

Addressing Climate Change Through Nature-Based Solutions in Africa

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**Kariuki Muigua**

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## Addressing Climate Change through Nature-Based Solutions in Africa

Kariuki Muigua\*

### Abstract

*Climate change is a major threat to Sustainable Development in Africa. Climate change is having a devastating impact on the African continent creating food insecurity, stressing water resources, affecting human health, displacing populations and impeding socio-economic development. Confronting climate change in Africa is therefore a matter of urgent priority if the continent is to realize the Sustainable Development agenda. Nature-based solutions have the ability to strengthen Africa's response to climate change. Nature-based solutions are effective in improving community livelihoods and resilience to climate change. As a result, there is need to scale up the use of nature-based solutions to address climate impacts on critical ecosystems and biodiversity in Africa. This paper appraises the role of nature-based solutions in combating climate change in Africa. It argues that nature-based solutions provide a viable and eco-friendly approach towards addressing climate change in Africa. The paper defines and highlights examples of nature-based solutions. It also examines the progress made towards embracing nature-based solutions for climate change in Africa and challenges thereof. The paper further offers ideas towards addressing climate change through nature-based solutions in Africa.*

### 1.0 Introduction

Africa is classified as a continent that is highly vulnerable to climate change<sup>1</sup>. This vulnerability is due to several reasons including endemic poverty and high dependence on rain-fed agriculture, complex governance and institutional dimensions, limited access to capital including markets and technology, weak infrastructure, ecosystem degradation and poor management of natural resources, disasters both natural and man-made and

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\* PhD in Law (Nrb), FCI Arb (Chartered Arbitrator), OGW, LL. B (Hons) Nrb, LL.M (Environmental Law) Nrb; Dip. In Law (KSL); FCPS (K); Dip. in Arbitration (UK); MKIM; Mediator; Consultant: Lead expert EIA/EA NEMA; BSI ISO/IEC 27001:2005 ISMS Lead Auditor/ Implementer; ESG Consultant; Advocate of the High Court of Kenya; Professor at the University of Nairobi, Faculty of Law; Member of the Permanent Court of Arbitration (PCA) [April, 2024].

<sup>1</sup> Kimaro. Didas et al., 'Climate Change Mitigation and Adaptation in ECA/SADC/COMESA Region: Opportunities and Challenges.' Available at [https://www.researchgate.net/publication/346628199\\_Climate\\_Change\\_Mitigation\\_and\\_Adaptation\\_in\\_ECASADCCOMESA\\_region\\_Opportunities\\_and\\_Challenges](https://www.researchgate.net/publication/346628199_Climate_Change_Mitigation_and_Adaptation_in_ECASADCCOMESA_region_Opportunities_and_Challenges). (Accessed on 12/04/2024)

conflicts<sup>2</sup>. Despite having contributed the least to global warming and having the lowest emissions, Africa faces exponential collateral damage as a result of climate change, posing systemic risks to its economies, infrastructure investments, water and food systems, public health, agriculture, and livelihoods, threatening to undo its modest development gains and slip into higher levels of extreme poverty<sup>3</sup>. The United Nations Environment Programme (UNEP) notes that while Africa's per capita emissions are significantly lower than the global average, the continent is disproportionately affected by rising global temperatures and escalating climate consequences<sup>4</sup>. UNEP further points out that the impacts of climate change including drought, desertification, and cyclones, among others, are causing food shortages, displacement, and migration in Africa<sup>5</sup>.

Climate change is a major threat to Sustainable Development in Africa<sup>6</sup>. Climate change is having a devastating impact on the African continent creating food insecurity, stressing water resources, affecting human health, displacing populations and impeding socio-economic development<sup>7</sup>. The United Nations observes that climate change is having a growing impact on the African continent, hitting the most vulnerable hardest, and contributing to food insecurity, population displacement and stress on water resources<sup>8</sup>. Confronting climate change in Africa is therefore a matter of urgent priority if the continent is to realize the Sustainable Development agenda.

