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Waking up to the call of Climate change: Challenges for Africa and Europe

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Abstract

Climate change represents one of the most obstinate challenges to human and animal survival. The dramatic changes in the environment call for significant adaptation yet communities have distinct capacities for this. While Europe is much better predisposed, Africa in contrast, has a low adaptive capacity in the face of the far-reaching potential impact of climate change.

With current projections showing that climate change in Africa is worsening and will exacerbate further in the future the need for interventions is urgent but the roadmap fairly constrained by limited resources and well-thought-out policy interventions.

This paper underscores the need for initiating mechanisms that will mitigate the anticipate adverse impact and establishing coping mechanisms that better prepare Africa in addressing the challenge of climate change in the years ahead.

The paper further emphasizes the importance of building relevant knowledge on the impact of climate change and complimenting this with an enabling legal, policy and institutional framework that can enable countries strengthen adaptation, mitigate risks and ensure that climate change does not unduly disrupt livelihoods.

Introduction

Climate change is understood to refer to changes in weather conditions, occurring over a period of time.[1] Climate change is fundamental and has the

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potential to affect human and animal life and the environment as a whole and now represents one of the greatest challenges to human survival and development.[2]

A global phenomenon, climate change, is now recognised as a key challenge because of its potential to trigger serious social, political and economic problems and upset the ecosystem – a basis of human survival.[3] Whilst some of the impacts wrought by climate change are already being experienced, a failure to mitigate the scale and scope of future impact, poses a serious threat to the capacity of the environment to support plant and animal life in the future.[4]

Current projections show that climate change in Africa could become more pronounced in the future.[5] Since 1900, mean surface temperatures have increased by only 0.5 degrees but these temperatures will increase by 2-6 degrees by 2100.[6]

What is worrying is that Africa has a low adaptive capacity yet the potential impacts of climate change are far-reaching. Some of the key potential impacts will affect water resources and agriculture, water availability, carbon uptake and influence extreme weather conditions such as flooding, desertification, distribution and prevalence of human diseases and animal pests.[7] Reduction of crop yields in drylands across Africa is expected to increase vulnerability to food insecurity for many people than is currently the case.[8]

[1] IPCC, Climate Change widespread, rapid and intensifying, 2021
[2] Ibid
[3] McKinsey, Climate risk & response: Physical hazards and socioeconomic impact, January 16, 2020
[4] WMO, Climate Change triggers food insecurity, poverty and displacement in Africa, October 19, 2021
[5] UN Climate Change News, Climate Change is an increasing threat to Africa, October 27, 2020
[6] Hulme et al, 2001
[7] Source: IPPC 2001a
[8] Op. cit, No. 4

It is for this reason that climate change, once seen as a preoccupation of the developed world and far removed from the reality of developing countries, is now increasingly recognised as a global phenomenon demanding concerted action and attention. Because the environment forms the bedrock of livelihoods in Africa, climate change – by upsetting it – poses a grave challenge to the very existence of many communities on the continent. It will be futile to address climate change in isolation and indeed, mitigation efforts in Africa must compliment those in Europe and other developed countries.

It would appear, from the very outset, that part of Africa's challenge is that of adapting to climate change to safeguard those most vulnerable from its impact.[9] Yet, climate change is not yet high up on the agenda of many African countries even though the risks are real and the implications stark. The key indicators have been in terms of variations in the weather pattern. In particular, rainfall patterns are changing dramatically and extremes in climate conditions as a whole becoming more manifest.[10]

It is uncertain how well prepared the continent is in terms of adapting to these changes. But mechanisms geared towards mitigating adverse impact must be developed and coping mechanisms must be strengthened if Africa is to meet the challenge of climate change in the years ahead.

Poverty sticks out as one of Africa's most significant drawbacks as it seeks to mount an effective response to climate change.[11] In addition, weak institutions and insufficient tools for policy adaptation within the context of a fragile ecosystem exposed to the serious effects of climate change complete the cocktail of factors that define the continent's challenges in its quest to respond effectively to climate change. It is of the essence that these factors are carefully examined and addressed with a sense of purpose and urgency.

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[9] ADB, Climate Change in Africa, COP 25 Discussion Paper, December 2019
[10] WMO, Climate Change triggers food insecurity, poverty and displacement in Africa, October 19, 2021
[11] Ibid

The most immediate impact of climate change in Africa will be on livelihoods and in particular, agriculture – a basic means of sustenance in many African countries. Food security and water availability are likely to be affected by climate change with some of the key manifestations being the spread of vector-borne diseases and population migration especially into urban areas.[12]

It is imperative that Africa pays serious attention to climate change especially, in helping the poor and vulnerable cope with its impact. This demands a wholistic approach that draws in Africa's policy and development experts to consider strategies that address adaptation to climate change.

