Kabarak University International Conference On Environmental Sciences And Energy - 2021

Report of Contributions

Contribution ID: **1**　　　　　　　　　　Type: **Abstract for Research Paper**

Challenges faced by Kenyan Universities on waste management and disposal during COVID-19 pandemic

Abstract

The COVID-19 pandemic has led to a global emergency and continues to raise serious issues with waste management practices. This study emphasized the challenges of increased waste disposal during the COVID-19 crisis and its response practices in Universities in Kenya. Data was sought from the scientific research papers, publications from the government and media reports in order to quantify the effect of the pandemic towards waste generation in these institutions. A huge increase in the amount of used personal protective equipment (facemasks, gloves, and other protective stuffs) was found. These factors caused existing waste treatment facilities in these institutions to be overwhelmed. This article discusses the ways the operation of those facilities must be improved to cope with the challenge of handling medical waste, as well as working around the restrictions imposed due to COVID-19. The article also highlights the need for short, mid, and longer-term responses towards waste management during the pandemic. Furthermore, the practices discussed in this article may provide an option for alternative approaches and development of sustainable strategies in Universities in Kenya towards mitigating similar pandemics in the future.

Keywords: COVID-19; Disposal facilities; Incinerator; Infectious wastes; Waste management

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Track Classification: Emerging and Cross-cutting Issues in Environmental and Energy Management.

Contribution ID: **2**   Type: **Abstract for Research Paper**

Assessment of the Influence of E-waste Types on E-waste Management Practices in Medical Facilities in Nakuru Town, Kenya

Medical facilities are increasingly deploying medical electronic devices in their different operations. These devices can end up as e-waste which is detrimental to the environment and human health. Awareness is a crucial factor in tackling the e-waste issue. Understanding e-waste awareness and perception is crucial in developing e-waste management practices. The objective of the study is to evaluate the extent of awareness of e-waste and its effects on the environment amongst workers in medical facilities in Nakuru town, Kenya. Questionnaires was administered to administrators or personnel in charge of waste management in the medical facilities and secondary was obtained through literature review. From the target population of 145 medical facilities, a sample size of 95 was derived; this represents personnel in the facilities. Convenience sampling was used to choose the facilities. Quantitative data was managed using Statistical Package for social science (SPSS).the results of the study aims to improve the e-waste management initiatives for medical facilities.

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Track Classification: Emerging and Cross-cutting Issues in Environmental and Energy Management.

Contribution ID: **3**   Type: **Abstract for Research Paper**

Influence of Policy Issues that Act as Barriers and Facilitators in the Utilization of Environmental Research Findings Among Fish folks in Kisumu City Kenya.

Around the world, human activities such as resource exploitation and pollution have put the natural environment in peril. Lake Victoria is no exception to this dilemma, as it suffers from pollution and over-exploitation of its resources, yet supporting a diverse range of socio-economic activity. In the Lake Victoria Basin (LVB), many empirical studies on environmental and fisheries research have been conducted, but only a few have been used or distributed to fishermen, despite the fact that policies exist to encourage the use of research findings. Despite the availability of study findings and policy, Kisumu City continues to face ecosystem health issues such as poor water quality, inadequate fish product handling, and diminishing fish catches. This is most likely due to resource users' inadequate application of study findings. As a result, the purpose of this research was to investigate how policies affects the utilization of research findings in environmental management among Kisumu City fisherfolks. Data was collected from policymakers at County and National level. Purposive sampling was used to choose all 11 policymakers for the research. A questionnaires was used to collect data from policymakers. Accordingly, 55% of the policymakers revealed that environmental research disseminating policy exist but 83% of them decried of no political good will from the government and lack of financial resources leading to poor utilization of environmental and fisheries research findings. It was recommended that capacity buildings and intensified social support network like cash transfer was necessary to increase utilization of environmental research. More environmental and fisheries research finding information should be disseminated through radios and public baraza. Increased fundings and minimum political interference in pertinent environmental issues would improve environmental quality in LVB.