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<sup>2</sup> Ibid

<sup>3</sup> African Development Bank Group., 'Climate Change in Africa' Available at <https://www.afdb.org/en/cop25/climate-change-africa> (Accessed on 12/04/2024)

<sup>4</sup> United Nations Environment Programme., 'Africa Climate Week 2023: Charting a Fresh Course for Climate Action' Available at <https://www.unep.org/news-and-stories/press-release/africa-climate-week-2023-charting-fresh-course-climate-action#:~:text=While%20Africa's%20per%20capita%20emissions,shortages%2C%20displacement%2C%20and%20migration.> (Accessed on 12/04/2024)

<sup>5</sup> Ibid

<sup>6</sup> African Development Bank Group., 'Climate Change in Africa' Op Cit

<sup>7</sup> Rao. V., & Yadav. P., 'Confronting Climate Change in Africa.' Available at <https://knowledge.insead.edu/responsibility/confronting-climate-change-africa> (Accessed on 12/04/2024)

<sup>8</sup> United Nations Climate Change., 'Climate Change is an Increasing Threat to Africa' Available at <https://unfccc.int/news/climate-change-is-an-increasing-threat-to-africa> (Accessed on 12/04/2024)

The United Nations *2030 Agenda for Sustainable Development*<sup>9</sup> acknowledges that climate change is one of the greatest challenge of our time and its adverse impacts undermine the ability of all countries to achieve Sustainable Development. Sustainable Development Goal 13 urges all countries to take urgent action to combat climate change and its impacts<sup>10</sup>. Africa Union's *Agenda 2063*<sup>11</sup> also recognizes climate change as a major challenge for the continent's development. Agenda 2063 seeks to address climate change by fostering environmentally sustainable and climate resilient economies and communities in Africa<sup>12</sup>. In addition, African countries are making progress towards addressing climate change as envisaged in their national laws and policies on climate change and global climate commitments set out in their Nationally Determined Contributions (NDCs)<sup>13</sup>. Addressing climate change in Africa is therefore a matter of global, continental, and national priority.

One of the key tools that can enhance Africa's response towards climate change is Nature-Based solutions<sup>14</sup>. Nature-based solutions have been identified as effective in improving community livelihoods and resilience to climate change<sup>15</sup>. As a result, it has been correctly observed that there is need to scale up the use of nature-based solutions to address climate impacts on critical ecosystems and biodiversity in Africa<sup>16</sup>.

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<sup>9</sup> United Nations General Assembly., 'Transforming Our World: the 2030 Agenda for Sustainable Development.' 21 October 2015, A/RES/70/1., Available at <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf> (Accessed on 12/04/2024)

<sup>10</sup> Ibid

<sup>11</sup> Africa Union., 'Agenda 2063: The Africa we Want.' Available at [https://au.int/sites/default/files/documents/33126-doc-framework\\_document\\_book.pdf](https://au.int/sites/default/files/documents/33126-doc-framework_document_book.pdf) (Accessed on 12/04/2024)

<sup>12</sup> Ibid

<sup>13</sup> United Nations Climate Change., 'Climate Change is an Increasing Threat to Africa' Op Cit

<sup>14</sup> African Development Bank Group., 'Are Nature Based Solutions the Key to Africa's Climate Response?' Available at <https://www.afdb.org/en/news-and-events/are-nature-based-solutions-key-africas-climate-response-33090> (Accessed on 12/04/2024)

<sup>15</sup> Ibid

<sup>16</sup> Ibid

This paper appraises the role of nature-based solutions in combating climate change in Africa. It argues that nature-based solutions provide a viable and eco-friendly approach towards addressing climate change in Africa. The paper defines and highlights examples of nature-based solutions. It also examines the progress made towards embracing nature-based solutions for climate change in Africa and challenges thereof. The paper further offers ideas towards addressing climate change through nature-based solutions in Africa.

## 2.0 Nature-Based Solutions: An Overview

Nature-based solutions have been defined as actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges including climate change, food and water security or natural disasters effectively and adaptively, while simultaneously providing human well-being and biodiversity benefits<sup>17</sup>. Nature-based solutions involve working with and enhancing nature to help address societal challenges<sup>18</sup>. These solutions encompass a wide range of actions, such as the protection and management of natural and semi-natural ecosystems, the incorporation of green and blue infrastructure in urban areas, and the application of ecosystem-based principles to agricultural systems<sup>19</sup>. The concept of nature-based solutions is grounded in the knowledge that healthy natural and managed ecosystems offer a diverse range of services on which human wellbeing depends, from storing carbon, controlling floods and stabilizing shorelines and slopes to providing clean air and water, food, fuel, medicines and genetic resources among other services<sup>20</sup>.