Relevant knowledge on the impact of climate change must be complimented by enabling legal, policy and institutional frameworks and appropriate mechanisms that strengthen adaptation, mitigate risks and ensure that climate change does not unduly disrupt livelihoods.

This will exert new pressures on those living in rural areas and increase migration to cities as people seek out alternatives. The irony is that those most at risk are not the most culpable which calls for a more responsive approach from Europe and other developed economies as well as Middle income and transitioning economies which must shoulder responsibility in assisting poorer countries address climate change. "The threats caused by global warming are by no means equally distributed among the world population; they disproportionately fall upon the socially weak and powerless. It is the poor who will have to bear the brunt of climate risks, not the rich producing them".[13] Rising global temperatures – largely the result of human influence and intervention – endangers the world's ecological balance.

[12] Joacim Rocklov & Robert Dubrow, Climate Change: An enduring challenge for vector-borne disease prevention and control, April 20, 2020
[13] Jorg Hass, Climate Change in Africa: Some lessons learned, Heinrich Boll Foundation, 2007

The challenges facing Africa are accentuated by its reliance on climate-dependent sectors such as agriculture and the strain exerted on the environment by population pressure and poverty, which further imperil environmental conditions.[14] In view of the fact that countries with lower levels of economic growth will be less suited to respond effectively to climate change, unlocking development potential is of the essence.

There is emerging consensus and confluence of opinion that climate change must be addressed not in isolation by individual countries but through a global compact that maximises on existing knowledge and resources. Within this context, closer collaboration between Africa and Europe is critical not only because of shared historical ties but also the understanding that, notwithstanding different contexts and circumstances, climate change presents a present and clear challenge to both continents and beyond.

Arguably, Europe is much better predisposed to deal with some of the most immediate challenges of climate change compared to Africa, which due to resource constraints, is not as well equipped to withstand many of the anticipated impacts of climate change. For the continent, the immediate challenges come in the form of potential dislocation livelihoods especially in agriculture and livestock production. It cannot be gainsaid that in the case of both Africa and Europe, strategies that enhance resilience and reduce peoples' vulnerability will be critical to development and future stability.

Greenhouse emissions: Taking the burden of responsibility

Reducing high levels of greenhouse gases is now widely acknowledged as one of the most critical factors in mitigating the impact of climate change.[15] Europe and other developed countries alongside middle-income countries like China and India are substantially to blame for these emissions*. By extension, they bear a disproportionate burden in cutting back on GHG emissions.

[14] AGRA, Irrigation doubles African Food Production, January 7, 2019
[15] UN News, 5 things you should know about the greenhouse gases warming the planet, January 8, 2022

While the costs of addressing climate change are enormous (estimated at 1.6% of GDP by 2030[16]), the cost of inaction is greater – estimated at five to twenty times this level.[17]

Europe can take several practical steps to minimise Africa's vulnerability to climate change. For instance, cutting down on GHG emissions could prevent temperatures from rising above 2 degrees centigrade of pre-industrial levels as is now widely predicted. There is unanimity that as temperatures rise, the potential for climate change to create a damaging and irreversible impact grows.[18] These underline the urgency to cut back on GHG emissions and forestall such an eventuality.

In the current set of circumstances, the EU faces a significant burden in reducing its emissions substantially within a limited timeframe. Current estimates call on the EU to cut back GHG by about 80 percent by 2020 to attain a threshold lower than the 1990s levels.[19] However, at current rates, it is not likely that this ambitious target can be met.

This entails enlisting Africa's support to help cover for the shortfalls, even if this will not meet the full target. In this area, Europe must explore means and ways of providing financing, technology transfer and capacity building to assist Africa in its quest. Such support should *inter alia* prioritize investment in adaptation and increased use of renewable energy to mitigate the impact of climate change and secure long- term sustainable development.

