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Humanitarian aid green technology innovations, Climate financing and sustainable development in Kenya

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Abstract

Climate change has many humanitarian impacts such as drought, floods, landslides, extreme weather conditions requiring urgent response that cost billions of dollars. On the other hand, humanitarian aid responds to these crises with little consideration to dangers posed by materials used during response and poor waste management. These exacerbate the risks associated with climate change in the poor developing Countries including Kenya. This study argues that there is need for humanitarian aid agencies in Kenya to use green technology and innovations in humanitarian response and also improve waste management strategies by collaborating with private sector. There is need for government and Non-Governmental organizations to finance and implement climate change friendly policies. Climate financing could reduce climate change related emergencies and significantly reduce humanitarian operations in the affected areas in Kenya particularly in Counties located in Northern Kenya such as West Pokot and Turkana. According to Sustainable Development Goals report 2018 the rate of global progress has not been keeping pace with the ambition of vision 2030, necessitating immediate action by stakeholders as guided by Paris agreement, SDG 13 on Climate Change and Sendai Framework for Disaster Risk Reduction 2015-2030. Also, UN Disaster Risk Reduction report stated that over the last two decades economic losses from extreme weather amounted to trillions of dollars. Financing implementation of Kenya climate ambition requires significant public and private finance. According to UNDP in 2020 an estimate of USD 40B was needed for the next ten years (2020-2030) to implement climate mitigation and adaptation action, so far little has been done. The research was conducted using integrated literature review with the aim to assess, critique, and synthesize existing

literature on a humanitarian aid green technology innovation, climate financing and climate change in a way that enables new theoretical frameworks and perspectives to emerge. Findings indicate that there is need for humanitarian aid organizations to integrate green technology innovation in the humanitarian response in order to reduce negative impact on climate change in Kenya. In the absence of clear policies on climate financing the challenge of climate change still exists and is likely to challenge the Africa Union Agenda 2063. There is need for collaboration and partnerships among the government, counties, NGOS as well as private sector in order to reverse the climate change trend.

Key words: Climate change, Kenya, climate finance, humanitarian aid green technology innovation, Private sector

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1. Introduction

The study focuses on humanitarian green technologies innovations in the digital era to combat the effects of climate change through climate financing. There has been increase in natural disasters in Northern Kenya counties that has called for humanitarian responders to offer their support to save lives. Some of the disasters include drought affecting both human and animals, sever hunger and lack of drinking water. According to Kenya Red Cross society, 2024 recorded 100,000 households affected by floods in March to April 2024 alone needing humanitarian assistance. It is becoming increasing difficult for humanitarian responders to continue ignoring the effects of their activities on environmental degradation due to the global importance of climate change Njora, B., & Yılmaz, H. (2022). Little is being done about it citing lack of funding among other challenges. The study has critically examined existing literature on humanitarian response projects and environmental degradation and climate change.

1.1 Humanitarian aid, climate change and sustainable development

Little has been in relation to humanitarian aid effect on climate change in Kenya, while Kenya has been a leader in addressing climate change and was one of the countries to enact a comprehensive law and policy to guide climate action. Currently, the entire humanitarian system, along with humanitarian organisations, is ill-prepared and lacking the necessary financial, technical and capacity resources to effectively address the multifaceted impacts of the climate crisis (Steinka, 2023). The climate change policy 2016, climate change Act 2016, climate change amendment Act 2023, National Climate change action plan iii 2023-2027, climate change (carbon markets) regulation 2024 and the long-term low emissions development strategy 2022-2050. Even with these good policies without climate financing it becomes difficult for the country to implement them and therefore difficult to combat the challenges posed by climate change. These policies articulate Kenya's priorities that include climate adaptation, deforestation and forest degradation, landscape restoration, climate smart agriculture, energy efficiency, drought and flood risk management. When climate change root courses are addressed the humanitarian aid organizations would have less emergency response projects in these areas.