The idea of nature-based solutions suggests a conceptual shift towards ecosystems not only providing services, but also serving as a significant contribution to addressing major societal challenges<sup>21</sup>. According to the European Commission, nature-based solutions

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<sup>17</sup> International Union for Conservation of Nature, 'Nature-Based Solutions' available at <https://www.iucn.org/our-work/nature-based-solutions> (Accessed on 13/04/2024)

<sup>18</sup> Seddon, N et al., 'Understanding the Value and Limits of Nature-Based Solutions to Climate Change and other Global Challenges' Available at <https://doi.org/10.1098/rstb.2019.0120> (Accessed on 13/04/2024)

<sup>19</sup> Ibid

<sup>20</sup> Ibid

<sup>21</sup> Osaka, S., Bellamy, R., & Castree, N. 'Framing "Nature-Based" Solutions to Climate Change.' *Wiley Interdisciplinary Reviews: Climate Change*, 12(5), 2021, Article e729. Available at <https://doi.org/10.1002/wcc.729> (Accessed on 13/04/2024)

aim to help societies address a variety of environmental, social and economic challenges in sustainable ways<sup>22</sup>. It notes that nature-based solutions are actions inspired by, supported by or copied from nature<sup>23</sup>. Nature-based solutions are informed by benefits that arise from healthy ecosystems and are critical to Sustainable Development<sup>24</sup>.

It has been pointed out that the concept of nature-based solutions has developed due to the need for solutions that worked for and nature<sup>25</sup>. Prior to development of this concept, most mechanisms adopted towards mitigating global challenges relied on conventional science and technological approaches such as engineering interventions<sup>26</sup>. Nature-based solutions seek to adopt eco-friendly approaches towards mitigating global social, environmental and economic challenges<sup>27</sup>. Nature-based solutions entail actions ranging from reforestation, soil conservation, wetland management, green roofs, preventing the loss of ecosystems that serve as climate sinks, and restoring coastal ecosystems to protect from extreme weather events<sup>28</sup>. Further, it has been noted that nature-based solutions envisage the use of practices such as afforestation; coastal management; agroforestry; restoration of floodplains; forest protection; reforestation; mangrove restoration; soil conservation; grassland management; green roofs; green walls; wind breaks; urban open spaces; rainwater capture; and wetland restoration in order to address global, national, and local challenges while simultaneously offering benefits to the environment, the society and the economy<sup>29</sup>.

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<sup>22</sup> European Commission., 'Nature-Based Solutions in European and National Policy Frameworks' Available at [file:///C:/Users/King%20Sultan/Downloads/Attachment\\_0.pdf](file:///C:/Users/King%20Sultan/Downloads/Attachment_0.pdf) (Accessed on 13/04/2024)

<sup>23</sup> Ibid

<sup>24</sup> UK Pact., 'Nature-Positive Actions: Lessons from Forests' available at [https://apps.worldagroforestry.org/downloads/Publications/PDFS/nature\\_positive\\_actions.pdf](https://apps.worldagroforestry.org/downloads/Publications/PDFS/nature_positive_actions.pdf) (Accessed on 13/04/2024)

<sup>25</sup> Cohen-Shacham et al., 'Nature-Based Solutions to address Global Societal Challenges' available at <https://portals.iucn.org/library/node/46191> (Accessed on 13/04/2024)

<sup>26</sup> Ibid

<sup>27</sup> Muigua. K., 'Embracing Nature Based Solutions for Sustainable Development in Kenya' Available at <https://kmco.co.ke/wp-content/uploads/2022/09/Embracing-Nature-Based-Solutions-for-Sustainable-Development-in-Kenya.pdf> (Accessed on 13/04/2024)

<sup>28</sup> Osaka, S., Bellamy, R., & Castree, N. 'Framing "Nature-Based" Solutions to Climate Change.' Op Cit

<sup>29</sup> Ibid

It has been noted that nature-based solutions have significant yet underutilized potential to address global threats including climate change, loss of biodiversity, food and water security, human health and natural disasters<sup>30</sup>. The International Union for Conservation of Nature notes that nature-based solutions use nature and the natural functions of healthy ecosystems to tackle some of the most pressing challenges of our time<sup>31</sup>. These types of solutions help to protect the environment but also provide numerous economic and social benefits<sup>32</sup>. According to UNEP, nature-based solutions are important for the global Sustainable Development agenda since they offer the potential to address, in an effective way, diverse challenges such as climate change, food and water insecurity, disaster impacts, and threats to human health and wellbeing, while reducing environmental degradation and biodiversity loss<sup>33</sup>. It further notes that some of the major global environmental challenges such as climate change and biodiversity loss cannot be fully tackled without the use of nature-based solutions<sup>34</sup>. It is therefore necessary to adopt nature-based solutions in order to address global challenges including climate change.

