainable Development Knowledge Platform' <<https://sustainabledevelopment.un.org/topics/ruraldevelopment/decisions>> accessed 24 July 2021; 'Making the Case: Effective Public Participation Is Good for Business in the Mekong Region | Pact' <<https://www.pactworld.org/library/making-case-effective-public-participation-good-business-mekong-region>> accessed 24 July 2021.

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of public benefits, especially for poor people whose livelihoods and security depend strongly on nature.¹⁴

It is estimated that ‘more than one billion people in the world live in abject poverty on less than \$1.25 per day while the richest 1% people have almost half of the world’s wealth, leading to the conclusion that there is a huge gap and inequality in the distribution of the world economy’.¹⁵ The high rates of poverty are more pronounced in developing countries mainly in the African continent,¹⁶ despite the fact that Africa as a continent is endowed with immense natural and human resources as well as great cultural, ecological and economic diversity.¹⁷ Some of the causes of poverty in Africa include, *inter alia*, population growth, war and crises, climate change, illnesses, inadequate agricultural infrastructure, and unjust trade structures.¹⁸

¹⁴ ‘What Is an “Inclusive Green Economy”?’ | UNEP - UN Environment Programme’ <<https://www.unenvironment.org/explore-topics/green-economy/why-does-green-economy-matter/what-inclusive-green-economy>> accessed 24 December 2020.

¹⁵ ‘Poverty Is a Human Rights Violation | Apolitical’ (17 June 2020) <https://apolitical.co/en/solution_article/poverty-is-a-human-rights-violation> accessed 24 December 2020.

¹⁶ ‘Poverty in Africa Is Now Falling—but Not Fast Enough’ <<https://www.brookings.edu/blog/future-development/2019/03/28/poverty-in-africa-is-now-falling-but-not-fast-enough/>> accessed 25 December 2020; Chandy L, ‘Why Is the Number of Poor People in Africa Increasing When Africa’s Economies Are Growing?’ (*Brookings*, 30 November 1AD)

<<https://www.brookings.edu/blog/africa-in-focus/2015/05/04/why-is-the-number-of-poor-people-in-africa-increasing-when-africas-economies-are-growing/>> accessed 25 December 2020; ‘On the Poorest Continent, the Plight of Children Is Dramatic’ (*SOS-US-EN*) <<https://www.sos-usa.org/SpecialPages/Africa/Poverty-in-Africa>> accessed 25 December 2020; ‘Poverty and Development in Africa’ <<https://www.globalpolicy.org/social-and-economic-policy/poverty-and-development/poverty-and-development-in-africa.html>> accessed 25 December 2020.

¹⁷ ‘Poverty and Development in Africa’ <<https://www.globalpolicy.org/social-and-economic-policy/poverty-and-development/poverty-and-development-in-africa.html>> accessed 25 December 2020; Muigua K, *Utilizing Africa’s Natural Resources to Fight Poverty* (2014) <<http://kmco.co.ke/wp-content/uploads/2019/06/Utilizing-Africas-Natural-Resources-to-Fight-Poverty-26th-March2014.pdf>> accessed 25 December 2020.

¹⁸ ‘On the Poorest Continent, the Plight of Children Is Dramatic’ (*SOS-US-EN*) <<https://www.sos-usa.org/SpecialPages/Africa/Poverty-in-Africa>> accessed 25 December 2020.

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SDG Goal 1 seeks to ensure that State Parties end poverty in all its forms everywhere by the year 2030.¹⁹ Human poverty may also be perceived as a denial of human rights as it arguably infringes on, among others, human freedom and destroys human dignity. It is viewed as an intrusion into human dignity.²⁰

¹⁹ SDG Goal 1, United Nations, *Transforming our world: the 2030 Agenda for Sustainable Development*, Resolution adopted by the General Assembly on 25 September 2015, A/RES/70/1.

The related targets include:

1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day.

1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.

1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable.

1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.

1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.

1.A Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions.

1.B Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions.

²⁰ Rukooko, A.B., 'Poverty and human rights in Africa: historical dynamics and the case for economic social and cultural rights', *The International Journal of Human Rights*, Vol. 14, Iss. 1, 2010.

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Basic human rights are an integral part of human rights and their violation has been seen as sabotage of human dignity.²¹ Education is considered to be *a key driver to transform lives, build peace, eradicate poverty, and drive sustainable development, (Emphasis added)*²² as education promises to free all citizens from the shackles of ignorance, poverty, and disempowerment, and endow them with the capacity to be architects of their destiny, and catalysts of entrepreneurship, innovation, and global citizenship.²³

The *World Declaration on Education for All, 1990*²⁴ provides that ‘every person – child, youth and adult – shall be able to benefit from educational opportunities designed to meet their basic learning needs. These needs comprise both essential learning tools (such as literacy, oral expression, numeracy, and problem-solving) and the basic learning content (such as knowledge, skills, values, and attitudes) required by human beings to be able to survive, to develop their full capacities, to live and work in dignity, to participate fully in the development, to improve the quality of their lives, to make informed decisions, and to continue learning.’²⁵

The *General Comment No. 13 on the Right to Education*²⁶ states that ‘as an empowerment right, education is the primary vehicle by which economically and socially marginalized adults and children can lift themselves out of poverty and obtain the means to participate fully in their communities. Education has a vital role in empowering women, safeguarding children from

²¹ *Vienna Declaration and Programme of Action*, Article 25, Adopted by the World Conference on Human Rights in Vienna on 25 June 1993.