In the absence of such measures, climate change will exert new strains on Africa – especially the poorest countries – at a time when the development trajectory is rife with other challenges such as low industrialization, poor

[16] UNDP (2007), The Struggle Against Climate change, NY
[17] The Guardian newspaper, June 2008 quoting Lord Stern
[18] Africa – Up in Smoke 2: The Second Report on Africa and Global Warming, Working Group on climate Change and Development, 2008
[19] European Commission, Progress made in cutting emissions. 2020

terms of trade and a financial and trade architecture not amenable to Africa's integration in the global economy.[20]

It is noteworthy that some countries in Africa are already taking proactive steps to address the challenges posed by high levels of GHG emissions. For instance, South Africa has announced plans to cap GHG emissions. Current projections warn that South Africa, the continent's largest emitter, could quadruple its emissions by 2050 unless preventive measures are put in place. The country is working on a regulatory, fiscal and legislative framework that will make tracking and reporting of emissions mandatory.[21]

South Africa's Minister of Environmental Affairs and Tourism, Marthinus van Schalwyk recently warned that, "if South Africa continues to grow without a carbon constraint, we face the threat of border tax adjustments or trade sanctions from key trading partners and the destruction of thousands of jobs in the high emitting trade exposed sectors".[22]

The country plans to generate 15 percent of its electricity from renewable sources by 2020 and sees addressing climate change as key to issues of poverty and sustainable development.

Agriculture: Africa's soft under belly

A significant percentage of Africa's population depends on agriculture – mainly rain fed agriculture – for their livelihood. As a sector, agriculture is an important contributor to GDP in most countries and is, therefore, key to economic development. Climate change will lead to climate variability and will, in all probability, affect crop seasons and the adaptability of current crops to changing climatic conditions.[23]

[20] World Bank, Expanding African Trade to Boost Growth and Reduce Poverty, February 2022
[21] Climate Home News, South Africa sets out to tighten 2030 emissions target, 2021
[22] Business Daily Newspaper, March 5, 2009
[23] See note 14

Today, Africa is 0.5 degrees centigrade warmer compared to temperature levels 100 years ago.[24] 2005 was Africa's hottest year and since 1987, temperatures have been much warmer compared to previous years.

The arid and semi-arid areas have always been most vulnerable and climate change could exacerbate this vulnerability further to the detriment of pastoralists. Marginal areas and range lands face prospects of lower production as a consequence of climate change because of their fragile nature.

Africa's heavy dependence on rain-fed agriculture means that disruptions in weather patterns will impact adversely both subsistence agriculture and livestock production. The livelihoods of pastoralists and subsistence farmers will suffer from the consequences.

The overall impact of climate change on Africa's agriculture cannot be fully discerned but the projections are worrying. It is estimated that crop yields in Africa willreduce by 10 per cent overall.[25] Since agriculture is the main source of livelihood and sustenance in Africa – contributing on average, 40 percent of Gross Domestic Product – the socio-economic cost will be significant.

The full scale of the impact of climate change on national economies will in large part depend on the relative importance of agriculture to GDP in individual countries. Countries whose economies depend predominantly on agriculture face the prospect of being forced to divert more resources towards food imports to plug shortfalls caused by crop failure.[26]

The 1991 drought in Zimbabwe, for instance, increased the country's external debt from 6 percent to 12 percent of GDP between 1991 and 1992.

[24] IPCC, 2001
[25] Source: OECD, 2006
[26] World Bank, African Food Systems: The Importance of Climate Adaptation, May 2022

On the other hand, the external debt rose from 36 percent of GDP in 1991 to 60 percent in 1992 and 75 percent by 1995.[27] The La Nina drought resulted in a 16 percent loss in GDP during the 1998-1999 and 1999-2000 financial years.[28]

In other cases, countries that depend on a narrow range of cash crops for export earnings could lose much as a result of climate change affecting the ideal growing conditions for certain crops. For instance, it is projected that an increase of 2 degrees in Uganda's temperatures could drastically reduce the area ideal for growing robusta coffee – a major source of foreign exchange earnings.[29]

Beyond impacts on cash crops, the other main area of concern relates to how climate change will affect food security. Food production has been on the decline in Africa and the continent is at present unable to meet the food security needs of an ever- growing population. The FAO has estimated that to meet Africa's food security needs by 2050, the continent would need to quadruple food supply.[30] The Stern Review[31] has on its part concluded that a temperature increase of 3 degrees could expose between 125-275 million people in Africa to the risk of hunger.