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Track Classification: Environmental Law and Conservation and Use of Environmental Resources

Contribution ID: 4   Type: **Abstract for Research Paper**

Determination of the influence of socioeconomic activities on streamflow in South West Upper Tana Basin, Kenya

The study to determine the influence of socioeconomic activities on streamflow was undertaken in South West Upper Tana Basin, Kenya (SWUT), one of the basins in the larger Upper Tana Basin. Thika, Chania, Kiama and Kimakia are the main rivers that make up the basin. In this study, primary data was obtained through administering questionnaires while secondary data was obtained from Water Resources Authority (WRA). The questionnaires were administered in the period between April 2019 and June 2020. Logit regression was run to determine the influence of the different socioeconomic activities on streamflow. The results indicated that the main socio-economic activity influencing water abstraction in the study area was agriculture. Agricultural practices such as farm size, income from crop sales and fertilizer use significantly influenced water abstraction with P values (0.04, 0.01 and 0.02) < 0.05. The study also established household characteristics such as income of the household head, income level of household head, marital status, age, residence period, level of education, technology used and gender of household head positively influenced water abstraction. However, these factors did not have a significant influence on water abstraction with P values of 0.23, 0.78, 0.50, 0.60, 0.74, 0.52 for income level of household head, marital status, age, residence period and level of education, respectively, being > 0.05. The study recommends formulation of policies to ensure efficient water abstraction in the basin. Water Resources Authority should also ensure that all water abstractors are licensed to minimize over-abstraction.

Keywords: Streamflow, socio-economic activities, South West Upper Tana Basin, agricultural practices, household characteristics.

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Track Classification: Sustainability in Natural Resource Management.

Contribution ID: 5   Type: **Abstract for Research Paper**

ENHANCING ADAPTIVE CAPACITY OF VULNERABLE COMMUNITIES IN INFORMAL SETTLEMENT OF MUKURU KWA RUBEN TO FLOODING IN NAIROBI COUNTY

Mukuru Kwa Ruben's informal settlement is located within the Industrial area of Nairobi County. It is characterized by poor dilapidated housing exacerbated by poor drainage conditions and flooding in the area. This study aimed at developing a framework to enhance the adaptive capacity of communities at the Mukuru Kwa Ruben informal settlement to flooding. The study started by reviewing relevant literature on flood vulnerability in urban areas and, most specifically, in informal settlements of Nairobi. Household questionnaires, and key informant interviews guides were used to collect data from the community. The methods of analyses used for this study entailed: content analysis, graphical displays, trend analysis, and desktop reviews. The study findings show that heavy down pour of rainfall in Mukuru Kwa Ruben does not necessarily bring about flooding. However, ineffective structural and non-structural measures that, if addressed, can enhance the adaptive capacity of the community to flood risks. The study also established that the community was vulnerable to floods primarily because their shelters are infiltrated with storm water, which destroys their household items and, in some instances, render them homeless. Limited access to health facilities during floods also gets to impact on their health adversely. It was also evident that residents of Mukuru Kwa Ruben have put more premium on structural adaptation measures that are externally facilitated to soft adaptation measures that can easily be conducted by community members. Shortcomings in the legislation, policies, and strategies on urban settlement flooding were highlighted and appropriate means to tighten the loose ends proposed. The study, recommends a more participatory approach, especially in the establishment of committees and taskforce that address flood disasters in the slum, behavioral change amongst community members in terms of waste disposal and, adherence to the law in maintaining buffer zones around rivers.

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Track Classification: Climate Change and the Sustainable Development Goals.

Contribution ID: **6**   Type: **Abstract for Research Paper**

INTEGRATION OF LOCAL AND CONVENTIONAL KNOWLEDGE IN FOOD PRODUCTION TO ENHANCE ADAPTIVE CAPACITY IN MWALA SUB-COUNTY, MACHAKOS COUNTY, KENYA.