²² ‘Why Africa Needs to Ensure Inclusive and Equitable Quality Education and Lifelong Learning for All | Blog | Global Partnership for Education’ <<https://www.globalpartnership.org/blog/why-africa-needs-ensure-inclusive-and-equitable-quality-education-and-lifelong-learning-all>> accessed 7 December 2020.

²³ *Ibid.*

²⁴ World Conference on Education for All: Meeting Basic Learning Needs. 1990. *World declaration on education for all and framework for action to meet basic learning needs adopted by the World Conference on Education for All: Meeting Basic Learning Needs, Jomtien, Thailand, 5-9 March 1990*. New York, N.Y.: Inter-Agency Commission (UNDP, UNESCO, UNICEF, World Bank) for the World Conference on Education for All.

²⁵ United Nations, *World Declaration on Education for All, 1990*, Article 1(1).

²⁶ UN Committee on Economic, Social and Cultural Rights (CESCR), *General Comment No. 13: The Right to Education (Art. 13 of the Covenant)*, 8 December 1999, E/C.12/1999/10.

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exploitative and hazardous labour and sexual exploitation, promoting human rights and democracy, protecting the environment, and controlling population growth'.²⁷

The *International Covenant on Economic, Social, and Cultural Rights (ICESCR)*²⁸ states that the 'States Parties to the Covenant agree that education shall be directed to the full development of the human personality and the sense of its dignity, and shall strengthen the respect for human rights and fundamental freedoms. They further agree that education shall enable all persons to participate effectively in a free society, promote understanding, tolerance, and friendship among all nations and all racial, ethnic or religious groups, and further the activities of the United Nations for the maintenance of peace'.²⁹

In the High Court case of *Mohamed Ali Baadi and others v Attorney General & 11 others [2018] eKLR*, the Court rightly pointed out that access to information is a key pillar in the environmental governance scheme in our Constitution because effective Public Participation in decision-making depends on full, accurate and up-to-date information.³⁰

With enhanced literacy levels, it is possible to carry out civic education regarding various challenges that arise from given projects and also for communities to fully appreciate the merits and demerits of certain projects and also appreciate the compromises that they need to make, if any.³¹

By eradicating illiteracy amongst communities, it is possible to empower them to not only participate meaningfully in development projects and decision-making processes but also to be meaningfully employed in the projects. Addressing biodiversity loss challenges require all stakeholders, including private actors, to join hands and eliminate activities that threaten

²⁷ *Ibid*, para. 1.

²⁸ UN General Assembly, *International Covenant on Economic, Social and Cultural Rights*, 16 December 1966, United Nations, Treaty Series, vol. 993, p. 3.

²⁹ *Ibid*, Article 13(1).

³⁰ *Mohamed Ali Baadi and others v Attorney General & 11 others [2018] eKLR*, Petition 22 of 2012.

³¹ 'The Role of Civic Education' <https://civiced.org/papers/articles_role.html> accessed 24 July 2021.

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sustainability. To this end, the *UN Guiding Principles on Business and Human Rights* were drafted and endorsed in recognition of: States' existing obligations to respect, protect and fulfil human rights and fundamental freedoms; the role of business enterprises as specialized organs of society performing specialized functions, required to comply with all applicable laws and to respect human rights; and the need for rights and obligations to be matched to appropriate and effective remedies when breached.³² The 31 principles therein "seek to provide for the first time an authoritative global standard for preventing and addressing the risk of adverse human rights impacts linked to business activity".³³ Notably, the Principles obligate the States to protect against human rights abuse within their territory and/or jurisdiction by third parties, including business enterprises.

This requires taking appropriate steps to prevent, investigate, punish and redress such abuse through effective policies, legislation, regulations and adjudication.³⁴ Regarding the corporate responsibility to respect human rights, the Principles require that Business enterprises should respect human rights.³⁵ This means that they should avoid infringing on the human rights of others and should address adverse human rights impacts with which they are involved.³⁶ Additionally, in order to gauge human rights risks, business enterprises should identify and assess any actual or potential adverse human rights impacts with which they may be involved either through their own activities or as a result of their business relationships.

This process should: (a) Draw on internal and/or independent external human rights expertise;(b) Involve *meaningful consultation* (Emphasis added) with potentially affected groups and other relevant stakeholders, as appropriate to the size of the business enterprise and the nature and context of the operation.³⁷

³² UN Guiding Principles on Business and Human Rights, Resolution 17/4, 16 June 2011.

³³ Stefanie Ricarda Roos, 'UN Guiding Principles on Business and Human Rights' in Samuel O Idowu and others (eds), *Encyclopedia of Corporate Social Responsibility* (Springer 2013) <https://doi.org/10.1007/978-3-642-28036-8_746> accessed 24 July 2021.

³⁴ UN Guiding Principles on Business and Human Rights, 3.

³⁵ UN Guiding Principles on Business and Human Rights, 13-16.

³⁶ *Ibid*, 13.

³⁷ *Ibid*, 19.

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There is a need for the government of Kenya to effectively enforce the NAP in order to ensure that corporations observe and respect human rights especially those of communities living within the localities where their projects are situated.