Climate change, therefore, represents a new front of challenge that complicates and compounds this situation as more people are likely to be exposed to hunger and malnutrition as scope for increased production diminishes.[32]

Malnutrition is a significant challenge in sub-Saharan Africa where an estimated 40 percent of the population is under-nourished.[33] People affected

[27] Source: IMF, 2003
[28] Source: World Bank, 2006
[29] Source: DFID, 2004
[30] FAO, Food Production Index (2002)
[31] www.sternreview.org.uk
[32] Ibid
[33] Source: WHO, 2005

by malnutrition are at a higher risk of succumbing to illness, which means that, as climate change creates more conducive conditions for diseases like malaria, the food insecure could become more vulnerable to morbidity and mortality.[34]

Across many countries in Africa, food insecurity is a major development trajectory and one inextricably linked to poverty. Poverty leads to unsustainable use of resources and environmental degradation such as poor farming practices, over-grazing and reliance on wood as the main source of fuel.[35]

As the immediate survival needs of people take precedence over the long-term imperative of protecting the environment, climate change will increasingly become a defining challenge to human survival in Africa.[36] Climate change is bound to affect different sectors of Africa's economies to the detriment of overall socio-economic well-being. For instance, the tourism industry, a major source of foreign exchange earnings for several countries in Africa faces the stark threat of frequent droughts and increased loss of natural habitat due to human encroachment which threatens the survival of wildlife and hence, tourism.[37]

As climate change affects habitats, a migration of species to more conducive habitats will be experienced. It is possible that certain species may be lost altogether as a result with obvious implications on food security and balance in the ecosystem. Estimates point out that by 2085, between 25 to 42 percent of plant species in Africa could lose their natural habitats.[38]"Poor people, especially those living in marginal environments and in areas with low agricultural productivity in Africa, depend directly on genetic, species and

[34] IFRC, Climate Change Impacts on Health: Kenya Assessment, April 2021
[35] GoK, Response to Climate Change & Opportunities for Sustainable Development, Nairobi, 2008
[36] World Vision, Poverty & the environment, 2006
[37] Portia Sifolo & Unathi Henama, Implications of Climate Change for tourism in Africa, January 2017
[38] McClean et al, 2005

ecosystem diversity to support their way of life. As a result of this dependency, any impact that climate change has on natural systems will threaten the livelihoods, food intake and health of the population".[39]

But even in other regions outside the arid and semi-arid zones, erratic and cataclysmic weather conditions are bound to affect agricultural activity and the means of economic sustenance – especially, for subsistence farmers who have limited economic options.This means that the manifestation of climate change is not remote nor a possibility and arid and semi-arid areas inhabited mainly by pastoralists are at the knife-edge of these changes now and into the future. These regions are likely to become drier, forcing changes in lifestyle patterns where the already fragile ecosystem is further compromised deepening poverty as a result.[40]

It is obvious that adaptation strategies must be urgently prioritised and the necessary institutional structures put in place to mitigate future impact and ensure that communities transit without much difficulty. It must be noted, though, that climate change could, in some cases, impact positively on environmental conditions in arid areas while at the same time creating more adverse conditions in agriculturally productive regions which leads to net gains and losses. The extent of the impact will, therefore, depend on what tips the balance and will vary across different countries and regions.

Coming to terms with the cost of climate change

Africa is today the continent most vulnerable to drought. In particular, the Africa Sahel which borders the Southern part of the Sahara Desert, is highly prone to drought, a situation expected to become more precarious once the full impact of climate change sets in. Since the 1960s, droughts have hit the Sahel, Horn of Africa and Southern Africa at regular intervals.[41]

[39] op. cit p.6
[40] WMO, Climate Change triggers food insecurity, poverty and displacement in Africa, October 2021
[41] Michela Biasutti, Rainfall trends in the African Sahel: Characteristics, Processes and Causes, July 2019

With about a third of Africa's population living in drought prone areas, a potential worsening of this situation owing to climate change portends a serious challenge to the livelihoods of people living in drylands and range lands and A worsening of climatic conditions in these areas will exert undue strains on people's coping mechanisms because droughts often result in widespread disruptions for the affected communities while recovery takes long and is often disrupted by subsequent drought cycles.[42]

Droughts and floods are projected to become more common and intense. In more recent memory, the El Nino floods in 1997/98 over many parts of Eastern and Southern Africa highlighted the scale of destruction and suffering that could result from extreme weather conditions. While the El Nino floods wreaked havoc on the physical infrastructure and led to loss of human and animal lives, the La Nina drought had an equally devastating impact on agriculture and the livestock sub-sector.[43]

Most countries in Eastern and Southern Africa struggled to cope with these weather extremes and in most cases, donor support was sought to repair broken down infrastructure or enable communities cope with the effects of drought. Projected into the future, harsh and adverse climatic conditions will disrupt livelihoods in Africa and exert new pressures on donors even as they struggle to cope with the effects of climate change in their own backyards.