### 3.0 Addressing Climate Change through Nature-Based Solutions in Africa

Nature-based solutions have a key role to play in tackling climate change<sup>35</sup>. The practice of using nature-based solutions to adapt to climate change has been termed 'ecosystem-based adaptation', and it has the power to save both lives and livelihoods<sup>36</sup>. It has been

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<sup>30</sup> International Union for Conservation of Nature., 'Ensuring Effective Nature Based Solutions' Available at <https://www.iucn.org/resources/issues-brief/ensuring-effective-nature-based-solutions> (Accessed on 13/04/2024)

<sup>31</sup> International Union for Conservation of Nature., 'What are Nature-Based Solutions?' Available at <https://www.iucn.org/our-work/region/europe/our-work/european-nature-based-solutions> (Accessed on 13/04/2024)

<sup>32</sup> Ibid

<sup>33</sup> United Nations Environment Programme., 'Nature-Based Solutions: Opportunities and Challenges for Scaling Up' Available at <https://www.unep.org/resources/report/nature-based-solutions-opportunities-and-challenges-scaling> (Accessed on 13/04/2024)

<sup>34</sup> Ibid

<sup>35</sup> United Nations Environment Programme., 'How Nature Can Help Africa Adapt to the Climate Crisis' Available at <https://www.unep.org/news-and-stories/video/how-nature-can-help-africa-adapt-climate-crisis> (Accessed on 13/04/2024)

<sup>36</sup> Ibid



noted that nature-based solutions provide Africa with an opportunity to grow green economies, safeguard people and their property while concurrently, enhancing resilience of natural ecosystems against environmental instabilities<sup>37</sup>. Nature based solutions can be employed to restore and protect natural and modified ecosystems in Africa<sup>38</sup>. In addition, nature-based solutions are key in alleviating water insecurities, enhancing drought and flood risk mitigation, preventing anthropogenic climate change and improving climate resilience in the continent<sup>39</sup>.

African countries face significant challenges in responding to climate change. For example, there is limited climate financing in the continent required to adequately mitigate and adapt to the impacts of climate change<sup>40</sup>. To effectively combat climate change, African countries need an estimated \$ 2.8 trillion to implement their Nationally Determined Contributions (NDCs) between 2020 and 2030 a figure that is much higher than the \$ 264 Billion currently set out in domestic public resources<sup>41</sup>. The debt crisis in Africa also hinders the Continent's ability to unlock climate finance since it affects the confidence of investors<sup>42</sup>. Further, ecosystem degradation exacerbates the climate crisis and challenges related to climate financing in Africa<sup>43</sup>. It is estimated that Africa could face a 9.7 percent contraction of Gross Domestic Product (GDP) annually by 2030 due to

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<sup>37</sup> Nyika. J., & Dinka. M. O., 'Integrated Approaches to Nature-Based Solutions in Africa: Insights From a Bibliometric Analysis' Available at <https://www.sciencedirect.com/science/article/pii/S2772411522000234> (Accessed on 13/04/2024)

<sup>38</sup> Ibid

<sup>39</sup> Ibid

<sup>40</sup> Magoma. C., 'A Huge Financing Gap for Climate Action with Public Debt Sustainability Risks Looms in East Africa beyond COP27.' Available at <https://www.acepis.org/a-huge-financing-gap-for-climateaction-with-public-debt-sustainability-risks-looms-in-east-africa-beyond-cop27/> (Accessed on 12/04/2024)

<sup>41</sup> Ibid

<sup>42</sup> Agyir. K., 'African Countries Must Act Strategically to Unlock Climate Finance in the Face of a Debt Crisis.' Available at <https://blogs.lse.ac.uk/africaatlse/2023/06/15/african-countries-must-actstrategically-to-unlock-climate-finance-in-the-face-of-a-debt-crisis/> (Accessed on 13/04/2024)

<sup>43</sup> Oliver. E., & Marsters. L., 'Nature-Based Solutions in Sub-Saharan Africa for Climate and Water Resilience' Available at [https://naturebasedsolutions.org/sites/default/files/2023-01/WRI%202022\\_NBS%20in%20Sub-Saharan%20Africa%20for%20Climate%20and%20Water%20Resilience%5B9070%5D.pdf](https://naturebasedsolutions.org/sites/default/files/2023-01/WRI%202022_NBS%20in%20Sub-Saharan%20Africa%20for%20Climate%20and%20Water%20Resilience%5B9070%5D.pdf) (Accessed on 13/04/2024)

a collapse of ecosystem services<sup>44</sup>. Other concerns including high population growth, increasing urbanization and migration rates, and economic disruptions from global shocks further strain structural conditions and limit the ability of African countries to financially respond, recover, and grow their economies while tackling climate change<sup>45</sup>. Nature-based solutions therefore offer an ideal opportunity for Africa to address these challenges by ensuring that the limited financing available for infrastructure and climate adaptation is deployed in ways that maximize economic, social, and environmental benefits<sup>46</sup>.