It has been observed that the issues raised in the Lamu Port construction project could have been averted if due process had been followed from the project's inception³⁸ including: timely and adequate compensation to everyone affected by the project; proper and robust environmental and social impact assessments; considering qualified residents for employment opportunities; and addressing the perennial problems of land rights in Lamu, all aimed at ensuring that the Lamu residents are treated as direct stakeholders and partners to the project where their voices, concerns and aspirations are taken seriously.³⁹

The government should continually establish efficient systems of Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA), Strategic Environmental and Social Assessment (SESA) and Environmental Audit and Monitoring of the environment and Environmental Security Assessment (ESA) and ensure that the same are periodically reviewed to ensure that they remain effective.

There is a need to ensure that these EIA processes are not only carried out as a formality but are also reflective of what is on the ground and there should also be a follow up mechanism to ensure that the companies engage the communities throughout and that they continually carry out their duties as per the law and the assessment reports.⁴⁰ There is also a need for the government

³⁸ Benard Musembi Kilaka and Jan Bachmann, 'Kenya Launches Lamu Port. But Its Value Remains an Open Question' (*The Conversation*) <<http://theconversation.com/kenya-launches-lamu-port-but-its-value-remains-an-open-question-161301>> accessed 24 July 2021.

³⁹ *Ibid.*

⁴⁰ 'Chapter 3: EIA Process' <<http://www.fao.org/3/V8350E/v8350e06.htm>> accessed 24 July 2021; '1.7 Overview of the Stages of the EIA Process' <https://www.soas.ac.uk/cedep-demos/000_P507_EA_K3736-Demo/unit1/page_14.htm> accessed 24 July 2021; 'Our Role in Securing Public Participation in the Kenyan Legislative and Policy Reform Process' (*Natural Justice*, 23 July 2020) <<https://naturaljustice.org/our-role-in-securing-public-participation-in->

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to follow up on local content provisions such as those provided for under the regime regulating extractives industry in Kenya, namely, *Mining (Dealings in Minerals) Regulations, 2017*; *Mining (Licence and Permit) Regulations, 2017*; *Mining (Work Programmes and Exploration Reports) Guidelines, 2017*; *Mining (State Participation) Regulations, 2017*; *Mining (Use of Local Goods and Services) Regulations, 2017*; *Mining (Employment and Training) Regulations, 2017*; and *Mining (Use Of Assets) Regulations, 2017*.

The *Mining (Use of Local Goods and Services) Regulations, 2017*⁴¹ were enacted to promote job creation through the use of local expertise, goods and services, businesses and financing in the mining industry value chain and their retention in the country; achieve the minimum local level and in-country spend for the provision of the goods and services in the mining industry value chain; increase the capability and international competitiveness of domestic businesses; create mining and mineral related support industries that will provide jobs and sustain economic development; achieve and maintain a degree of participation for Kenyans or companies incorporated in Kenya for the supply of goods and the provision of services; and provide for a robust, transparent monitoring and reporting system in relation to the use of goods and services.⁴²

The *Mining (Employment and Training) Regulations, 2017*⁴³ were enacted to promote job creation through the use of local expertise in the mining industry, the entire mining value chain and to retain the requisite skills within the country; develop local capacities in the mining industry value chain through education, skills and technology transfer, research and development; and

the-kenyan-legislative-and-policy-reform-process/> accessed 24 July 2021; 'Accountability, Transparency, Participation, and Inclusion: A New Development Consensus? - Carnegie Endowment for International Peace' <<https://carnegieendowment.org/2014/10/20/accountability-transparency-participation-and-inclusion-new-development-consensus-pub-56968>> accessed 24 July 2021.

⁴¹ *Mining (Use of Local Goods and Services) Regulations, 2017*, Legal Notice No. 83 of 2017, Laws of Kenya.

⁴² *Mining (Use of Local Goods and Services) Regulations, 2017*, Regulation 3.

⁴³ *Mining (Employment and Training) Regulations, 2017*, Legal Notice No. 82, Laws of Kenya.

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achieve the minimum local employment level and in-country spend across the entire mining industry value chain.⁴⁴

These are some of the regulations that can go a long way in enhancing Public Participation in development projects as well as empowering communities as a way of upholding their human rights through changing their lives and ensuring that they hold both the government and the investors accountable as far as environmental and socio-economic obligations are concerned.

These impact assessment activities should also include Biodiversity Impact Assessment (BIA). BIA, a subset of EIA, has been defined as an evaluation exercise which involves identifying, measuring, quantifying, valuing and internalizing the unintended impacts (on biodiversity) of development interventions.⁴⁵ Arguably, EIA processes should entail BIA, and specifically, ecological impact assessment to the extent that ecological diversity is one aspect of biodiversity, in order to determine how and to what extent, development interventions and projects are affecting biodiversity – composition, structure and function.⁴⁶ While neither the Constitution of Kenya 2010 nor EMCA expressly mentions BIA, the same can be adopted in line with the provisions of Article 69 of the Constitution as well as sections 57A, 58, 62, and 112 on conservation of environmental resources, including biodiversity.

Internationally, the inclusion of BIA in EIA activities is also supported by Article 14 of the *Convention on Biological Diversity* which states that: each Contracting Party, as far as possible and as appropriate, shall: (a) Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures; (b) Introduce appropriate arrangements to ensure that the environmental consequences of its programmes and policies that are likely to have significant adverse impacts on biological diversity are duly taken into account; (c)

⁴⁴ *Mining (Employment and Training) Regulations, 2017*, Regulation 3.

⁴⁵ Wale E and Yalew A, 'On Biodiversity Impact Assessment: The Rationale, Conceptual Challenges and Implications for Future EIA' (2010) 28 *Impact Assessment and Project Appraisal* 3, 3.

