

# Reflections on Confronting Climate Change in Africa

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**Reflections on Confronting Climate Change in Africa**

**Kariuki Muigua\***

**Abstract**

*This paper critically reflects upon the progress made towards confronting climate change in Africa. It examines the threat of climate change in Africa and interrogates the measures undertaken towards combating this threat. The paper further examines challenges experienced in confronting climate change in Africa and offers suggestions towards addressing these problems.*

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## **1.0 Introduction**

The *United Nations Framework Convention on Climate Change*<sup>1</sup> defines climate change as a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods<sup>2</sup>. Climate change has also been defined under the *Climate Change Act*<sup>3</sup> of Kenya as a change in the climate system which is caused by significant changes in the concentration of greenhouse gases as a consequence of human activities and which is in addition to natural climate change that has been observed during a considerable period<sup>4</sup>. Climate change therefore refers to long-term shifts in temperatures and weather patterns<sup>5</sup>. Such shifts can be natural, due to changes in the sun's activity or large volcanic eruptions<sup>6</sup>. However, human activities have been the main drivers of climate change due to the burning of fossil fuels like coal, oil and gas<sup>7</sup>. These activities have increased the concentration of atmospheric carbon dioxide (CO<sub>2</sub>) resulting to the greenhouse effect which contributes to global warming and climate change<sup>8</sup>.

Climate change remains one of the main global challenges that is affecting both developed and developing countries in their efforts towards realization of the Sustainable Development agenda<sup>9</sup>. It has been described as the most defining challenge of our time<sup>10</sup>. It has been observed that developing countries have been affected in greater ways by the

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<sup>1</sup> United Nations Framework Convention on Climate Change., United Nations, 1992., Available at <https://unfccc.int/resource/docs/convkp/conveng.pdf> (Accessed on 14/08/2023)

<sup>2</sup> Ibid, Article 1 (2)

<sup>3</sup> Climate Change Act., No. 11 of 2016, Laws of Kenya.

<sup>4</sup> Ibid, S 2

<sup>5</sup> United Nations., 'What is Climate Change?' Available at <https://www.un.org/en/climatechange/what-is-climate-change> (Accessed on 14/08/2023)

<sup>6</sup> Ibid

<sup>7</sup> Ibid

<sup>8</sup> NASA., 'The Causes of Climate Change.' Available at <https://climate.nasa.gov/causes/> (Accessed on 14/08/2023)

<sup>9</sup> Muigua. K., 'Achieving Sustainable Development, Peace and Environmental Security.' Glenwood Publishers Limited, 2021

<sup>10</sup> United Nations Department of Economic and Social Affairs., 'Forum on Climate Change and Science and Technology Innovation.' Available at <https://www.un.org/en/desa/forum-climate-change-and-science-and-technology-innovation> (Accessed on 14/08/2023)

effects of climate change compared to developed countries<sup>11</sup>. This is because, since the environment remains the main source of raw materials for national development and a source of livelihoods for many communities especially those living within the rural settings, and climate change affects the ability of the environment to supply these needs, climate change has a direct effect on the livelihoods of communities as well as countries' ability to achieve growth and development<sup>12</sup>. In addition, developing countries are more vulnerable to the impacts of climate impacts<sup>13</sup>. Adverse effects of climate change including extreme flooding, severe droughts, sea level rise, increasing temperatures and frequency and intensity of tropical cyclones, and storm surges have majorly affected developing countries and small island nations affecting the development agenda in these countries<sup>14</sup>. Confronting climate change is therefore a matter of priority for developing countries and regions of the world including Africa<sup>15</sup>.

Due to the threat it poses, climate change has risen to the top of the policy agenda, at local, national, and international levels<sup>16</sup>. Responding to the threat of climate change has therefore become both a both national priority and a global responsibility<sup>17</sup>. The United Nations 2030 Agenda for Sustainable Development acknowledged 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<sup>18</sup>. Sustainable Development Goal 13

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<sup>11</sup> Muigua. K., 'Achieving Sustainable Development, Peace and Environmental Security.' Op Cit

<sup>12</sup> Ibid

<sup>13</sup> Sultana. F., 'Critical Climate Justice' Available at <https://www.farhanasultana.com/wpcontent/uploads/Sultana-Critical-climate-justice.pdf> (Accessed on 14/08/2023)