Actions of humanitarians aid responders further make the situation even worse given the materials used during humanitarian aid response as well as poor waste management strategies. Seifer, Kunz and Gold (2023) argues that there is need for sustainable conditions for the refugees and operations innovations are needed to find sustainable solutions for refugee camps. During emergencies humanitarian supply chains need to respond swiftly, very often without time for good planning that may end up in excessive waste and emissions. Singh, 2024 argues that technology facilitated collaboration and agility can reduce operational cost and reduce the response time minimizing environmental impact. This short-term focus on saving people's lives during disaster responses may harm communities and the planet in the long-run.

Humanitarian responders interact with environment in many ways whether they are responding to natural disaster or conflicts. A lot is known about the damages caused by the environment such as earthquakes, tsunamis, hurricanes, floods, droughts, landslides, drought among other natural disasters as well as damages caused by conflicts, however little is known about how humanitarian responders contribute to damaging the environment while implementing humanitarian projects on the ground. Their activities contribute to environmental degradation that sometimes have short term or long-term effects to natural environment (Kelly, 2004). In Kenya clearance of land for habitation of refugees or internally displaced persons lead to cutting down of trees, drilling of boreholes close to each other contribute to depletion of underground water in some areas especially near refugee camps (Brown, 2018).

Continuous use of firewood and charcoal as a source of fuel by the displaced persons and refugees has lead to deforestation in many settlement areas in Kenya. Few or lack of latrines constructed close to clean water sources lead to poor sanitation that cause widespread disease. All these and others lead to direct or indirect damage to environment, surprisingly the fact that clearance of forest is being done for an act of humanity makes many people to believe it is right while it is not. This study embarks on making it clear how the humanitarian responders negatively affect the environment and what they can do to improve the current state of events in efforts to support the sustainable development goal 13 on Climate change.

1.2 Research Objective:

1.2.1 To examine the effect of humanitarian aid projects and climate change in Kenya

1.2.2 To determine the effect of humanitarian aid green technologies and climate change in Kenya.

1.3 Research Question

1.3.1 To what extent does humanitarian aid projects affect climate change in Kenya?

1.3.2 To what extent does humanitarian aid green technologies affect climate change in Kenya

2. Literature Review

Theory of obligation can be viewed as a theory of good that hold that actions are intrinsically right or wrong. The study is based on the theory of obligation often used in humanitarian contexts; obligation in part is defined as, what one should do. It is a deontological theory associated with a German Immanuel Kant (1724-1804) that maintains normative evaluations are rooted in some intrinsic features of an action which give rise to an obligation or duty. This theory fits in this research as humanitarian responders have an obligation to protect the environment and by doing so, save lives. The Humanitarian organizations need to be accountable for policies and their effects intended or not. Consequently, it is important to recognize pragmatism real world conditions that constraint actions and impact the results of those actions.

Sustainability is important one need to choose initiatives that are able to be sustained over time and this requires resources and committed staff. Because an emphasis on pragmatism implies a need to acknowledge the inability to solve all world problems at once. There need to be some mechanism determining where to apply scarce resources, where to triage activities. The ethical principle of obligation to assist can structure our response. Humanitarian organizations have an obligation to protect the environment because it is right to do so and they need to work towards this cause irrespective of reward or punishment. This because humanitarians know that their actions affect the environment in a negative way and their mere ignorance does not solve the problem in this era of focus on climate change. As such they are obliged to act in accordance with existing laws, regulations and policies that aim to improve the environment.

The research has also used Social Cognitive theory, this theory holds that portions of an individual knowledge acquisition can be directly related to observing others within the context of social interactions, experience and outside media influence. Social cognitive theory was advanced by Albert Bandura as an extension of social learning theory. The theory states that when people observe a model performing a behaviour and the consequences of that behaviour, they remember the sequence of events and use this information to guide subsequent behaviours (Bandura, 1986). Humanitarian organizations have been engaging in implementation of humanitarian aid projects for a long time and they have been able to view the consequences. As such they are able to learn that not supporting the environment is critical to their very work of saving lives.