⁴⁶ *Ibid*, 3.

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Promote, on the basis of reciprocity, notification, exchange of information and consultation on activities under their jurisdiction or control which are likely to significantly affect adversely the biological diversity of other States or areas beyond the limits of national jurisdiction, by encouraging the conclusion of bilateral, regional or multilateral arrangements, as appropriate; (d) In the case of imminent or grave danger or damage, originating under its jurisdiction or control, to biological diversity within the area under jurisdiction of other States or in areas beyond the limits of national jurisdiction, notify immediately the potentially affected States of such danger or damage, as well as initiate action to prevent or minimize such danger or damage; and (e) Promote national arrangements for emergency responses to activities or events, whether caused naturally or otherwise, which present a grave and imminent danger to biological diversity and encourage international cooperation to supplement such national efforts and, where appropriate and agreed by the States or regional economic integration organizations concerned, to establish joint contingency plans.⁴⁷ The Conference of the Parties is to examine, on the basis of studies to be carried out, the issue of liability and redress, including restoration and compensation, for damage to biological diversity, except where such liability is a purely internal matter.⁴⁸

It is, therefore, worth pointing out that Article 14 does not impose a direct obligation that is enforceable by other states to conduct EIAs before undertaking activities that pose risks to biological diversity.⁴⁹ This is also captured in *COP 8 Decision VIII/28, Impact Assessment: Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment* which 'emphasizes that the voluntary guidelines on biodiversity-inclusive environmental impact assessment are intended to serve as guidance for Parties and other Governments, subject to their national legislation, and for regional authorities or international agencies,

⁴⁷ Article 14(1), Convention on biological Diversity; see also generally, Craik N, 'Biodiversity-Inclusive Impact Assessment', *Elgar Encyclopedia of Environmental Law* (Edward Elgar Publishing Limited 2017).

⁴⁸ Convention on biological Diversity, Article 14 (2).

⁴⁹ Craik N, 'Biodiversity-Inclusive Impact Assessment', *Elgar Encyclopedia of Environmental Law* (Edward Elgar Publishing Limited 2017), 2.

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as appropriate, in the development and implementation of their impact assessment instruments and procedures'.⁵⁰

It has been acknowledged that natural habitat loss and fragmentation, as a result of development projects, are major causes of biodiversity erosion, and while Environmental impact assessment (EIA) is the most commonly used site-specific planning tool that takes into account the effects of development projects on biodiversity by integrating potential impacts into the mitigation hierarchy of avoidance, reduction, and offset measures, the extent to which EIA fully address the identification of impacts and conservation stakes associated with biodiversity loss has been criticized as inadequate.⁵¹

The *COP 8 Decision VIII/28, Impact Assessment: Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment* provides, *inter alia*, that the Conference of the Parties to the Convention on Biological Diversity:- notes that the Akwé: Kon Voluntary Guidelines for the Conduct of Cultural, Environmental and Social Impact Assessments regarding Developments Proposed to Take Place on, or which are Likely to Impact on, Sacred Sites and on Lands and Waters Traditionally Occupied or used by Indigenous and Local Communities (decision VII/16 F, annex) should be used in conjunction with the voluntary guidelines on biodiversity-inclusive environmental impact assessment contained in the annex below and the draft guidance on biodiversity-inclusive strategic environmental assessment contained in annex II to the note by the Executive Secretary on voluntary guidelines on biodiversity-inclusive impact assessment.⁵²

The *Voluntary Guidelines On Biodiversity-Inclusive Environmental Impact Assessment* identifies some biodiversity issues at different stages of

⁵⁰ Unit B, 'Impact assessment: Voluntary guidelines on biodiversity-inclusive impact assessment' <<https://www.cbd.int/decision/cop/?id=11042>> accessed 10 September 2021.

⁵¹ Bigard C, Pioch S and Thompson JD, 'The Inclusion of Biodiversity in Environmental Impact Assessment: Policy-Related Progress Limited by Gaps and Semantic Confusion' (2017) 200 *Journal of environmental management* 35, 35.

⁵² Unit B, 'Impact assessment: Voluntary guidelines on biodiversity-inclusive impact assessment' <<https://www.cbd.int/decision/cop/?id=11042>> accessed 10 September 2021.

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environmental impact assessment.⁵³ The guidelines identify different stages in this process: *Screening*- used to determine which proposals should be subject to EIA, to exclude those unlikely to have harmful environmental impacts and to indicate the level of assessment required. Screening criteria have to include biodiversity measures, or else there is a risk that proposals with potentially significant impacts on biodiversity will be screened out; *Scoping*: used to define the focus of the impact assessment study and to identify key issues, which should be studied in more detail. It is used to derive terms of reference (sometimes referred to as guidelines) for the EIA study and to set out the proposed approach and methodology.