Nature-based solutions are ideal in addressing climate change in Africa<sup>47</sup>. These solutions are easy to use, and effective in improving community livelihoods and resilience to climate change<sup>48</sup>. A number of nature-based solutions are being implemented across Africa to address climate change through the conservation of land, rivers, forests, wetlands, and marine ecosystems to benefit local economies<sup>49</sup>. It has also been observed that more countries in Africa are turning to nature-based solutions to counter the impacts of climate change on key sectors including agriculture, forestry, water, fisheries, and coastal ecosystems<sup>50</sup>. In the water sector, nature-based solutions such as restoration of lateral river connectivity and morphology, stormwater drainage management through green urban infrastructure, creation of polders in flood vulnerable areas and modification of torrent controls at headwaters to mitigate hydropeaking are key solutions in enhancing water security<sup>51</sup>. Conservation of wetlands is another key nature-based approach towards addressing climate change<sup>52</sup>. It has been noted that nature-based solutions are

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<sup>44</sup> Ibid

<sup>45</sup> Ibid

<sup>46</sup> Ibid

<sup>47</sup> African Development Bank Group., 'Are Nature Based Solutions the Key to Africa's Climate Response?'

Op Cit

<sup>48</sup> Ibid

<sup>49</sup> Ibid

<sup>50</sup> United Nations Environment Programme., 'How Nature Can Help Africa Adapt to the Climate Crisis'

Op Cit

<sup>51</sup> Nyika. J., & Dinka. M. O., 'Integrated Approaches to Nature-Based Solutions in Africa: Insights From a Bibliometric Analysis' Op Cit

<sup>52</sup> Ibid

an integral solution to addressing Africa's growing infrastructure service needs, while maximizing the impact of limited resources to enhance resilience to water and climate risks<sup>53</sup>. For example, restoring watersheds can enhance water security, increasing urban green space can reduce urban heat, and protecting mangroves can reduce coastal flood risk<sup>54</sup>.

Africa also has an opportunity to harness nature-based solutions for food security through soil management to optimize its nutrient, carbon and water storage capacity, improved agro-diversity to promote better land and water uses and integrating traditional and scientific agricultural systems<sup>55</sup>. Other nature-based solutions that are important in addressing climate change in Africa include combating forest degradation and deforestation through sustainable management practices, reforestation, and afforestation activities in order to promote climate resilience by enhancing carbon sequestration<sup>56</sup>. It is therefore necessary to scale up the use of nature-based solutions to address climate impacts on critical ecosystems and biodiversity in Africa. Nature-based solutions can not only help Africa adapt to the current and expected impacts of climate change but also offer numerous environmental, social, and economic benefits for transformative adaptation and long-term resilience<sup>57</sup>.

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<sup>53</sup> Global Facility for Disaster Reduction and Recovery., 'Nature-Based Solutions in Sub-Saharan Africa for Climate and Water Resilience' Available at <https://www.gfdr.org/en/publication/nature-based-solutions-sub-saharan-africa-climate-and-water-resilience> (Accessed on 13/04/2024)

<sup>54</sup> Ibid

<sup>55</sup> Nyika. J., & Dinka. M. O., 'Integrated Approaches to Nature-Based Solutions in Africa: Insights From a Bibliometric Analysis' Op Cit

<sup>56</sup> Ibid

<sup>57</sup> Rakotondrazafy. H., & Nchare. A., 'Accelerating Climate Change Adaptation in Africa with Nature-Based Solutions' Available at <https://www.standardmedia.co.ke/business/amp/opinion/article/2001480520/accelerating-climate-change-adaptation-in-africa-with-nature-based-solutions> (Accessed on 13/04/2024)

The role of nature-based solutions in addressing climate change is recognized by the *United Nations Framework Convention on Climate Change*<sup>58</sup>. The Convention seeks to achieve a climate change mitigation framework that allows *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 (Emphasis added)<sup>59</sup>. The *Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention)*<sup>60</sup> also envisages the use of nature-based solutions such as restoration towards sustainable conservation of wetlands<sup>61</sup>. It is widely acknowledged that wetlands are increasingly valuable under climate change in terms of their ecological functions, ecosystem services, and biodiversity<sup>62</sup>. Some of the vital ecosystem services provided by wetlands include carbon sequestration, maintenance and creation of clean water and soil fertility, and regulation of water and climate<sup>63</sup>. Therefore, the use of nature-based solutions including restoration and revegetation of wetlands is increasingly vital for creating resilient wetlands better able to respond to a changing climate without dramatic loss of biodiversity or ecosystem function<sup>64</sup>. The *Convention on Biological Diversity*<sup>65</sup> also embraces the use of nature-based solutions for conserving biodiversity and addressing the impacts of climate change. It urges contracting states to adopt nature based solutions including rehabilitation, restoration, and the use of traditional ecological knowledge for effective conservation of ecosystems and natural habitats<sup>66</sup>. It has been noted that the well-being of the world population in the coming decades will in large part depend on