In Countries where they took further steps after offering aid to plant trees there is lesser occurrence of floods or landslides reducing levels of emergencies. The theory argues that humans depend on replication of the actions of others depending on whether people are rewarded or punished for their behaviour and the outcome of their behaviour. More often than not funding of environmental mainstreaming is little or unavailable and organizations that may have utilized their own funding to support the environment may not replicate it due to lack of reward, in this case additional funding for the environment. As such many of them chose to engage in the core humanitarian activities and not concentrate on environment mainstreaming in their projects.

3. Methods

This study was conducted using integrative review with the aim to assess, critique, and synthesize the literature on a humanitarian technologies and climate change in a way that enables new theoretical frameworks and perspectives to emerge. Integrative review is good for emerging topics to enable create initial or conceptualization and theoretical models as argued by Covington, 2000; Gross, 1998; Mazumdar, Raj, & Sinha, 2005).

The basics steps involved in conducting a literature review using four phases; designing the review, conducting the review, analysis and writing up the review. This process was developed from practical experience and is a synthesis of and influenced by various standards and guidelines suggested for literature reviews (e.g., Liberati et al., 2009; Transfield et al., 2003; Wong et al., 2013).On search method for identification of studies, the researcher identified relevant studies in English (published, unpublished, in press and ongoing). Sources of data included peer reviewed journals, internet sources, organization reports, government reports and printed books. By building on and synthesizing these different types of literature reviews, this paper takes a broader view by summarizing and integrating the different perspectives on the topic of humanitarian technologies and climate change.

4. Results

4.1 Humanitarian action and climate change

Humanitarian aid activities are triggered by acts of nature or human that disrupts everyday lives. This is informing of natural disasters such as earthquakes, floods, tsunami, hurricanes, and landslides among others while human acts include conflicts that threaten people's lives. These activities trigger emergency need due to sudden lack of them at the onset of the disaster. As such they require swift response that sometimes ends up being quick fixes that negatively affect the environment soon after or years later.

Barret, Murfit and Venton (2007) argue that humanitarian projects primarily focus on reducing suffering and saving lives of people in distress. Response time is usually short, finances are limited and logistical infrastructure disrupted. Even in this confusion of events and pressure to prevent more deaths and suffering, humanitarian responder's actions impact on environment and they have a responsibility to protect it. As such failure to consider the environment when implementing can result to environmental damage with consequences for the very people the response is designed to assist (Njora & Yılmaz, 2022).

The way the humanitarian projects are managed at the disaster site is a big environmental issue as attested by response of disasters like earthquake in Haiti in 2010, Tsunami response in 2004 among other disasters. The way humanitarian workers respond to disasters has potential to impact on the environment positively or negatively. To some humanitarian responders, considering the environment during implementation of humanitarian aid projects seems against the norm of humanitarian assistance. However, taking few minutes to consider how organizations response impact on the environment could be the only thing that could save it years to come. At asserted by Kelly (2004) in the heart of humanitarian crises may not look like the best time to start hugging trees, as trying to combine could jeopardize both.

Notably, environment contributes large part in origin of humanitarian crises both natural and manmade. This is because destroyed nature destroys humans and also human competition of natural resources results to conflicts. For example, as argued by Irish Aid (2007) competition for animal pastures and water among pastoralist communities is common in Sub-Sahara Africa including Kenya. If not addressed this competition for natural resources can lead to worsened or protracted conflict. Humanitarian actions have previously affected the environment negatively. For example, Kosovo refugees in Kukes in Albania exceeded local waste handling capacities and as a result refuse tips overflowed and raw waste was dumped into streams Njora, B., & Yılmaz, H. (2022).