<sup>14</sup> Bafana. B., 'Climate Change is No 'Future Scenario' for Pacific Island Nations; Climate Change is 'Real' Available at <https://reliefweb.int/report/world/climate-change-no-future-scenario-pacific-islandnations-climate-change-real> (Accessed on 14/08/2023)

<sup>15</sup> Ibid

<sup>16</sup> United Nations Department of Economic and Social Affairs., 'Forum on Climate Change and Science and Technology Innovation.' Available at <https://www.un.org/en/desa/forum-climate-change-and-science-and-technology-innovation> (Accessed on 14/08/2023)

<sup>17</sup> United Nations Development Programme., 'Islamic Finance's Answer to SDGs and Climate Change.' Available at <https://www.undp.org/blog/islamic-finances-answer-sdgs-and-climate-change> (Accessed on 14/08/2023)

<sup>18</sup> United Nations., 'Transforming Our World: The 2030 Agenda for Sustainable Development.' Available at

urges states to take urgent action to combat climate change and its impacts<sup>19</sup>. It has been asserted that the world is responding to climate change through two fundamental approaches being mitigation and adaptation<sup>20</sup>. Climate change mitigation involves reducing greenhouse gas emissions and stopping the problem of climate change from growing<sup>21</sup>. Adaptation on the other hand involves learning how to live with the existing threat of climate change and protecting humanity from the future effects of climate change<sup>22</sup>.

This paper critically reflects upon the progress made towards confronting climate change in Africa. It examines the threat of climate change in Africa and interrogates the measures undertaken towards combating this threat. The paper further examines challenges experienced in confronting climate change in Africa and offers suggestions towards addressing these problems.

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<https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf> (Accessed on 14/08/2023)

<sup>19</sup> Ibid, Goal 13

<sup>20</sup> World Vision., 'How is the World Responding to Climate Change?' Available at [https://www.worldvision.com.au/docs/default-source/school-resources/how-is-the-worldresponding-to-climate-change.pdf?sfvrsn=32021b89\\_0](https://www.worldvision.com.au/docs/default-source/school-resources/how-is-the-worldresponding-to-climate-change.pdf?sfvrsn=32021b89_0) (Accessed on 14/08/2023)

<sup>21</sup> Ibid

<sup>22</sup> Ibid

## **2.0 Climate Change in Africa**

Africa is classified as a continent that is highly vulnerable to climate change 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 conflicts.<sup>23</sup>. This vulnerability is worsened by strong dependence of African economies on climate sensitive natural resources<sup>24</sup>. It has been observed that African countries are already experiencing effects of climate change such as drought, water scarcity, flooding among others<sup>25</sup>. Climate change is having a devastating impact on the African continent creating food insecurity, stressing water resources, depleting human health, displacing populations and impeding socio-economic development<sup>26</sup>. It has been observed that in Africa, approximately 50 million people are on the brink of falling below the poverty line for reasons connected to climate change, 100 million people are at risk of being displaced by climate change, and about 600 million people lack energy access<sup>27</sup>.

It has been asserted that despite having contributed the least to global warming and having the lowest emissions, Africa faces exponential collateral damage from the effects 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>28</sup>. Increasing

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<sup>23</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 14/08/2023)

<sup>24</sup> Ibid

<sup>25</sup> Ibid

<sup>26</sup> Rao. V., & Yadav. P., 'Confronting Climate Change in Africa.' Available at

<https://knowledge.insead.edu/responsibility/confronting-climate-change-africa> (Accessed on 14/08/2023)

<sup>27</sup> Ibid

<sup>28</sup> African Development Bank Group., 'Climate Change in Africa.' Available at

<https://www.afdb.org/en/cop25/climate-change-africa> (Accessed on 14/08/2023)

temperatures and sea levels, changing precipitation patterns and more extreme weather are threatening human health and safety, food and water security and socio-economic development in Africa<sup>29</sup>. The United Nations Framework Convention on Climate Change observed 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>30</sup>. Cases of devastating floods, invasion of desert locusts and severe droughts are vivid examples of the impacts of climate change on the continent<sup>31</sup>.