Water: The challenge of keeping streams flowing

Some of the dramatic manifestations of climate change in Africa have been evident in the gradual disappearance of the ice-caps on Mt. Kilimanjaro (Africa's highest mountain) and Mt. Kenya in the neighbouring country.[44] Rivers originating from these mountains have depended on the ice caps for their flow, a reduction of which has depleted their water flow affecting communities living downstream and cities and urban towns dependent on

[42] Ibid
[43] CARE, El Nino in 1997-98: Impacts & CARE's Response, June 1998
[44] BBC, Climate Change: Kilimanjaro & Africa's last glaciers to go by 2050, November 2022

these rivers for their domestic and industrial water supply.[45] Continued reduction of the ice-caps bodes ill for many rivers which face diminishing water flows or drying up in the worst of cases.[46]Climate change also poses a threat to fisheries and, by extension, the livelihoods of those dependent on these resources and ecosystems[47]. Rises in temperature in water masses could threaten fish, marine life and ecosystems. As a result, fisher folk communities dependent on these resources will experience threats to their livelihood and survival.[48]

Beyond marine resources, climate change is expected to have a varying impact on the availability of freshwater in various parts of the world. This is of particular concern to Africa where an estimated 300 million people presently lack access to portable water or adequate sanitation.[49]

There is a risk that in communities where climate change exerts environmental pressures leading to migration and competition over natural resources (such as pastures and water), tensions and conflicts could spiral into a breakdown of peace and social harmony.[50] It must be cautioned, though, that climate change on its own, cannot be the cause or reason for conflict. But it can be a potent trigger where other factors such as poor governance and political instability are present hence exacerbating conflict over diminishing resources.[51]

The reality that a significant number of people in Africa live in the drought-prone regions of the Sahel, Horn of Africa and Southern Africa means that the implications of climate change are stark. A reduction in water quality, will ultimately spurn negative impacts on health and biodiversity.[52]

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[45] Ibid
[46] Ibid., op. cit
[47] Essam Yassin Mohammed & Zenebe Bashaw Uraguchi, Impacts of Climate Change on fisheries: Implications for food security in sub-saharan Africa, 2013
[48] Ibid
[49] Source: UNEP, 1999
[50] Kala Hubbard, Global Warming Risks Increase in Conflicts, October 2021
[51] Ibid
[52] IFRC, Climate Change Impacts on Health: Kenya Assessment, April 2021

The combination of poor sanitation and water quality combine to present a sad prognosis for people living in deprived neighbourhoods who could face renewed and increased threats to their health and survival as additional resources are inevitably diverted away from other development priorities to address these emerging challenges.

For this reason, climate change – granted its potential to, among other things, enhance water stress – is a serious policy issue for Africa and one that demands clear strategies for mitigation.

Population pressure triggers fresh alarms

In many countries across Africa, population pressure has become a critical factor on the environment. As human settlements grow in the high to medium potential areas, agricultural activity is exerting tremendous pressure on the environment and has in many cases led to over-exploitation of resources.[53] In the rangelands, this pressure takes the form of new pressures on a fragile environment threatened by deforestation as demand for alternative energy sources grows. These pressures on the environment have led to land degradation and higher levels of GHG emissions. Climatic extremes like floods and droughts continue to increase largely due to the agency of human encroachment on the environment diminishing its capacity to withstand these consequences.[54]

The emission of GHG is of particular concern because it increases with deforestation and hence reduces the carbon sinks. This means that environmental conservation, especially preservation of forests, is critical in reducing GHG emissions, minimising land degradation and ensuring better resilience to climate change.

[53] Relefweb, Migration, agriculture and climate change: Reducing vulnerabilities and enhancing resilience, December 2017
[54] Ibid

Health: The precarious link to climate change

Africa faces significant public health challenges largely in the form of tropical diseases. These health challenges remain obstacles to the continent's development and manifest an intractable link to poverty. The continent's development trajectory is, therefore, closely linked to its capacity to respond effectively to the disease burden which often draws people away from productive economic activity and diminishes household savings.