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<sup>58</sup> United Nations Framework Convention on Climate Change., United Nations, 1992., Available at [https://unfccc.int/files/essential\\_background/background\\_publications\\_htmlpdf/application/pdf/conveg.pdf](https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveg.pdf) (Accessed on 13/04/2024)

<sup>59</sup> Ibid

<sup>60</sup> Convention on Wetlands of International Importance especially as Waterfowl Habitat., Available at [https://www.ramsar.org/sites/default/files/documents/library/current\\_convention\\_text\\_e.pdf](https://www.ramsar.org/sites/default/files/documents/library/current_convention_text_e.pdf) (Accessed on 13/02/2024)

<sup>61</sup> Ibid

<sup>62</sup> Zivec. P., Sheldon. F., & Capon. S., 'Natural Regeneration of Wetlands under Climate Change.' *Frontiers in Environmental Science.*, Volume 11 (2023)

<sup>63</sup> Ibid

<sup>64</sup> Ibid

<sup>65</sup> United Nations., 'Convention on Biological Diversity.' Available at <https://www.cbd.int/doc/legal/cbd-en.pdf> (Accessed on 13/04/2024)

<sup>66</sup> Ibid

conservation and restoration of ecosystems to maintain and enhance biodiversity and ecosystem services thereby contributing to Sustainable Development while reducing environment-related risks such as climate change<sup>67</sup>. Utilizing nature-based solutions is therefore key in conserving biological diversity and addressing climate change.

At the continental level, the *African Union Climate Change and Resilient Development Strategy and Action Plan*<sup>68</sup> urges states to adopt nature-based solutions towards addressing climate change in Africa. It recognizes that these solutions are necessary in ensuring the climate resilience of key sectors such as forestry, coastal and ocean ecosystems, urban green infrastructure, tourism, agriculture, and land management<sup>69</sup>. *The African Leaders Nairobi Declaration on Climate Change and Call to Action*<sup>70</sup> also acknowledges that nature and biodiversity are key solutions to climate change. It urges African countries to strengthen their actions to halt and reverse biodiversity loss, deforestation, and desertification and restore degraded land<sup>71</sup>. According to the Declaration, the protection of nature and biodiversity offers numerous socio-economic co-benefits and the provision of climate services<sup>72</sup>. Embracing nature-based solutions is key in protecting nature and biodiversity and addressing climate change in Africa.

In addition, the *Climate Change (Amendment) Act*<sup>73</sup> of Kenya recognizes the central role of nature-based solutions in strengthening the country's response towards climate change. The Act defines nature-based solutions as actions that protect, sustainably manage, or restore natural ecosystems that address societal challenges such as climate change,

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<sup>67</sup> Convention of Biological Diversity., 'Ecosystem Restoration.' Available at <https://www.cbd.int/restoration/> (Accessed on 13/04/2024)

<sup>68</sup> African Union Climate Change and Resilient Development Strategy and Action Plan., Available at [https://au.int/sites/default/files/documents/42276-doc-CC\\_Strategy\\_and\\_Action\\_Plan\\_2022-2032\\_23\\_06\\_22\\_ENGLISH-compressed.pdf](https://au.int/sites/default/files/documents/42276-doc-CC_Strategy_and_Action_Plan_2022-2032_23_06_22_ENGLISH-compressed.pdf) (Accessed on 13/04/2024)

<sup>69</sup> Ibid

<sup>70</sup> African Leaders Nairobi Declaration on Climate Change and Call to Action., Available at [https://www.afdb.org/sites/default/files/2023/09/08/the\\_african\\_leaders\\_nairobi\\_declaration\\_on\\_climate\\_change\\_rev-eng.pdf](https://www.afdb.org/sites/default/files/2023/09/08/the_african_leaders_nairobi_declaration_on_climate_change_rev-eng.pdf) (Accessed on 13/04/2024)

<sup>71</sup> Ibid

<sup>72</sup> Ibid

<sup>73</sup> Climate Change (Amendment) Act, 2023, Government Printer, Nairobi

human health, food and water security, and disaster risk reduction effectively and adaptively, while simultaneously providing human well-being and biodiversity benefits<sup>74</sup>. It urges the country to develop carbon markets in a manner that prescribes removal or sequestration credits that take carbon dioxide out of the atmosphere and either use or store it via afforestation, reforestation, nature-based solutions, or technology-based removal<sup>75</sup>.