The foregoing concerns demonstrate that the threat of climate change is a pertinent problem in Africa. While Africa has contributed negligibly to climate change, with just about two to three percent of global emissions, it stands out disproportionately as the most vulnerable region in the world<sup>32</sup>. This situation highlights the inequalities brought about by climate change. It has been observed that developed countries mainly the large industrialised economies of Europe and North America and some Asian countries such as China continue to benefit more from the industries and technologies that cause climate change while developing nations in places such as Africa, Asia, the Caribbean Islands and the Pacific Islands which due to an unfortunate mixture of economic and geographic vulnerability, continue to shoulder the brunt of the burdens of climate change despite their relative innocence in causing it<sup>33</sup>. While climate change is global, the poor are disproportionately vulnerable to its effects<sup>34</sup>. This is because they lack the resources

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<sup>29</sup> United Nations Framework Convention on 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 14/08/2023)

<sup>30</sup> Ibid

<sup>31</sup> Ibid

<sup>32</sup> United Nations Environment Programme., 'Responding to Climate Change.' Available at <https://www.unep.org/regions/africa/regional-initiatives/responding-climate-change> (Accessed on 14/08/2023)

<sup>33</sup> Giles. M., 'The Principles of Climate Justice at CoP27.' Available at <https://earth.org/principlesofclimatejustice/#:~:text=That%20response%20should%20be%20based,the%20consequences%20of%20climate%20change> (Accessed on 14/08/2023)

<sup>34</sup> United Nations Environment Programme., 'Responding to Climate Change.' Op Cit

to afford goods and services they need to buffer themselves and recover from the effects of climate change<sup>35</sup>.

Climate change represents a major threat to Africa achieving the Sustainable Development Goals<sup>36</sup>. Confronting climate change in Africa is thus an urgent need if the continent is to realize the Sustainable Development agenda. It has been observed that implementing the climate action commitments of African states popularly known as Nationally Determined Contributions (NDCs) is vital in fostering socio-economic development in the continent<sup>37</sup>.

### **3.0 Confronting Climate Change in Africa: Prospects and Challenges**

Confronting climate change has become an urgent concern not only in Africa but also across the world. Various laws, treaties, conventions, protocols and policies have been adopted towards confronting climate change at the international, regional and national levels.

The *United Nations Framework Convention on Climate Change*<sup>38</sup> (UNFCCC) is an international legal instrument geared towards combating climate change by achieving stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The UNFCCC encapsulates several principles that are integral in confronting climate change<sup>39</sup>. These principles include protection of the climate system for the benefit of present and future generations of humankind (the principle of intergenerational equity); the principle of common but differentiated responsibilities; giving full consideration to the specific needs and special circumstances of developing countries especially those that are particularly vulnerable to the adverse effects of climate change; the precautionary principle; the principle of

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<sup>35</sup> Ibid

<sup>36</sup> African Development Bank Group., 'Climate Change in Africa.' Op Cit

<sup>37</sup> Ibid

<sup>38</sup> 'United Nations Framework Convention on Climate Change,' Op Cit

<sup>39</sup> Ibid

Sustainable Development and the principle of international cooperation<sup>40</sup>. The UNFCCC further enshrines various commitments by member states towards confronting climate change. These include promoting and cooperating in the development, application and diffusion, including transfer, of technologies, practices and processes aimed at combating climate change; cooperating in preparing for adaptation to the impacts of climate change; taking climate change considerations into account in social, economic and environmental policies; promoting and cooperating in scientific, technological, technical, socio-economic and other research on climate change and promoting and cooperating in education, training and public awareness related to climate change<sup>41</sup>. Realizing the commitments set out in the UNFCCC is vital in confronting climate change.

The *Kyoto Protocol*<sup>42</sup> to the UNFCCC was an international legal instrument that sought to operationalize the United Nations Framework Convention on Climate Change by committing industrialized countries and economies in transition to limit and reduce Greenhouse Gases (GHG) emissions in accordance with agreed individual targets<sup>43</sup>. The Protocol requires these countries to implement measures and policies geared towards achieving their emission limitation and reduction commitments<sup>44</sup>. These include enhancement of energy efficiency; promotion of sustainable forms of agriculture in light of climate change considerations; research on, and promotion, development and increased use of, new and renewable forms of energy, of carbon dioxide sequestration technologies and of advanced and innovative environmentally sound technologies and cooperation between states to enhance the individual and combined effectiveness of their policies and measures adopted towards confronting climate change<sup>45</sup>. The Kyoto Protocol only binds developed countries, and places a heavier burden on them under the principle

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<sup>40</sup> Ibid, Article 3