Climate change could now open a new front to this challenge where it affects the profile and preponderance of tropical diseases on the one hand and increases the vulnerability of a growing number of people to some of these diseases on the other. This will in turn necessitate increased investment and prioritisation of public health at a time when the health infrastructure in many countries is poorly resourced as countries struggle to mobilise resources for other equally demanding needs such as education and infrastructure.[55]

There are already several climate-sensitive diseases that the continent is struggling to contain such as the Rift Valley fever, which affects both livestock and human beings, and one that bears a close correlation to increased rainfall. Climate change could further affect this disease's prevalence by creating more ideal environmental conditions for its incubation and spread.[56]

The 1997 El Nino rains showed how seriously adverse climatic conditions could affect livelihoods and hence, the potential risk that future climate change portends. It is estimated that 80 percent of livestock in Northern Kenya and Somalia was wiped out by the Rift Valley fever as a result of the El Nino rains.[57]

[55] IFRC, Climate Change Impacts on Health: Kenya Assessment, April 2021
[56] National Center for Biotechnology Information, The effect of climate change on cholera disease: The road ahead using artificial neutral network, 2019
[57] CARE assessment, El Nino in 1997-1998: Impacts & CARE's Response, June 1998

Another disease – cholera – could increase in many parts of Africa affected by poor sanitation where climate change leads to an increase in temperatures – considered ideal for the cholera bacteria in tropical zones with poor sanitation and hygiene standards.[58]

Africa's most intractable public health challenge – malaria – is already moving into previously malaria-free zones such as the highlands as a result of climatic changes. Climate change – especially that leading to an increase in temperatures – could create more ideal conditions for the malaria-carrier mosquitoes especially in the highlands which have been largely malaria-free zones.[59]

Unless malaria control initiatives are stepped up, it is estimated that a 2 degree rise in temperatures could expose an additional 40-60 million people in Africa to the disease. Much higher rises in temperature would increase these numbers significantly.

Rising coastlines: A swing on the sea shore

It is now widely agreed that climate change will lead to a rise in sea-level which will reduce the buffer role of coral reefs and mangrove systems along coastlines.[60] Communities living along coastlines will as a consequence face an increased threat of flooding and forced evictions as the coastline encroaches on their land.[61] The socio- economic cost of such relocations could be onerous on the part of many countries with significant coastal communities and tourist facilities along coastlines. Low lying countries like the Netherlands, which have reclaimed large swathes of land from the Sea, are particularly averse to the risk of flooding and dislocations.[62]

[58] See note 20 above
[59] Malaria costs Africa more than US$12 million annually and slows down economic growth in Africa by 1.3 percent annually.
[60] Alasdair James Edwards, Impact of Climate Change on Coral Reefs, Mangroves & Tropical Seagrass ecosystems, 1995
[61] Ibid
[62] UNDRR, Flooding, Climate Change and limited Insurance Coverage in the Netherlands, June 2022

To scale back the high costs associated with a rise in sea levels and potential flooding, substantial resources will need to go towards the construction of dykes and other preventive infrastructure. While this will entail diversion of significant resources away from other development priorities, the likelihood is that few countries will be able to underwrite the cost of such infrastructure. This means that communities living along coastlines will be significantly exposed to the vagaries of climate change.

A closely watched phenomenon is the rising sea temperatures and its impact on land adjoining large water masses. The Sahel region and Southern Africa have both received less rain in recent years largely attributed to the warming up of the Southern Atlantic and Indian Oceans respectively.[63] This warming up in the two oceans has resulted in the rain being drawn to the south rather than the Sahel in the first instance while in the case of Southern Africa, there has been less overland rainfall as more convectional rain falls above the warm ocean. [64] These changes are largely attributed to increased greenhouse emissions and according to Dr James Hurrell, "the Indian ocean shows very clear and dramatic warming into the future, which means more and more drought for Southern Africa".

Europe and Africa: Common cause amidst shared challenges

Europe has broad climatic variations within its geographical spread from the Baltics to the Mediterranean and the Atlantic to the Black Sea.[65] In each of these regions and zones, the actual impact of climate change will vary.From the outset, it must be pointed out that Europe is much better placed to mitigate the adverse impact of climate change. Unlike Africa, Europe can mobilise substantial resources to respond to climate change and is already more proactively engaged in anticipating and addressing the impacts of climate change.

[63] Michela Biasutti, Rainfall trends in the African Sahel: Characteristics, processes and causes, July 2019
[64] Ibid
[65] European Geosciences Union, Climate Change in the Baltic Sea Region: A summary, 2022

Still, climate change is expected to have varying impacts on Europe and other developed countries. Generally, colder countries, which are also located at higher altitudes, will benefit from warmer temperatures. This will, in turn, increase crop yields and could lower heating costs during winter occasioning savings to households.