Scoping also enables the competent authority (or EIA professionals in countries where scoping is voluntary) to: (a) Guide study teams on significant issues and alternatives to be assessed, clarify how they should be examined (methods of prediction and analysis, depth of analysis), and according to which guidelines and criteria; (b) Provide an opportunity for stakeholders to have their interests taken into account in the EIA; and (c) Ensure that the resulting Environmental Impact Statement is useful to the decision maker and is understandable to the public⁵⁴; *Assessment and evaluation of impacts, and development of alternatives; Reporting: the environmental impact statement (EIS); Review of the environmental impact statement; Decision-making; and, Monitoring, compliance, enforcement and environmental auditing.*⁵⁵

COP 8 Decision suggests that, taking into account the three objectives of the Convention, fundamental questions which need to be answered in an EIA study include: (a) *Would the intended activity affect the biophysical environment directly or indirectly in such a manner or cause such biological changes that it will increase risks of extinction of genotypes, cultivars, varieties, populations of species, or the chance of loss of habitats or ecosystems?* (b) *Would the intended activity surpass the maximum sustainable yield, the carrying capacity of a habitat/ecosystem or the maximum allowable disturbance level of a resource, population, or ecosystem, taking into account the full spectrum of values of that resource, population or ecosystem?*

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ Ibid.

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And, (c) *Would the intended activity result in changes to the access to, and/or rights over biological resources?*⁵⁶

It may be important for stakeholders in environmental law in Kenya to review the requirements and process of EIA in biodiversity rich areas to include BIA as envisaged under Article 69(1) of the Constitution of Kenya. Notably, effective impact assessments and management plans largely rely on a solid foundation of: a) Information on biodiversity (e.g., taxonomic descriptions of species, conservation status assessments of species, conservation status assessments of ecosystems, distribution maps of species and habitats at a scale that is appropriate for project planning, understanding of sensitivity to stressors); b) Understanding of direct, indirect, and where feasible, cumulative impacts (i.e., placing the project in the context of land/resource use trends to ascertain how it contributes to landscape-scale impacts); c) Identification of priorities for biodiversity conservation (e.g., existing and planned protected areas, National Biodiversity Strategies and Action Plans); and d) Demonstrated methods to manage impacts.⁵⁷

Arguably, if development projects are to take into consideration biodiversity conservation, then it is the high time that stakeholders consider inclusion of BIA in EIA and ESIA activities in the country. Fostering Environmental Democracy in these processes will also be important as the impact assessment is not purely technical and it is good practice to consult project stakeholders in all steps of the process, especially in the identification of potential impacts at the outset of the assessment.⁵⁸ This is especially important because local stakeholders may have a greater appreciation than external technical experts of the biodiversity values in the area and their sensitivity to impacts.⁵⁹

It is worth pointing out that Article 10 of the Constitution of Kenya 2010 envisages good governance as part of the tools required to achieve Sustainable Development. However, this vision is often derailed by corruption, especially

⁵⁶ Ibid.

⁵⁷ Hardner, J., Gullison, R.E., Anstee, S. and Meyer, M., 'Good Practices for Biodiversity Inclusive Impact Assessment and Management Planning' [2015] Prepared for the Multilateral Financing Institutions Biodiversity Working Group, 4.

⁵⁸ Ibid, 7.

⁵⁹ Ibid, 6.

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in the case of Kenya, and this must first be addressed if any tangible progress is to be achieved through active and meaningful participation of citizens in environmental governance efforts geared towards achieving biodiversity conservation. Transparency International defines ‘corruption’ as simply the abuse of entrusted power for private gain.⁶⁰

Kenya’s *Anti-Corruption and Economic Crimes Act, 2003*⁶¹ defines “corruption” to include: bribery; fraud; embezzlement or misappropriation of public funds; abuse of office; breach of trust; or an offence involving dishonesty – (i) in connection with any tax, rate or impost levied under any Act; or (ii) under any written law relating to the elections of persons to public office.⁶² These are just some of the activities that may be termed as corruption together with many forms of their derivatives. Corruption can be classified as grand, petty and political, depending on the amount of money lost and the sector where it occurs, where: grand corruption consists of acts committed at a high level of government that distort policies or the central functioning of the state, enabling leaders to benefit at the expense of the public good; petty corruption refers to everyday abuse of entrusted power by low and mid-level public officials in their interactions with ordinary citizens, who often are trying to access basic goods or services in places like hospitals, schools, police departments, and other agencies; and, political corruption is a manipulation of policies, institutions and rules of procedure in the allocation of resources and financing by political decision makers, who abuse their position to sustain their power, status and wealth.⁶³

The *United Nations Convention against Corruption*⁶⁴, the only legally binding universal anti-corruption instrument, captures in its preamble the State Parties’ concern about the seriousness of problems and threats posed by corruption to the stability and security of societies, undermining the

⁶⁰ ‘What Is Corruption?’ (*Transparency.org*)

<<https://www.transparency.org/en/what-is-corruption>> accessed 21 March 2021.

⁶¹ *Anti-Corruption and Economic Crimes Act*, No. 3 of 2003, Laws of Kenya.

⁶² *Ibid*, sec. 2.

⁶³ ‘The Fight against Corruption in Kenya...Yet another Chapter’ <<https://cytonn.com/topicals/the-fight-against-corruption-in-kenyayet-another-chapter>> accessed 21 March 2021.

⁶⁴ UN General Assembly, *United Nations Convention Against Corruption*, 31 October 2003, A/58/422.