<sup>41</sup> Ibid, Article 4

<sup>42</sup> United Nations Framework Convention on Climate Change., 'Kyoto Protocol to the United Nations Framework Convention on Climate Change.' Available at <https://unfccc.int/resource/docs/convkp/kpeng.pdf> (Accessed on 15/08/2023)

<sup>43</sup> Ibid

<sup>44</sup> Ibid, Article 2

<sup>45</sup> Ibid

of *common but differentiated responsibility and respective capabilities* since it recognizes that they are largely responsible for the current high levels of GHG emissions in the atmosphere<sup>46</sup>. On 8<sup>th</sup> December 2012, the *Doha Amendment*<sup>47</sup> to the Kyoto Protocol was adopted for a second commitment period, starting in 2013 and lasting until 2020<sup>48</sup>.

Further, the *Paris Agreement*<sup>49</sup> was adopted to strengthen the global response to the threat of climate change, in the context of Sustainable Development and efforts to eradicate poverty<sup>50</sup>. It seeks to achieve this goal through measures such as holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production and making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development<sup>51</sup>. The Agreement further requires parties to prepare, communicate and maintain successive Nationally Determined Contributions that they intend to achieve<sup>52</sup>. It further requires parties to pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions<sup>53</sup>. The Agreement further acknowledges the special circumstances of developing countries some which are more vulnerable to the effects of climate change and requires developed countries to support them in their efforts to confront climate change through measures such as provision of financial resources and technology

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<sup>46</sup> United Nations Framework Convention on Climate Change., 'What is the Kyoto Protocol?' Available at [https://unfccc.int/kyoto\\_protocol](https://unfccc.int/kyoto_protocol) (Accessed on 15/08/2023)

<sup>47</sup> United Nations., 'Doha Amendment to the Kyoto Protocol.' Available at <https://treaties.un.org/doc/Publication/MTDSG/Volume%20II/Chapter%20XXVII/xxvii-7-c.en.pdf> (Accessed on 15/08/2023)

<sup>48</sup> United Nations Framework Convention on Climate Change., 'What is the Kyoto Protocol?' Op Cit

<sup>49</sup> United Nations Framework Convention on Climate Change., 'Paris Agreement.' Available at [https://unfccc.int/sites/default/files/english\\_paris\\_agreement.pdf](https://unfccc.int/sites/default/files/english_paris_agreement.pdf) (Accessed on 15/08/2023)

<sup>50</sup> Ibid, Article 2 (1)

<sup>51</sup> Ibid

<sup>52</sup> Ibid, Article 4 (2)

<sup>53</sup> Ibid

transfer<sup>54</sup>. Achieving the targets and measures set out under the Paris Agreement is therefore vital in confronting climate change.

Confronting climate change has also been the pertinent topic during the United Nations Climate Change Conferences/Conference of the Parties of the UNFCCC (COP meetings). At COP 27 a breakthrough agreement was reached towards confronting climate change whereby parties agreed to provide loss and damage funding for vulnerable countries hit hard by floods, droughts and other climate disasters<sup>55</sup>. Parties further reaffirmed their commitment to limit global temperature rise to 1.5°C above pre-industrial levels as envisaged under the Paris Agreement<sup>56</sup>. In addition, parties agreed to mobilize more financial support for developing countries towards low emissions and climate resilient development<sup>57</sup>. COP 27 acknowledged that finance is at the heart of all that the world is doing to confront climate change since mitigation, adaptation, loss and damage and climate technology require sufficient funds to function properly and to yield the desired results<sup>58</sup>. COP 28 is aimed at assessing global progress towards confronting climate change and come up with concrete plans and actions on thematic areas including finance, trade, energy, industry, urbanization, built environment, nature, land use and oceans in strengthening global resilience on climate change<sup>59</sup>.

At the regional level, the *East African Community Climate Change Policy*<sup>60</sup> recognizes the adverse impacts of climate change as a major challenge to socio-economic development globally. According to the Policy, the African continent including the East African region is particularly vulnerable to impacts of climate change affecting key economic drivers

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<sup>54</sup> Ibid, Articles 9 (1) & 10

<sup>55</sup> United Nations Framework Convention on Climate Change., 'Sharm El-Sheikh Climate Change Conference - November 2022.' Available at <https://unfccc.int/cop27> (Accessed on 16/08/2023)