Rwandan refugee camps in Tanzania and the displaced in Darfur the unmilled maize provided as food aid took longer to cook and led to more tree cutting for fuel and in Darfur women risked their lives collecting firewood. In post tsunami, Indonesia concerns about deforestation led to a general shift towards building in bricks after realising more volume of wood was needed to fire bricks than needed to rebuild wooden houses (Irish Aid, 2007). In Latin America post hurricane, shelter programmes were built in areas liable to flooding thereby increasing the risk of inhabitants of future hurricanes. For example, In Haiti in 2010 and Nepal 2015 earthquakes caused large scale challenges of waste and sanitation.

In Gaza 2008-2009 conflict caused an estimated $34 million in damage to its water infrastructure. Using these examples critiques argue that such cases are misrepresented and miss reported because they reflect poorly on relief providers. Seifer, Kunz and Gold (2023) argues that the disparity between intent and reality prevents sustainable conditions for the refugees and therefore operations innovations are needed to find sustainable solutions for refugee camps.

Kenya is not an exception from these challenges Kakuma and Kalobei refugee camps in Turkana suffers from inadequate liquid and solid waste disposal, immense demand for firewood commonly used for fuel leading to exploitation of existing wood lots creating tension with host community (Brown, 2018). According to Okereke (2007) deforestation contributes to 20% to Green House Gas emissions and is the largest source of emissions from developing countries. Avoiding deforestation has benefits such as biodiversity, soil conservation and watersheds.

There is therefore need to work towards planting more trees in refugee camp areas. Also, sanitation is a challenge because every family cannot be allocated a latrine compromising sanitation that could lead to disease outbreak. Unmitigated destruction of the already scanty vegetation has resulted to catastrophic consequences for instance in Fafi, Dadaab and Wajir South whose land is fast transforming into a desert. There are more than 40 boreholes drilled at the refugee camps by Humanitarian responders at Dadaab camp, this has been depleting underground water sources as the aquifer is not recharging at the same rate as the amount of water extracted per day.

Humanitarian activities bring about deforestation, chemical spillage, use of expired drugs, expired foods, construction of latrines near water sources, problems of quick fixes without minding the environment, use of firewood and charcoal, air pollution and disposal of waste and unsustainable use of natural resources as well as disposal of debris (Sparling and Vroom, 2007).

Floods can exacerbate by deforestation caused by Internally Displaced Persons and refugees. For example, in Niger in 2005 drought and food crises, the response was too slow questioning the quality of early warning systems, appropriateness of proposed responses and capacity and preparedness of the humanitarian responders to respond to what could have been termed as predictable crisis. Conflict has rises in relation to water shortage as some use it for irrigation upstream and others downstream cannot get water for domestic use (Humanitarian Policy Group, 2008). This has happened in Nicaragua along calicoriver, Kenya Sagana River and other Countries. The reason is because over the long-term further depletion of natural resources such as water, farmland, pastureland and forest put vulnerable people at risk by reducing their livelihoods options and food availability. If not managed they have the potential to cause more damage to the environment. More displacement and suffering, forced migration, heightened social tensions.

4.2 Existing legal frameworks on climate change

There exist legal frameworks guiding how environment should be treated by humanitarian responders however in practice few organizations comply with these existing guidelines. More so due to existing barriers on mainstreaming. The International Humanitarian law article 55 provides for protection of the natural environment, stating in part, care shall be taken in warfare to protect the natural environment against widespread, long term and severe damage (UNEP, 2009). This protection includes prohibition of the use of methods or means of warfare which are intended or may be expected to cause damage to the natural environment thereby prejudicing the health or survival of the population. Sendai Framework for disaster risk reduction 2015-2030 which was adopted in 2015 in Japan set to complete the Hyogo framework for action 2005-2015 building the resilience of Nations and communities to disasters (UNDRR, 2015).