Nature-based solutions therefore have a pertinent role in addressing climate change in Africa. These solutions need to be widely adopted. It is also necessary to address challenges such as inadequate funding; absence of clear definitions, guidelines, metrics, and methodologies to track, quantify, and value nature-based solutions for adaptation; and inadequate technical capacity which hinder effective adoption of nature-based solutions for climate action in Africa<sup>76</sup>. It has been noted that Africa stands at a critical moment in the fight against climate change<sup>77</sup>. The urgent need to adapt and build resilience requires bold and innovative approaches and embracing nature-based solutions presents a promising way forward<sup>78</sup>.

#### **4.0 Way Forward**

Nature-based solutions have a key role to play in addressing climate change in Africa. These types of solutions help to protect the environment but also provide numerous economic and social benefits<sup>79</sup>. It is therefore necessary to embrace nature-based solutions in order to strengthen the continent's response to climate change. Africa can effectively enhance its response to climate change by adopting nature-based solutions to protect,

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<sup>74</sup> Ibid

<sup>75</sup> Ibid

<sup>76</sup> Rakotondrazafy. H., & Nchare. A., 'Accelerating Climate Change Adaptation in Africa with Nature-Based Solutions' Op Cit

<sup>77</sup> Ibid

<sup>78</sup> Ibid

<sup>79</sup> International Union for Conservation of Nature., 'What are Nature-Based Solutions?' Op Cit

manage, and restore ecosystems<sup>80</sup>. Some of the key approaches towards this end include natural forest management including afforestation and reforestation, conservation agricultural practices including agroforestry, and wetlands and coastal ecosystems restoration<sup>81</sup>. Embracing nature-based solutions can offer multiple benefits for Africa. These benefits include retained and restored ecosystem services from forests, croplands, grazing lands, wetlands and other coastal ecosystems that support human health and well-being<sup>82</sup>. In addition, nature-based solutions can ensure biodiversity conservation and sustainable livelihood development<sup>83</sup>. Of vital importance, embracing nature-based solutions can accelerate climate action in Africa by improving human resilience and increasing the continent's capacity to adapt to those impacts of climate change that will still be present in a net zero world, while also reducing exposure to climate-related risks such as flooding, and lowering the sensitivity of human communities to climate change and shocks, through diversifying sources of income<sup>84</sup>. It is therefore necessary to adopt nature-based solutions in order to strengthen climate action in Africa.

There is need enhance funding for nature-based solutions in Africa in order to strengthen climate action in the continent<sup>85</sup>. Unlocking climate finance for nature-based solutions has been identified as a key tool in climate action<sup>86</sup>. According to UNEP, Africa needs huge levels of investment to drive climate change adaptation<sup>87</sup>. It calls for investments in nature-based solutions to drive climate change adaptation in the continent<sup>88</sup>. Unlocking climate finance for nature-based solutions can support projects such as restoring

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<sup>80</sup> United Nations Environment Programme., 'Nature-Based Solutions for Climate Change Mitigation' Available at <https://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/37318/NBSCCM.pdf> (Accessed on 14/04/2024)

<sup>81</sup> Ibid

<sup>82</sup> Ibid

<sup>83</sup> Ibid

<sup>84</sup> Ibid

<sup>85</sup> United Nations Environment Programme., 'Incentivizing Nature Based Solutions' Available at <https://www.unep.org/regions/africa/regional-initiatives/responding-climate-change/incentivizing-nature-based-solutions> (Accessed on 14/04/2024)

<sup>86</sup> Ibid

<sup>87</sup> Ibid

<sup>88</sup> Ibid

damaged ecosystems including land, forests and water bodies, conserving biodiversity, and integrating natural resources management<sup>89</sup>. It is therefore necessary for African countries to prioritize funding for nature-based solutions and strengthen their national capacities to unlock climate finance in order to effectively adopt nature-based solutions for climate action<sup>90</sup>.

In addition, it is vital for African countries to integrate nature-based solutions into their national climate change plans and policies including NDCs<sup>91</sup>. It has been noted that these policy processes provide opportunities to promote nature-based solutions and enable vulnerable communities to adapt to climate change and reduce disaster risk<sup>92</sup>. The United Nations Development Programme points out that nature-based solutions are critical to climate action and one of the most requested areas of support to enhance NDCs<sup>93</sup>. Integrating nature-based solutions in NDCs can support climate mitigation and adaptation, as well as slow biodiversity loss, in a cost-effective manner<sup>94</sup>. Kenya for example, in its NDC recognizes the role of nature-based solutions in climate action<sup>95</sup>. The NDC seeks to scale up nature-based solutions for mitigation<sup>96</sup>. It is therefore necessary for African countries to seize the opportunity to increase their climate ambition by incorporating nature-based solutions in their NDCs.