<sup>56</sup> Ibid

<sup>57</sup> Ibid

<sup>58</sup> Ibid

<sup>59</sup>United Nations Framework Convention on Climate Change., 'UN Climate Change Conference - United Arab Emirates Nov/Dec 2023.' Available at <https://unfccc.int/cop28> (Accessed on 16/08/2023)

<sup>60</sup> East African Community., 'East African Community Climate Change Policy.' Available at <https://www.eac.int/environment/climate-change/eac-climate-change-policy-framework> (Accessed on 15/08/2023)

such as water resources, agriculture, energy, transport, health, forestry, wildlife, land and infrastructure, disaster risk management among others<sup>61</sup>. It further recognizes that impacts of climate change in the region include; water stress and scarcity, food insecurity, diminished hydropower generation potential, loss of biodiversity and ecosystem degradation, increased incidence of disease burden, destruction of infrastructure, high costs of disaster management as result of increased frequency and intensity of droughts, floods and landslides associated with the El Niño phenomenon<sup>62</sup>. The Policy is aimed at contributing to Sustainable Development in the EAC region through harmonized and coordinated regional strategies, programmes and actions to respond to climate change<sup>63</sup>. It identifies several ways of confronting climate change in the region which include establishing a regional framework to guide the harmonization, coordination and implementation of climate change initiatives amongst partner states; identifying priority adaptation and mitigation action areas and roles of partner states and other stakeholders to address climate change in the region; promoting public awareness and socio-economic importance of climate change including; vulnerability, impacts, risks, and response measures in the region and promoting capacity building efforts through inter alia education, training, research, technology development and transfer, information and knowledge management<sup>64</sup>. Actualizing this Policy is vital in confronting climate change in the East African Region.

In Kenya, the *Climate Change Act*<sup>65</sup> seeks to enhance the national response to climate change and achieve low carbon climate development for the Sustainable Development of Kenya<sup>66</sup>. It identifies several ways of achieving this goal such as mainstreaming climate change responses into development planning, decision making and implementation; build national resilience and enhancing adaptive capacity to the impacts of climate

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<sup>61</sup> Ibid

<sup>62</sup> Ibid

<sup>63</sup> Ibid

<sup>64</sup> Ibid

<sup>65</sup> Climate Change Act., No. 11 of 2016, Government Printer, Nairobi

<sup>66</sup> Ibid, S 3 (1)

change; formulating programmes and plans to enhance the resilience and adaptive capacity of human and ecological systems to the impacts of climate change; mainstreaming intergenerational and gender equity in all aspects of climate change responses; promoting low carbon technologies, improving efficiency and reducing emissions intensity by facilitating approaches and uptake of technologies that support low carbon, and climate resilient development and facilitating capacity development for public participation in climate change responses through awareness creation, consultation, representation and access to information<sup>67</sup>. Achieving the targets set out in the Climate Change Act is critical in confronting climate change in Kenya.

Further, the *National Climate Change Policy*<sup>68</sup> was developed to facilitate a coordinated, coherent and effective response to the local, national and global challenges and opportunities presented by climate change<sup>69</sup>. It further seeks to enhance adaptive capacity and resilience to climate change, and promote low carbon development for the Sustainable Development of Kenya<sup>70</sup>. The Policy sets out several measures towards achieving its aim which include facilitating widespread public awareness, participation, ownership and oversight of Kenya's climate change response efforts and action plans<sup>71</sup>. The Policy further enshrines several principles that are vital in confronting climate change such as Sustainable Development; Equity and Social Inclusion and special needs and circumstances of vulnerable people and communities<sup>72</sup>.

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<sup>67</sup> Ibid, S 3 (2)

<sup>68</sup> Sessional Paper No. 5 of 2016., 'National Climate Change Framework Policy.' Available at <http://aiap.or.ke/wp-content/uploads/2018/10/Climate-Change-Framework-PolicyMay2017.pdf> (Accessed on 15/08/2023)

<sup>69</sup> Ibid

<sup>70</sup> Ibid

<sup>71</sup> Ibid, S 3.2 (v)

<sup>72</sup> Ibid, S 3.3.