There was a commitment to address disaster risk reduction and the building of resilience to disaster with renewed sense of urgency within the contexts of sustainable development and poverty eradication and integrate as appropriate both disaster risk reduction and the building of resilience in to policies, plans, programmes and budgets at all levels and to consider both within relevant frameworks. Sustainable development goal 13 on climate change aims to take urgent action to tackle climate change and its impacts because climate change is caused by human activities and is threatening the way we live and the future of our planet (UN, 2018). Severe weather and rising sea levels are affecting people and their properties in developed and developing countries from a small farmer in Murang'a to business man in Dubai. Climate change is affecting everyone and especially the vulnerable, the poor and the marginalized groups, like women, children and the elderly (Humanitarian Policy Group, 2008). The problem can be addressed but we have to put more efforts.

Even with existing framework environment mainstreaming in humanitarian action planning and response face barriers. More often than not practitioners are often not sure what environment rally means and what sought of impacts they should be considering when designing projects leading to lack of consideration of environmental issues (Barret, Murfit, and Venton, 2007). There is little recognition of environment as a lifesaving priority despite the fact that people's initial survival after a disaster is often based on natural resources such as water, food, firewood and shelter. There is lack of institutional commitment at all levels from implementer to donor, in fact in some cases when the implementer is willing to address environmental issues, very little funding is reserved for environment mainstreaming which leave agencies only to give relief aid (UNEP and OCHA, 2014). There are few environment champions in humanitarianism who are difficult to find. Notably practitioners have competing pressures particularly during proposal development and the integration of cross cutting issue do not receive same attention as core relief efforts. Another challenge is exclusion of government in project design which often lacks contact with the natural resource management in charge.

Lack of environmental expertise when screening proposals lead to the omission of the activity and lastly few agencies has the mandate to enforce the principle of environmental mainstreaming.

Agencies need to be engaged in environmental mainstreaming and the business-as-usual model by humanitarians need to change. Mainstream and strengthen humanitarian program cycle management. Recognition and endorsement of rapid environmental assessment, training and capacity building and establishment of an accountability mechanism to ensure compliance and validation (Barret, Murfit and Venton, 2007). Technical guidance and operational manuals could help in planning and integrating environment in projects. Mechanism of preparedness and response. With existing frame works the humanitarian responders need to interact with them and forge way forward to promote environmental management and sustainability. The barriers need to be addressed for improved better environment (UNEP/UNOCHA, 2014).

4.3 Humanitarian aid green technologies

Humanitarian aid organizations can use green technologies to support climate change even though Bag, et. al (2020) argue that Humanitarian supply chain by their very nature require urgent reactions to unforeseen needs which make it difficult to plan effectively. As such integrating sustainability in to the traditional humanitarian supply chain practices continue to be a challenge to governments and humanitarian responders. There is therefore need for close collaboration with private sectors who can find innovations that address these humanitarian challenges. Eco innovations, green investment and green technology and help to quickly reach the goal of sustainable development, to reduce harmful impact on environment and adopt innovations (Primov, 2023).

Blockchain Technology has the potential to provide substantial benefits in the humanitarian sector, such as protected data sharing, supply chain, donor financing, cash programmes and crowdfunding. By providing a decentralised, verifiable source of data, Blockchain Technology can enable a more transparent, efficient form of information and data management (ICHA, 2018).

The shift by humanitarians to support transition from relief to recovery to long term development and sustainable livelihood is necessary. Such support can reduce the impact of future crises and improve environmental management. Also important is the need to strengthen the capacity of communities to prevent, prepare for and mitigate crises by integrating environmental issues in humanitarian response. Also (Singh, 2024) states that technology facilitated collaboration and agility can reduce operational cost and reduce the response time minimizing environmental impact.

Humanitarian responders can improve the environment for example an intervention using food for work in a clean-up campaign can be a good way of improving the environment as argued by Kelly (2004). Recently there has been emphasis on green procurement, utilization of locally available materials to minimize travel and carbon emissions, selecting suppliers with certified safe and sustainable products and practices.

In Kakuma refugee camp in Kenya, some civil society groups work with local community to promote access to affordable solar powered alternative lighting, and other distribute indigenous tree seedlings to control land degradation. Another example is Tajikistan risk reduction efforts that included a mapping of potential landslides common in mountainous areas. The community was encouraged to initiate efforts to reduce the impact of these hazards through reforestation and improved land use. This environmental stewardship is good disaster risk reduction strategy. Investing in disaster preparedness and locally implemented early warning systems can save lives and reduce cost of crises OECD (2019).