On the flip side, countries at lower altitude levels and already facing water scarcity will experience aggravation and limited water availability will inevitably affect irrigation-based agricultural production and hence, livelihoods.[66]As is the case with Africa, climate change is no longer a distant possibility but a present reality. Already, a number of countries in Europe and other developed countries are already exposed to variations of extreme weather such as floods, drought and heat waves. These phenomena will become more frequent and widespread in the future increasing the costs of coping mechanisms and interventions.

In the UK for instance, an increase in temperature of between 3-4 degrees is expected to increase losses resulting from floods from the current level of 0.1 percent of GDP to double or quadruple depending levels depending on actual temperature increase. [67] At the same time, water availability in Southern Europe is expected to decline by between 20-30 percent where temperature go up by 2 degrees. Water availability is projected to fall by up to 50 percent should temperatures increase by 4 degrees.[68]

A more immediate area of concern regards weather-related deaths. Heat waves have become more regular and are a cause of death with growing frequency.[69] The 2003 heat wave in Paris led to the death of 15,000 people and additional losses run into $15 billion linked to losses incurred in farming,

[66] Unite States Environmental Protection Agency, Climate Impacts on Coastal Areas, 2017
[67] UK Government, Climate Change Now, October 2014
[68] Schroter et al. (2006) and Arnell (2004)
[69] WHO, Heatwaves, 2020

livestock and forestry sectors arising from the combined effects of drought, fire and heat stress.[70]

These conditions are expected to increase in frequency going into the future, which means that climate change will open new strains on European economies and increase risks to survival. As regards the latter, people living in the cities will be at a much higher risk due to other factors such as air pollution which will compound the effects of heat waves.[71] Beyond heat waves, cold-related deaths are expected to decline in the higher altitude European countries where warmer winters will lower mortality rates.[72]

The incidence of winter and summer brings to the fore, the implications of climate change on energy heating costs.[73] While actual costs will largely depend on the level of temperature variations, climate change is expected to have a minimal impact on Europe's energy bill. In the case of Italy for instance, heating costs could reduce by up to 20 percent in winter as a result of warmer temperatures and increase by 30 percent in summer – a variation of only 10 percent overall.[74]

Tourism is an important sector for several European economies[75]. It is likely that climate change will affect levels of tourism to certain destinations where climatic conditions are the main pull factors. An array of various factors such as increase in water stress, heat waves and forest fires in the Mediterranean could impact adversely on tourism. For Northern Europe, extreme rainfall and flooding resulting from melting of the ice glaciers on the Alps will also impact on tourism.[76]

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[70] Source: Munich Re (2004)
[71] WHO, Cities' Impacts on Climate, 2020
[72] Patrick l. Kinney, Winter Season Mortality: Will Climate Warming Bring Benefits?, 2016
[73] Matthew Ranson, Lauren Morris & Kats-Rubin, Climate Change & Space Heating Energy Demand: A review of the literature, August 2017
[74] European Union, Energy & Climate Change, August 2017
[75] Tourism is a major economic activity in the European Union with wide-ranging impact on economic growth, employment, and social development.
[76] Climate ADAPT, Climate Change as a threat to tourism in the Alps, 2002

Climate change presents opportunity for convergence and co-operation between Europe and Africa. One such prospect relates to carbon trade under the Kyoto Protocol under which European countries – alongside other developed countries – could lower their greenhouse gas emissions by financing projects in Africa geared towards reducing their GHG emissions. Under the Protocol, industrialised countries are required to reduce GHG between 2008-2012 to levels that are 5.2 percent lower than those of 1990.[77] The carbon market is a potential avenue that could enable African countries address climate change while fighting poverty by supporting the preservation of forests and other environmental resources.[78]