From the foregoing discussion, it is evident that confronting climate change is a global, regional and national concern. *Agenda 2063*<sup>73</sup> recognizes while Africa has played a relatively minor role and contributed little to the accumulation of greenhouse gases and the attendant climate change, it is the most vulnerable region to climate change risks. It seeks to foster environmentally sustainable and climate resilient economies and communities in Africa<sup>74</sup>. It has been observed that African countries are scaling up the fight against climate change<sup>75</sup>. There has been progress towards adoption of renewable sources of energy such as solar, wind and hydro power which is vital step in confronting climate change<sup>76</sup>. Further, progress has been made towards investing in sustainable agriculture and addressing deforestation<sup>77</sup>. In addition, most African countries have submitted their Nationally Determined Contributions (NDCs) to the UNFCCC with some committing to reduce their greenhouse gas emissions by 30% by the year 2030<sup>78</sup>. It is therefore evident that there is immense potential in confronting climate change in Africa.

However, several problems hinder the effectiveness of African countries in confronting climate change. One of the key challenges to the implementation of climate change mitigation and adaptation strategies in Africa is financing<sup>79</sup>. It has been observed that costs of adaptation could reach \$ 300 Billion for Africa plus \$ 3 Billion per year for maintenance numbers which sharply contrast with the limited resources currently

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<sup>73</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 16/08/2023)

<sup>74</sup> Ibid

<sup>75</sup> Official Monetary and Financial Institutions Forum., 'African Countries are Scaling Up the Fight Against Climate Change.' Available at <https://www.omfif.org/2023/02/african-countries-are-scaling-up-the-fight-against-climate-change/> (Accessed on 16/08/2023)

<sup>76</sup> United Nations Framework Convention on Climate Change., 'Four Countries Showcased their Ambitious Climate Action During Africa Climate Week.' Available at <https://unfccc.int/news/four-countries-showcased-their-ambitious-climate-action-during-africa-climate-week> (Accessed on 16/08/2023)

<sup>77</sup> Ibid

<sup>78</sup> United Nations Framework Convention on Climate Change., 'Nationally Determined Contributions Registry.' Available at <https://unfccc.int/NDCREG> (Accessed on 16/08/2023)

<sup>79</sup> Mbaye. A., 'Confronting the Challenges of Climate Change on Africa's Coastal Areas.' Available at <https://www.brookings.edu/articles/confronting-the-challenges-of-climate-change-on-africas-coastal-areas/> (Accessed on 16/08/2023)

devoted to climate change mitigation and adaptation in Africa<sup>80</sup>. African governments pledged \$ 264 Billion in domestic public resources to combat climate change, a figure that falls short of the estimated \$ 2.8 trillion required to implement Africa's Nationally Determined Contributions (NDCs) between 2020 and 2030<sup>81</sup>.

In addition, it has been observed that most African countries lack the technical capacity to adapt to the impacts of climate change, and to develop appropriate low carbon technologies<sup>82</sup>. Further, another big challenge facing Africa is the lack of access to modern and clean sources of energy such as electricity<sup>83</sup>. This results in the use of traditional sources of energy such as coal which have negative environmental consequences<sup>84</sup>. Further, unsustainable farming practices have also contributed to climate change and degradation of soils leading to food insecurity<sup>85</sup>. There is need to address these challenges in order to effectively confront climate change in Africa.

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<sup>80</sup> Ibid

<sup>81</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 16/08/2023)

<sup>82</sup> United Nations Environment Programme., 'Climate Change Challenges for Africa.' April, 2012

<sup>83</sup> Muigua. K., 'Delivering Clean and Affordable Energy for All.' Available at <http://kmco.co.ke/wp-content/uploads/2021/05/Delivering-Clean-and-Affordable-Energy-for-All-Kariuki-Muigua-Ph.D-24th-April-2021-1.pdf> (Accessed on 16/08/2023)

<sup>84</sup> Ibid

<sup>85</sup> Hillsdon. M., 'Regenerative Agriculture Seen as Answer to Averting Africa's Growing Food Crisis.' Available at <https://www.reuters.com/business/sustainable-business/regenerative-agriculture-seen-answer-averting-africas-growing-food-crisis-2022-11-07/> (Accessed on 16/08/2023)

#### **4.0 Way Forward**

In order to effectively confront climate change and its effects in Africa, there is need to boost climate smart agriculture in order to enhance food security<sup>86</sup>. Achieving the goals of eradicating hunger and poverty while addressing the climate change impacts as envisaged under the 2030 Agenda for Sustainable Development need a climate-smart approach in agriculture that is based on the objectives of sustainably enhancing food production, climate adaptation and resilience and reduction in GHGs emission<sup>87</sup>. It has been proved that traditional agricultural practices like agro forestry, intercropping, crop rotation, cover cropping, traditional organic composting and integrated crop-animal farming all have potentials for enhancing crop productivity and mitigating climate change<sup>88</sup>. In addition, it has been suggested that adoption of regenerative agricultural practices such as crop rotation, agroforestry, use of drought- and heat-resistant crops, integrated pest control systems, water harvesting and irrigation can foster high-yielding, climate resilient, and adaptive practices<sup>89</sup>. There is need to adopt these practices in order to effectively confront climate change in Africa.