It is estimated that US $ 4-10 for every US$1 spent on disaster mitigation. There have been efforts by the World Bank to integrate risk reduction into development programmes (Irish aid, 2007). To reduce cutting down of tree for Cooking caritas in collaboration with Pesitho company introduced the solar powered cookers for refugee communities in Bidibidi refugee camp Uganda. (Caritas, 2024)

Relief organizations can protect the environment to prevent future disasters. The world food programme has supported soil conservation and reforestation programmes in refugee camps. This has been instrumental in protection against flooding, landslides and other natural disasters. In Kenya, Organizations are helping communities build sand dams that retain water from seasonal rainfall improving the community resilience to drought and water shortage conflicts. In Kenya 3000 seedlings of mangroves were planted in port reitz area by Kenya maritime Authority together with the local community in order to conserve the endangered mangrove forest (KMA, 2019).

Mainstreaming environment into humanitarian assistance, while recognizing that saving lives and livelihoods is the humanitarian imperative, humanitarian responders can ensure that crisis relief has little negative impact on the environment (Barret, Murfit, and Venton, 2007). The complex interaction among humans, environment and crisis should be reflected in the needs assessments. Also, efforts should be made for rapid environmental screening even for the most urgent interventions. Proper coordination of humanitarian activities should be taken into consideration to ensure most of the agencies work towards better environment management during interventions. Besides the donors should be ready to fund activities to assess the environment before and after a disaster takes place (Irish aid, 2007). The community remaining behind after a disaster should be informed and trained on improving the environment thereafter for sustainability of their lives. Agencies and governments need to support conflict resolutions over natural resources so that the community can see the need for better environment.

According to UNOCHA/UNEP (2014) some recent emergencies benefited from Environmental Impact Assessment or Rapid Environmental Assessment however in some cases technical assistance may be required to initiate and coordinate this preliminary assessment but it should be done in conjunction with government, partners and in consultation with community members (Kelly, 2005).

The temporary nature of humanitarian engagement stands as a central parameter of necessary change-making. First and foremost, temporal aspects are important in terms of the operations undertaken, from being less reactive and more preventive, agile and anticipatory. Given the increasing protractedness of crisis exacerbated by climate change, humanitarian actors are well advised to consider adapting the timelines of their programming cycles (Steinka, 2023).

4.4 Climate financing

Climate Finance (CF) is critical to Kenya's full realisation of the policy goals as set out in the sustainable development goals (SDGs), the 2015 Paris Agreement and the African Union Agenda 2063. An effective response to the challenge of climate change requires robust financial mechanisms to put in place systems, initiatives and programmes supportive to mitigation and adaptation measures. As global climate policy implementation progresses under the Paris Agreement, there has been an increased realisation that developing African countries such as Kenya will require effective and enabling financial and technical support.

Financing the implementation of Kenya's climate ambitions requires significant public and private finance. Kenya's Financing Strategy for the NDC (UNDP, 2020) estimated USD 40 billion of new investment is needed for the next 10 years (2020 - 2030) to implement priority climate mitigation and adaptation actions. there is a need for heightened advocacy around climate because the most salient fact about climate commitments at both the global and national level is that they are often not implemented. In Kenya, the National Climate Change Action Plan has lapsed (2022) and has not been replaced by a new five-year plan.

Devolution of climate funds Devolution of climate funds remains a major component of climate financing in Kenya because it will help ensure that resources reach where they are needed most. County governments provide a good opportunity to create institutional linkages for devolving funds from the national to local. Counties have established the county climate change funds (CCCFs) but the linkage between these funds and the national system is still currently relatively underdeveloped.