Conclusion

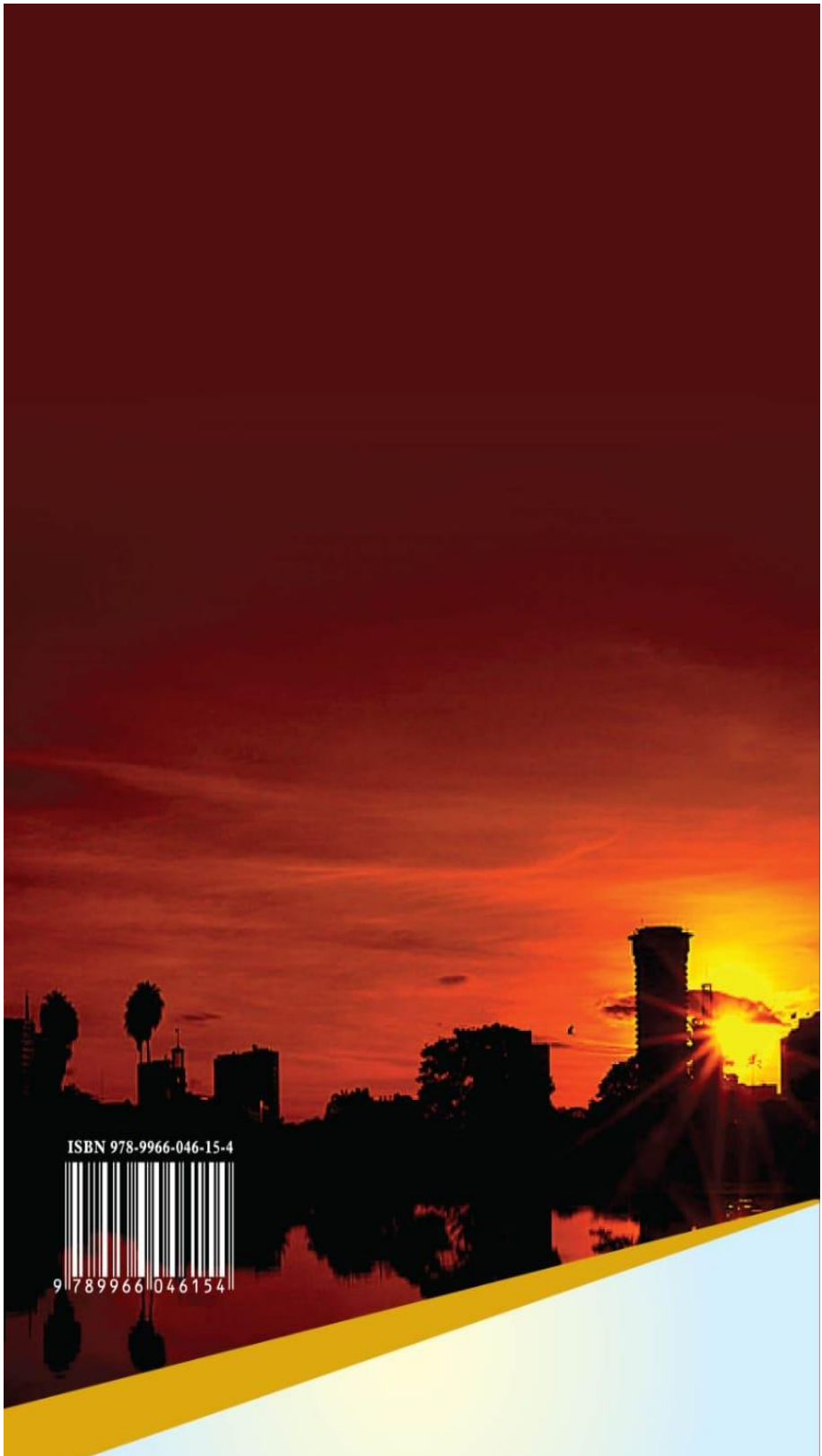
The greatest dilemma facing African countries relates to whether they will be able to reduce their own vulnerability before climate shocks become overbearing and unduly strain their development potential. The experience of past extreme climatic conditions such as the El Nino floods and subsequent La Nina drought showed the heavy economic costs that can be visited upon affected countries within a relatively short span of time.

Climate change presents a multiplicity of challenges because of its obvious link to broader development issues. By creating new pressures on poverty levels, food insecurity, disease burden and conflict over resources, climate change in Africa transcends environmental concerns.

At its heart, it is a governance and development issue which must be urgently addressed to secure and safeguard livelihoods and basic survival. Because the full extent of its potential impact is not yet fully understood, much less appreciated, more research and awareness creation is needed to better prepare African countries and build their resilience as a result.

[77] The Kyoto Protocol was adopted by the UN on December 11, 1997
[78] Climate Champions, African Carbon Markets Initiative launched to dramatically expand Africa's participation in voluntary carbon market, November 2022

Because climate change is a shared challenge for both Europe and Africa, it must help foster common cause and become a bond for meaningful co-operation in such areas as research, analysis and resourcing geared towards strengthening Africa's capacity at adapting and mitigating its potential adverse impacts. African governments, on their part, must seize the burden of responsibility to re-focus development strategies and interventions towards increased prioritization aimed at managing the risks of climate change.



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