It is also imperative for African countries to focus and invest in climate adaptation<sup>90</sup>. It has been asserted that the potential to deliver a robust portfolio of green, resilient, and inclusive investments driving transformation and innovation in areas such as energy, infrastructure, agriculture the blue economy and other climate change mitigation and adaption strategies<sup>91</sup>. Strong climate action and increased climate financing are vital in helping the continent achieve these goals<sup>92</sup>. It is thus imperative for African countries to

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<sup>86</sup> Diagona. O., '3 key Fronts on Which Africa Must Combat Climate Change.' Available at <https://blogs.worldbank.org/africacan/3-key-fronts-which-africa-must-combat-climate-change> (Accessed on 16/08/2023)

<sup>87</sup> Rinku . S & Singh. G., 'Traditional Agriculture: A Climate-Smart Approach for Sustainable Food Production' *Energy, Ecology and Environment*, No. 2 of 2017, 296

<sup>88</sup> Ibid

<sup>89</sup> Climate Champions. 'How Regenerative Agriculture Can Increase Africa's Food Production.' Available at <https://climatechampions.unfccc.int/call-to-action-for-climate-resilient-sustainable-food-systems-inafrica/> (Accessed on 16/08/2023)

<sup>90</sup> Diagona. O., '3 key Fronts on Which Africa Must Combat Climate Change.' Op Cit

<sup>91</sup> Ibid

<sup>92</sup> Ibid

identify and mobilize effective and appropriate financing for climate action in order to confront climate change<sup>93</sup>. International, regional and national financial institutions can also support the capacity of African countries to confront climate change through investments in mitigation and adaptation strategies and, green products including green bonds and green infrastructure<sup>94</sup>. Developed countries should also enhance financial support for African countries in order to enhance their climate resilience<sup>95</sup>.

Further, there is need for African countries to foster environmental education and creating awareness on climate change mitigation and resilience<sup>96</sup>. It has been asserted that it is important for various stakeholders to work closely with communities as a way of creating awareness on how their day to day activities are likely to affect the environment and the climatic conditions in general<sup>97</sup>. Dissemination of environmental knowledge as well as creating opportunities for collaborative approaches to combating climate change can go a long way in not only mitigation and adaptation measures but also creating resilient economies and livelihoods<sup>98</sup>. Further, climate change knowledge should also be incorporated into the primary, secondary and all tertiary level curricula in order to inculcate a sense of environmental ethics in all people from an early age and to ensure that the knowledge acquired will go a long way in combating climate change<sup>99</sup>. Education gives people the knowledge and tools they need to adapt to the impacts of climate change

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<sup>93</sup> United Nations Framework Convention on Climate Change., 'Climate Finance Access and Mobilization Strategy for The Least Developed Countries In Asia: 2022-2030.' Available at [https://unfccc.int/sites/default/files/resource/UNFCCC\\_NBF\\_SD\\_AsianLDCA\\_final.pdf](https://unfccc.int/sites/default/files/resource/UNFCCC_NBF_SD_AsianLDCA_final.pdf) (Accessed on 16/08/2023)

<sup>94</sup> Asian Development Bank., 'Unlocking Islamic Climate Finance.' Available at <https://www.adb.org/sites/default/files/publication/838201/unlocking-islamic-climate-finance.pdf> (Accessed on 16/08/2023)

<sup>95</sup> Magoma. C., 'A Huge Financing Gap for Climate Action with Public Debt Sustainability Risks Looms in East Africa beyond COP27.' Op Cit

<sup>96</sup> Muigua. K., 'Combating Climate Change in Kenya for Sustainable Development.' Available at <http://kmco.co.ke/wp-content/uploads/2021/01/Combating-Climate-Change-for-Sustainable-Development-in-Kenya-Kariuki-Muigua-Ph.D-23rd-Jan-2021.pdf> (Accessed on 16/08/2023)

<sup>97</sup> Ibid

<sup>98</sup> Ibid

<sup>99</sup> Ibid

and the risks it poses to lives, livelihoods and well-being<sup>100</sup>. Education can also be a powerful driver for more Sustainable Development, including a transition to greener societies<sup>101</sup>. Africa should therefore embrace education as a tool of confronting climate change.