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institutions and values of democracy, ethical values and justice and jeopardizing sustainable development and the rule of law.⁶⁵

Corruption is considered to be rampant in many developing and poor countries, making them struggle with putting in place anti-corruption measures as part of their development strategy.⁶⁶ Notably, corruption leads governments to intervene where they need not, and it undermines their ability to enact and implement policies in areas in which government intervention is clearly needed – whether environmental regulation, health and safety regulation, social safety nets, macroeconomic stabilization, or contract enforcement.⁶⁷ The World Bank rightly points out that corruption is a complex phenomenon whose roots lie deep in bureaucratic and political institutions, and its effect on development varies with country conditions.⁶⁸

While the Constitution of Kenya 2010 captures the national values and principles of governance under Article 10 as well as the principles of leadership and integrity as captured under Chapter Six thereof, corruption is still widespread in Kenya. It has been pointed out in other studies that Kenya's competitiveness is held back by high corruption levels that penetrate every sector of the economy, which is evidenced by: a weak judicial system and frequent demands for bribes by public officials leading to increased business costs for foreign investors; widespread tax evasion hindering Kenya's long-term economic growth; and rampant fraud in public procurement.⁶⁹ This is despite the fact that corruption, active and passive bribery, abuse of office and bribing a foreign public official are criminalized under the Anti-Corruption

⁶⁵ Ibid, Preamble.

⁶⁶Banerjee A, Mullainathan S and Hanna R, 'Corruption' (National Bureau of economic research 2012).

⁶⁷Helping Countries Combat Corruption: The Role of the World Bank' <<http://www1.worldbank.org/publicsector/anticorrupt/corruptn/cor02.htm>> accessed 21 March 2021.

⁶⁸Helping Countries Combat Corruption: The Role of the World Bank' <<http://www1.worldbank.org/publicsector/anticorrupt/corruptn/cor02.htm>> accessed 21 March 2021.

⁶⁹Kenya Corruption Report' (GAN Integrity) <<https://www.ganintegrity.com/portal/country-profiles/kenya/>> accessed 21 March 2021.

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and Economic Crimes Act 2003, in addition to the Bribery Act of 2016 which seeks to strengthen the fight against the supply-side of corruption.⁷⁰

Arguably, the main problem lies with the inadequate enforcement of Kenya's existing anti-corruption framework, a problem that is aggravated by weak and corrupt public institutions.⁷¹

According to the Transparency International Corruption Perception Index 2020 Report, Kenya was ranked position 124 out of 180, with a score of 31 out of possible 100.⁷² The lowest average regional score was Sub-Saharan Africa which had 32 out of 100, against Western Europe & European Union which scored 66 out of 100.⁷³ Notably, Kenya has only gained a score of +4 since the year 2012.⁷⁴ Indeed, in the past, President Uhuru Kenyatta has acknowledged corruption has reached levels that threaten national security.⁷⁵

There have been widespread reports on recurrence of grand corruption scandals at the national level, ranging from pilfering public funds to scandals surrounding grand schemes and artificial inflation of the prices of large public projects, like the standard-gauge railway, to procurement-related fraud that shook central government departments like the National Youth Service and State Department of Health.⁷⁶

Transparency International rightly observes that corruption erodes trust, weakens democracy, hampers economic development and further exacerbates inequality, poverty, social division and the environmental crisis.⁷⁷ It is worth

⁷⁰ Ibid; Bribery Act, No. 47 of 2016, Laws of Kenya.

⁷¹ Ibid.

⁷² 'Corruption Perceptions Index 2020 for Kenya' (*Transparency.org*) <<https://www.transparency.org/en/cpi/2020>> accessed 21 March 2021.

⁷³ Ibid.

⁷⁴ Ibid.

⁷⁵ Miriri D, 'Third of Kenyan Budget Lost to Corruption: Anti-Graft Chief' *Reuters* (10 March 2016) <<https://www.reuters.com/article/us-kenya-corruption-idUSKCN0WC1H8>> accessed 21 March 2021.

⁷⁶ 'BTI 2020 Kenya Country Report' (*BTI Blog*) <[/en/reports/country-report-KEN-2020.html](https://www.transparency.org/en/reports/country-report-KEN-2020.html)> accessed 21 March 2021.

⁷⁷ 'What Is Corruption?' (*Transparency.org*) <<https://www.transparency.org/en/what-is-corruption>> accessed 21 March 2021.

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pointing that these are the key elements of sustainable development agenda without which it remains a mirage.⁷⁸ It is estimated that Kenya loses a third of its state budget - the equivalent of about \$6 billion - to corruption every year.⁷⁹ The various laws and regulations dealing with the investment and development regime in the country, if fully enforced, can be a useful tool in fighting corruption and tax evasion by the investors as they seek to promote accountability and transparency on the income and expenses incurred by these companies.⁸⁰ These Regulations, alongside other transparency and accountability measures and practices are useful for developing countries such as Kenya, where non-declaration or under declaration of profits by the multinationals has been happening.⁸¹ They can however work even better where communities are actively and meaningfully involved in the various stages of the projects.

It has been suggested that good institutional governance - specifically, a strong public voice with accountability, strong political stability, good regulations,

⁷⁸ Omar M, 'The Implications of Corruption on Kenya's Sustainable Development and Economic Growth' (PhD Thesis, University of Nairobi 2020).

⁷⁹ Miriri D, 'Third of Kenyan Budget Lost to Corruption: Anti-Graft Chief' *Reuters* (10 March 2016)

<<https://www.reuters.com/article/us-kenya-corruption-idUSKCN0WC1H8>> accessed 21 March 2021.