5. Discussion

The existing literature reviewed on Humanitarian aid technologies management of humanitarian response projects and environmental degradation revel that, management of humanitarian aid projects indeed contributes to environmental degradation and climate change. The organizations often get in after a disaster happens without undertaking rapid environmental assessment due to the urgency to save lives emergency preparedness seem to be lacking in most humanitarian responders. As a result, little is often known about the environmental context of the disaster site such as location of ground water sources, history of the disaster site, location of latrines and other health and sanitation facilities. Also, they start their humanitarian activities without knowing how they will deal with air pollution from burning waste and possible chemical leakages to avoid further contamination which worsens the situation of those affected by disasters.

On arrival of the humanitarian responders they are keen on the natural environment resources available to save lives such as availability of drinking water, timber for shelter construction, source of firewood for fuel among other natural resources however as the literature indicates the humanitarian responders are blind to the after effects of their actions on deforestation, drilling of boreholes that can greatly reduce underground water levels, disposal of waste materials such as health waste that could end in rivers and other clean water sources. More often than not these facts are either ignored or assumed and the responders leave them unattended with intention that they have saved lives.

However, in the long term as we have seen in refugee camps and IDP camps, it does not take long before the natural resources are exhausted and severe problems arise again such as cholera, typhoid due to poor sanitation as it happened in Haiti after earthquake, where there were severe sanitation problems. The study also found out that even though majority do not do anything to improve the environment, some responders make efforts to encourage the communities to plant trees, use provide alternative source of fuel and construction materials. For instance, recently UNHCR is utilizing more sustainable construction materials than the usual tarpaulins that lasted for six months.

It was also noted that the humanitarian responders do not lack guidelines and policies on how to address environment issues as revealed by UNOCHA and UNEP (2014), Sphere project among other documents that guide on environmental mainstreaming for humanitarian responders. In their argument Barret, Murfit, and Venton, (2007) most responders argue that money is not available for preparedness or recovery and that leaves them to only address their core activities which are saving lives of the persons in distress.

There is need to influence and strengthen humanitarian programme cycle management: first engage in needs assessment and analysis, strategic planning, resource mobilization, implementation and monitoring and operational review and evaluation. These results mean that perhaps, it is time for humanitarian responders to focus more on environmental management and sustainability as it directly affects their aim of saving lives and contributes to environmental degradation in Kenya. Besides, humanitarians increased involvement will greatly contribute to achieving vision 2030 of greener safer environment in Kenya.

The refugee camps in Kenya have been a source of agony to host communities and there is need for immediate action to be taken by the humanitarian actors together with the government. If not controlled, the two camps can quickly become inhabitable as they become deserts and as the water table get depleted. Perhaps it time for the government to reconsider environmental challenges brought about the humanitarian act of housing refugees. And provide them with alternative fuel instead of firewood and charcoals as well as water sources and construction materials.

This study shows that probably it's time for the governments where the refugees originate need to put together and find ways of keeping camps environmental friendly and sustainable as well as the international community to appreciate Kenyans effort of being home to millions of refugees yet they are still putting efforts to ensure vegetation cover to achieve vision 2030. We cannot leave IDPs and refugees behind in efforts to climate change response. If we do so we risk increasing the desert rather than vegetation cover.

Seemingly environmental degradation in Kenya in areas occupied by refugees and IDPs are forgotten crises that we must bring back to the headlines in order for it to be discussed in national agenda. In fact probably we need to involve the home governments of the refugees, to contribute in sustaining the environment around the camps to help them continue being habitable for longer instead of leaving it only to the Kenyan government. The recent development by UNHCR to provide longer lasting shelter materials mean that they are alive to the fact that the refugees will stay in the country for more than a decade and therefore while it is assumed refugees will finally go home it may take much longer just like is the case of Dadaab and Kakuma camps.

The results of this study fit in with the existing knowledge that humanitarian responders care less about their activities and how they contribute to environmental degradation in Kenya. This is in terms of their entry point with little historical knowledge about the disaster sites that has led to complications of coordination of projects, access, and acceptance by the communities (HPG, 2008).