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<sup>89</sup> African Development Bank Group., 'Are Nature Based Solutions the Key to Africa's Climate Response?' Op Cit

<sup>90</sup> Ibid

<sup>91</sup> Rakotondrazafy. H., & Nchare. A., 'Accelerating Climate Change Adaptation in Africa with Nature-Based Solutions' Op Cit

<sup>92</sup> Ibid

<sup>93</sup> United Nations Development Programme., 'Nature-Based Solutions Finance for NDCs' Available at <https://www.undp.org/sites/g/files/zskgke326/files/2022-11/Nature-based%20Solutions%20Finance%20for%20NDCs-2022.pdf> (Accessed on 14/04/2024)

<sup>94</sup> Ibid

<sup>95</sup> Kenya's Updated Nationally Determined Contribution (NDC) 2020-2030., Available at <https://unfccc.int/sites/default/files/NDC/2022-06/Kenya%27s%20First%20NDC%20%28updated%20version%29.pdf> (Accessed on 14/04/2024)

<sup>96</sup> Ibid



Finally, there is need for African countries to strengthen their national capacities for successful implementation of nature-based solutions for climate action<sup>97</sup>. It has been noted that a major hindrance to the successful implementation of nature-based solutions for climate action in Africa is the lack of technical capacity in African countries<sup>98</sup>. It is therefore crucial to prioritize capacity-building efforts at the local, national, and regional levels for effective utilization of nature-based solutions in addressing climate change in Africa<sup>99</sup>. Strengthening institutional capacity will also play a pivotal role in delivering transformative nature-based solutions and ensuring its long-term success<sup>100</sup>. African countries should thus invest in adaptive institutional capacity and enabling frameworks for successful and sustainable implementation and management of nature-based solutions towards addressing climate change<sup>101</sup>.

## 5.0 Conclusion

Nature-based solutions can play a vital role in addressing climate change in Africa. These types of solutions help to protect the environment but also provide numerous economic and social benefits<sup>102</sup>. Africa can effectively enhance its response to climate change by adopting nature-based solutions to protect, manage, and restore ecosystems<sup>103</sup>. A number of nature-based solutions are being implemented across Africa to address climate change through the conservation of land, rivers, forests, wetlands, and marine ecosystems to benefit local economies<sup>104</sup>. However, the effective adoption of nature-based solutions in Africa is hindered by several challenges including inadequate funding and inadequate

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<sup>97</sup> Rakotondrazafy. H., & Nchare. A., 'Accelerating Climate Change Adaptation in Africa with Nature-Based Solutions' Op Cit

<sup>98</sup> Ibid

<sup>99</sup> Ibid

<sup>100</sup> Ibid

<sup>101</sup> World Wide Fund for Nature., 'Nature-Based Solutions are Critical to Adaptation in Africa' Available at [https://wwf.panda.org/wwf\\_news/?4308241/Nature-based-Solutions-are-critical-to-adaptation-in-Africa](https://wwf.panda.org/wwf_news/?4308241/Nature-based-Solutions-are-critical-to-adaptation-in-Africa) (Accessed on 14/04/2024)

<sup>102</sup> International Union for Conservation of Nature., 'What are Nature-Based Solutions?' Op Cit

<sup>103</sup> United Nations Environment Programme., 'Nature-Based Solutions for Climate Change Mitigation' Op Cit

<sup>104</sup> African Development Bank Group., 'Are Nature Based Solutions the Key to Africa's Climate Response?' Op Cit

technical capacity<sup>105</sup>. In order to address climate change through nature-based solutions in Africa, it is necessary to: effectively embrace nature-based solutions<sup>106</sup>; enhance funding for nature-based solutions<sup>107</sup>; integrate nature-based solutions into national climate change plans and policies including NDCs<sup>108</sup>; and strengthen national capacities for successful implementation of nature-based solutions for climate action<sup>109</sup>. Addressing climate change through nature-based solutions in Africa is vital for sustainability.

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<sup>105</sup> Rakotondrazafy. H., & Nchare. A., 'Accelerating Climate Change Adaptation in Africa with Nature-Based Solutions' Op Cit

<sup>106</sup><sup>106</sup> Ibid

<sup>107</sup> United Nations Environment Programme., 'Incentivizing Nature Based Solutions' Op Cit

<sup>108</sup> Rakotondrazafy. H., & Nchare. A., 'Accelerating Climate Change Adaptation in Africa with Nature-Based Solutions' Op Cit

<sup>109</sup> Rakotondrazafy. H., & Nchare. A., 'Accelerating Climate Change Adaptation in Africa with Nature-Based Solutions' Op Cit

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