⁸⁰ 'Helping Countries Combat Corruption: The Role of the World Bank' <<http://www1.worldbank.org/publicsector/anticorrupt/corruptn/cor02.htm>> accessed 24 July 2021; 'Influencing Governments on Anti-Corruption Using Non-Aid Means' (*U4 Anti-Corruption Resource Centre*)

<<https://www.u4.no/publications/influencing-governments-on-anti-corruption-using-non-aid-means>> accessed 24 July 2021; G Shabbir Cheema and Jean Bonvin, 'Corruption and Integrity Improvement Initiatives in Developing Countries'.

⁸¹ 'Accountability, Transparency, Participation, and Inclusion: A New Development Consensus? - Carnegie Endowment for International Peace' <<https://carnegieendowment.org/2014/10/20/accountability-transparency-participation-and-inclusion-new-development-consensus-pub-56968>> accessed 24 July 2021; Susan Rose-Ackerman, 'The Challenge of Poor Governance and Corruption' (2005) 2005 *Revista Direito GV* 207; PMJRO Cheruiyot and others, 'Effect of Public Financial Management Practices on Performance in Kericho County Government, Kenya: A Critical Review' (2017) 5 *International Journal of Education and Research* 211.

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and powerful anticorruption policies tend to conduce a positive relationship between natural resource richness and economic development.⁸²

Arguably, domestic revenues can lead to improved development only if they are translated into productive and beneficial public expenditure.⁸³ Thus, it is not only revenue collection that is important but also revenue expenditure. There is a need to strengthen institutions charged with combating corruption as well as strengthening the oversight measures across all sectors in order to prevent corruption.⁸⁴ This is because corruption elimination cannot be a one-institution affair. It must involve all stakeholders of good will as well as political good will from all governance institutions in both public and private sectors. This is the only way to not only ensure that revenues or development resources are raised but are also well utilized towards achieving development goals and empowering citizens to be productive and meaningful participants in the development agenda.

Eliminating corruption lifts people from poverty and this in turn reduces pressure on environmental resources, thus having a positive impact on biodiversity conservation efforts. The 2030 Agenda for Sustainable Development acknowledges that international trade is an engine for inclusive economic growth and poverty reduction, and an important means to achieve the SDGs.⁸⁵ There is a need for increases in long-term and high-quality investments which the United Nations argues will lead to a sustainable rise in economic growth, with additional public and private investment and

⁸² Zeynalov, A., "Do Sufficient Institutions Alter the Relationship between Natural Resources and Economic Growth?" *MPRA Paper* 46850 (2013), at p. 11. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2413867 [Accessed on 16/1/2020].

⁸³ Junquera-Varela RF and others, *Strengthening Domestic Resource Mobilization: Moving from Theory to Practice in Low-and Middle-Income Countries* (The World Bank 2017), 1.

⁸⁴ Bank W, *Helping Countries Combat Corruption: The Role of the World Bank* (World Bank Washington, DC 1997).

⁸⁵ 'Trade and the Sustainable Development Goals (SDGs) | UNCTAD' <<https://unctad.org/topic/trade-analysis/trade-and-SDGs>> accessed 22 March 2021; 'Addis Ababa Action Agenda: Sustainable Development Knowledge Platform' <<https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=2051&menu=35>> accessed 22 March 2021.

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financing required to meet the large investment needs associated with the SDGs, particularly in infrastructure.⁸⁶

Previous studies on the role of citizens in trade and investment agreements processes have concluded that the declared objectives of the treaties for business freedom differ from their underlying and arguably, the nature, indeed if not clearly negative, of the socio-economic benefits that may be expected show that the objective of the free trade agreements is not growth and jobs, or even to protect investments or promote international trade.⁸⁷ Their only objective and it is a fundamental one, is to guarantee the priority of the rights of multinationals to do business and make profits.⁸⁸

Some commentators, while pointing out the lopsided North-South trade and investment rules, call for review of the current international investment rules to make them more just and equitable ones which will require cooperation between North and South.⁸⁹ Notably, SDG 17 targets require that states should: enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism;⁹⁰ Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation;⁹¹ and Promote a universal, rules-based,

⁸⁶ United Nations, 'Financing For development: Progress And Prospects', *Report of the Inter-agency Task Force on Financing for Development 2017*, United Nations publication Sales no. E.17.I.5 ISBN 978 -92-1-101363 - 4 <https://developmentfinance.un.org/sites/developmentfinance.un.org/files/Report_IATF-2017.pdf> accessed 8 March 2021.

⁸⁷ Robert Joumard, 'The Free Trade Agreements: Contempt for Citizens, Sovereignty for Multinationals' (*CADTM*, 23 July 2021) <<https://www.cadtm.org/The-free-trade-agreements-contempt>> accessed 24 July 2021.

⁸⁸ *Ibid.*

⁸⁹ 'Foreign Investors Gone Wild' <<https://archive.globalpolicy.org/socecon/develop/democracy/2007/0507wild.htm>> accessed 21 July 2021.

⁹⁰ SDG 17 Target 17.6.

⁹¹ SDG 17, Target 17.9.

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open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda⁹², among others.