The way they behave during the responding time in terms of waste management, chemical leakage, disposal of one-use plastic containers, handling of mobile toilets or latrines among other behaviours that are unfriendly to the environment. And lastly are the effects they leave behind after completion of their humanitarian activities. Important to note is that few or none of the humanitarian responders go back to check on the disaster site after they have left. What they fail to know is that they sometimes leave behind tonnes of waste that become environmental hazard. This however can be attributed to funding patterns of humanitarian activities as there are no funding set aside for preparedness or environmental checks after project completion. Even though we point fingers to the humanitarian responders it is important to note that sometimes they could be willing to do better on environment however their efforts are limited by the existing funding for environmental mainstreaming and preparedness.

The answer to the research questions has directed the study to the fact that management of humanitarian aid projects contribute to environmental degradation to a reasonable extent. This answer is reasonable because of how humanitarian responders behave before, during and after a disaster happens which has indicated that very little is done to improve the environment by majority of the responders. This answer fits in with other published work in Kenya and other countries as was evident in Virunga Forest Rwanda, Kakuma and Dadaab refugee camps among others. The disadvantages of poor or lack of management of environment by the humanitarian responders is that while the other development organizations are working towards forest cover in the SDG the humanitarians are eating into the existing forest cover in the spirit of human protection and survival. There is therefore need for all players to put effort to play towards a common goal in order to achieve vision 2030 and the SDG 13.

Surprisingly there are many legal frameworks, policies and memos that require humanitarian responder to have environment as a cross-cutting issue when responding to any kind of a disasters. However, according to this study the shortage of funding, time available for resources and lack of humanitarian focal points in the organizations mean that not much effort is put to ensure this is complied to.

As such this study emphasizes that although the mandate of humanitarian responders is saving lives they should view environment as a means to their end and support it at all times to avoid degradation and negative effect to climate change. Humanitarian NGOs need to prioritize greening efforts and integrate them into their strategies and operations to mitigate their environmental impact. Increase their resilience to climate change, and enhance the long-term sustainability of their interventions.

Additionally, having institutional structures and policies that prioritize greening efforts, provide resources and capacity-building support, and advocate for the adoption of sustainable practices from local to global levels increases the chance of their implementation. This study has advanced on the seemingly hidden environmental crises in the area where is least expected; humanitarian aid activities. The study reveals that there is still much to be done by the humanitarian responders to save the environment and contribute to climate change Sustainable development goal 13 and Kenya vision 2030. Failure to address this problem will lead to unknowingly extending desertification in Kakuma, Dadaab and other refugee camps as well as worsen other disaster-prone areas in Kenya.

Humanitarian contexts keep getting complex year after year due to increasing number of crisis the magnitude of the crisis and the increasing number of victims. The issue has just gotten more complex by demanding humanitarians be accountable for environmental management during their implementation and after as their actions exacerbates the environmental degradation after a crisis happens. The theory of obligations insist that humanitarians have a duty to play in improving the environment and social cognitive theory goes further to say that observing from others do it humanitarians can learn and replicate the actions of other responders to disasters and be able to improve the environment. There is need to do further research identifying ways in which humanitarian responders can contribute to improvement of the environment. Management of humanitarian aid projects affects the environmental degradation in Kenya.

6. Recommendations

The study recommends use of green technologies by the humanitarian actors including green procurement, addition on environmental specifications such as less packaging or recyclable/biodegradable packaging. The NGO should avoid using nature reserves to construct homes for refugees or expanding camps. Management of humanitarian projects including providing food that requires less time to cook or use energy saving or solar stoves. In addition, high quality incinerators should be utilized during implementation of health projects. The government should take initiative to advise the non-governmental organizations to adhere to environmental, and climate change regulations so as to ensure that the country protects people from environmental challenges and that the activities of humanitarian aid activities do not exacerbate the crisis but rather positively assist the climate change. Further study should be conducted to find out how management of humanitarian aid projects should be incorporated in the climate change.

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