The population of the people living in the arid and semi-arid areas in Machakos County, Kenya continues to increase, thus the need for more food for the ever-growing population. Given its dependence on rain-fed agricultural production and limited adaptation capacity, Mwala Sub-County, Machakos County remains vulnerable to impacts of climate variability and change. Mwala has been experiencing low crop yields due to unpredictable rainfall and prolonged drought periods. This study investigated the role of indigenous knowledge and conventional knowledge practices in climate change adaptation in Mwala Sub-county on agriculture. Primary data was obtained through various participatory research approaches including, household interviews and focus group discussions. A sample of 270 respondents from 11 villages was sampled using random sampling method. Climate data from Kenya Meteorological Department were collected and analyzed to generate the historical climate variability for Mwala Sub-county. Results showed that about 84% of the respondents had changed their ways of farming in order to increase crop yield. Farmers have also adapted to climate variability by planting drought resistant crops such as maize and beans which to them are drought resistant, with duma and pioneer varieties being the most preferred. About 1% of the respondents embraced early planting and use of certified seeds to adapt to impacts of climate change. Challenges like poverty, limited access to finances and pest and diseases (emerging and re-emerging) are the constraints to successful adaptation. Education and access to climate and agricultural information, and rainwater harvesting were found to be critical to increased food production in Mwala Sub-county. The study recommends crop diversification, establishment of Farmers' led Innovation Center (FIC) in Mwala Sub-county to serve as technology and information power house as well as education center for farmers. The recommended FIC will also be disseminating weather and climate information relevant to agriculture and food production.

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Track Classification: Climate Change and the Sustainable Development Goals.

Contribution ID: **7**   Type: **Abstract for Research Paper**

Tackling Issues at the Nexus of Artificial Intelligence and Climate Change in the European Union

As climate change continues to threaten wide-ranging aspects of human life and natural ecosystems, efforts to mitigate and adapt to the looming phenomenon are becoming more urgent. Recently, artificial intelligence and machine learning-based techniques have emerged as key assets in the fight against global warming. Such approaches include transportation and energy use optimization, urban planning, supply chain optimization, remote sensing of emissions and forest management, carbon sequestration, extreme weather event prediction, climate forecasting, ecological assessment, solar geoengineering, social interaction modeling, and much more. While this provides unprecedented opportunities for facilitating greater societal wellbeing and environmental preservation, the European Union must also tackle the many legal and ethical issues that come with the widespread use of artificial intelligence in this scope. The EU can serve as a model for the rest of the world, as it has on many other climate-related issues, by legislating laws regarding topics such as privacy in big data, particularly for climate change applications, interpretability of machine learning and deep learning models for transparency and accessibility, and accountability for both developers and end users. Another challenge that must be tackled is equity in AI capabilities, which is difficult due to the uneven distribution of computing resources across Europe and around the world.

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Track Classification: Climate Change and the Sustainable Development Goals.

Contribution ID: 8   Type: **Abstract for Research Paper**

Can vernacular radio be conflict sensitive? An analysis of vernacular radio programming in Western Kenya

The media influences how political conflicts are perceived and understood, shaping narratives about the actors and the drivers of conflict (Ahere, 2019). The Government of Kenya has persistently argued that the community radio stations that broadcast in local languages were responsible for the post-election violence in 2008 (Howard, 2009). Indeed, Kenya's political context is heavily shaped by historical domestic tensions and contestation associated with each electoral cycle. With attendant post-election violence witnessed after every election cycle, including the 2017 elections, this article seeks to find out the influence of vernacular language radio programming on the audience's perception of electoral conflict and violence in Western Kenya. The Western Region in Kenya is perceived to be historically politically marginalized. The objectives of the study will be to: (i) identify the nexus between radio programming and the escalation or de-escalation of political violence in Western Kenya, (ii) determine to what extent vernacular radio outlets understand and implement the principles and practice of peace journalism, (iii) establish the influence of radio programming on audience's perception of electoral conflict and violence in Western Kenya. The study will be guided by the Agenda Setting Theory, whose main postulate is salience transfer. A descriptive survey design will be adopted. Mulembe FM Community radio will be selected purposively and an analysis of its programming content made. Further, a random sample of 400 listeners of Mulembe FM will be selected from Busia, Kakamega and Bungoma counties since they have common linguistic intelligibility. Questionnaires will be used to obtain quantitative data from the sampled respondents. A purposive sample of 10 radio producers, programmers and reporters will be selected for in-depth interviews. A research permit will be obtained from the National Council of Science and Technology in Kenya.

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