In addition, it is essential for Africa to adopt science, technology and innovation in order to efficiently confront climate change<sup>102</sup>. The *Paris Agreement* recognizes the role of science, technology and innovation in climate change mitigation and adaptation<sup>103</sup>. To this extent, it calls for the use of scientific knowledge in planning, policies and implementation in relation to climate change adaptation and mitigation actions; technology development and transfer and accelerating, encouraging and enabling innovation in order to improve global resilience to climate change and foster Sustainable Development<sup>104</sup>. Science, technology and innovation have enhanced the global response to the threat of climate change through measures such as the adoption of clean and green sources of energy including renewable energy, electric cars, use of carbon sequestration technologies and adoption of smart waste technologies<sup>105</sup>. African countries should therefore embrace science, technology and innovation in order to enhance their efforts in confronting climate change. International cooperation in this area through technology transfer as envisaged under the Paris Agreement can also enhance the capacity of African countries to confront climate change<sup>106</sup>. African countries can also utilize traditional knowledge to confront climate change in areas such as the conservation of biodiversity<sup>107</sup>.

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<sup>100</sup> Global Partnership for Education., 'Confronting Climate Change through Education.' Available at <https://www.globalpartnership.org/node/document/download?file=document/file/2023-04-confronting-climate-change-through-education.pdf> (Accessed on 16/08/2023)

<sup>101</sup> Ibid

<sup>102</sup> Muigua. K., 'Embracing Science, Technology and Innovation for Sustainable Development.' Available at <http://kmco.co.ke/wp-content/uploads/2023/08/Embracing-Science-Technology-and-Innovation-for-Sustainable-Development.pdf> (Accessed on 16/08/2023)

<sup>103</sup> Paris Agreement, Op Cit

<sup>104</sup> Ibid

<sup>105</sup> United Nations Economic and Social Commission for Asia and the Pacific., 'Science, Technology and Innovation for Sustainable Development.' E/ESCAP/72/32

<sup>106</sup> Paris Agreement., Op Cit

<sup>107</sup> Muigua. K., 'Combating Climate Change in Kenya for Sustainable Development.' Op Cit

Through these measures, the ability of African countries to confront climate change will be enhanced.

## **5.0 Conclusion**

Climate change remains one of the main global challenges that is affecting both developed and developing countries in their efforts towards realization of the Sustainable Development agenda<sup>108</sup>. Africa is classified as a continent that is highly vulnerable to climate change<sup>109</sup>. Cases of devastating floods, invasion of desert locusts and severe droughts are vivid examples of the impacts of climate change on the continent<sup>110</sup>. Confronting climate change in Africa is thus an urgent need if the continent is to realize the Sustainable Development agenda<sup>111</sup>. There has been progress towards combating climate change in Africa through adoption of renewable sources of energy, investing in sustainable agriculture and addressing deforestation<sup>112</sup>. However, the persisting threat of climate change calls for more to be done in order to confront climate change in Africa. This can be achieved through boosting climate smart agriculture, investing in climate adaptation, strong climate action and increased climate finance in Africa, fostering environmental education and creating awareness on climate change mitigation and resilience and adopting science, technology and innovation<sup>113</sup>. Through these measures, the response towards climate change in Africa will be enhanced. Confronting climate change in Africa is an achievable target.

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<sup>108</sup> Muigua. K., 'Achieving Sustainable Development, Peace and Environmental Security.' Op Cit

<sup>109</sup> Kimaro. Didas et al., 'Climate Change Mitigation and Adaptation in ECA/SADC/COMESA Region: Opportunities and Challenges.' Op Cit

<sup>110</sup> United Nations Framework Convention on Climate Change., 'Climate Change is an Increasing Threat to Africa.'

<sup>111</sup> Ibid

<sup>112</sup> United Nations Framework Convention on Climate Change., 'Four Countries Showcased their Ambitious Climate Action During Africa Climate Week.' Op Cit

<sup>113</sup> <sup>113</sup> Muigua. K., 'Combating Climate Change in Kenya for Sustainable Development.' Op Cit

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