It is important for business and financial organisations to actively help achieve national biodiversity goals, the Convention on Biological Diversity (CBD) Aichi Biodiversity Targets and the SDGs, in close co-operation and co-ordination with policy makers and civil society as they also depend on biodiversity for the production of goods and services. The profitability and long-term survival of a number of business sectors (such as agriculture and fisheries which depend directly on biodiversity and well-functioning ecosystems), and loss of biodiversity and ecosystem services can, therefore, result in higher costs and risks for business and financial organisations, and directly affect their performance.⁹³

While it has been argued that since Africa's poverty problems run deep, it is only the long process of building democratic institutions and the civil society needed to make them work will bring meaningful development to Africa, where empowerment of local people will ensure long-term poverty reduction.⁹⁴ Some authors have suggested several approaches for the promotion and protection of human rights in the era of globalization: (1) emphasizing state responsibility for the actions of non-state actors; (2) imposing international legal obligations directly on non-state actors, including international institutions, multilateral enterprises, and individuals; (3) encouraging private regulation through corporate codes of conduct, product labeling, and other consumer or corporate actions; and (4) involving non-state actors directly in the activities of international organizations to promote and protect human rights.⁹⁵

⁹² SDG 17, Target 17.10.

⁹³ OECD (2019), *Biodiversity: Finance and the Economic and Business Case for Action*, report prepared for the G7 Environment Ministers' Meeting, 5-6 May 2019, 35.

⁹⁴ 'Development Requires Local Empowerment'
<<https://archive.globalpolicy.org/socecon/develop/democracy/2006/0927localempowerment.htm>> accessed 21 July 2021.

⁹⁵ Shelton Dinah, 'Protecting Human Rights in a Globalized World', *Human Rights and Corporations* (Routledge 2017).

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The United Nations observes that achieving the 2030 Sustainable Development Agenda requires pooling resources and expertise, channeling public and private expertise, encouraging public and private investments together towards high-growth industrial sectors.⁹⁶

Corporate Social Responsibility (CSR) is arguably becoming less and less voluntary around the world.⁹⁷ There is a need for all the relevant stakeholders to work towards upholding human rights and enhancing meaningful Public Participation of communities in development projects as a way of ensuring that communities not only benefit from the said development projects but also guaranteeing that these communities fully appreciate and support the investments. It is also important for the CSR activities to focus on private-sector investments in biodiversity and ecosystem services as these can also generate opportunities and cost savings and also have the potential to help businesses capitalise on opportunities as a key driver of business action for biodiversity.⁹⁸

Business activities ought to pay close attention to their adverse effects on biodiversity as business operations, supply chains and investment decisions can also have direct and indirect adverse impacts on biodiversity and ecosystem services, which may include habitat loss and degradation owing to land use; overexploitation of biodiversity resources; pollution, including air and water pollution (e.g. from pesticides and fertilisers, or chemicals from industrial sectors); and invasive alien species.⁹⁹

It is worth noting that human rights are based on core principles like dignity, fairness, equality, respect and autonomy-broadly categorized into: Distributional or Substantive rights which are focused on fairness in the

⁹⁶ 'United Nations Supporting Kenya's Post COVID-19 Industrial Recovery and Growth to Achieve Inclusive and Sustainable Growth | United Nations in Kenya' <<https://kenya.un.org/en/126013-united-nations-supporting-kenyas-post-covid-19-industrial-recovery-and-growth-achieve>> accessed 23 July 2021.

⁹⁷ Kathleen Wilburn and Ralph Wilburn, 'Achieving Social License to Operate Using Stakeholder Theory' (2011) 4 J. Int. Bus. Ethics 3.

⁹⁸ OECD (2019), *Biodiversity: Finance and the Economic and Business Case for Action*, report prepared for the G7

Environment Ministers' Meeting, 5-6 May 2019, 35.

⁹⁹ *Ibid*, 36.

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distribution of costs and benefits and include issues of compensation; and Procedural rights comprise the right of individuals or communities to be heard and to have a voice in decision-making, and include the rights to information and provision of free prior informed consent, and other wider issues of recognition, representation, participation, empowerment, and redress and remedy or withdrawal.¹⁰⁰ Environmental Democracy falls under procedural rights and are important in achieving other rights through sustainable management and conservation of biodiversity.

There is a need for active and meaningful involvement of communities in biodiversity conservation efforts because while activities that damage the environment, such as mining, industrial development or commercial logging, can deprive people of their livelihoods and cultural rights, it is also true that strict environmental protection which excludes people and deprives them of resources on which they are dependent, without providing viable alternatives, can affect people's right to a livelihood.¹⁰¹

It has rightly been pointed out that, ironically, indigenous and traditional communities – the very groups which have contributed least to the imminent threats of catastrophic anthropogenic climate change and biodiversity collapse, and whose practices are actually based on a sustainable bio-cultural paradigm – constitute most of those who are at greatest risk.¹⁰² This is partly attributable to existing social and economic marginalization: globally the indigenous population, estimated at around 370 million, comprises 5 per cent of the world's population but 15 per cent of its poorest people, where climate change, colonialism and economic globalization have also left a legacy of other issues, such as environmental damage, land loss and lack of access to basic services, that have not only resulted in ill health and lower life expectancy but also devastated their complex cultural systems.¹⁰³

¹⁰⁰ BirdLife International, International B, 'An Introduction to Conservation and Human Rights for BirdLife Partners', 3.

¹⁰¹ Ibid, 5.

¹⁰² Havemann P, 'Lessons from Indigenous Knowledge and Culture: Learning to Live in Harmony with Nature in an Age of Ecocide' [2016] State of the World's Minorities and Indigenous Peoples, 49.

¹⁰³ Ibid, 49.

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Empowering this section of the population through fostering Environmental Democracy is necessary if lasting outcomes in sustainable management and conservation of biodiversity are to be achieved in pursuit of sustainable development agenda.

Fostering Environmental Democracy and Biodiversity in Kenya is an imperative whose time is now.

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