Kabarak University International Conference on the Environment and Energy 2019

Report of Contributions

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

CONSTRAINTS TO USE OF RAINWATER HARVESTING TECHNOLOGIES AS AN ADAPTATION STRATEGY TO CLIMATE CHANGE IN BARINGO COUNTY

The main objective of this study was to identify constraints to adoption of rainwater harvesting technologies (RWHT) as an adaptation strategy to climate change in Baringo County. The study used a descriptive survey design. Purposeful sampling and stratified proportionate random sampling procedures were used to obtain the sample. A total of 376 households were selected for the study. Questionnaire, key informant interview schedule and observations were the main instruments of data collection. Analysis of data was done using the SPSS. Percentages were used to analyze constraints to adoption of RWHT. Lack of finance is the main barrier to adoption of rainwater harvesting technologies in Baringo County. The income levels are generally low in the area and many households lack diversified sources of income. There is need to diversify income sources and improve access to formal credit facilities in order to relax households' financial constraints. This will promote adoption of the technology.

Keywords

Rainwater harvesting technologies, climate change, Baringo County

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Track Classification: Climate Change and the Sustainable Development Goals

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

MANAGEMENT OF FLASH FLOODS IN MARIGAT SUB COUNTY, BARINGO COUNTY, KENYA

Flash flood is a natural disaster that occurs due to the sudden onset of rainfall that causes runoff waters from high altitude areas to low altitude area. This runoff waters leads to loss of lives, destruction of property, and environment; a problem experienced by residents of Marigat Sub-County. The purpose of the study was to investigate the management strategies of flash floods in Marigat Sub-County. The study used descriptive research management practices of flash floods on qualitative and quantitative methods. The target population of the study area is 120,263 people with 24,893 households. Purposive sampling method for three locations which are Ilng'arua, Ng'ambo and Salabani experiencing flash floods with a population of 13,885 translating to 3168 households, from which a sample size of 355 respondents will be obtained. Stratified proportionate random sampling method was used to select household heads for the survey. Purposive sampling method was used to identify key informants from the selected locations and one disaster management officer. Primary and secondary data was used. The questionnaire, key informants interview schedules and observations was used to collect data. The validity of the study was achieved through the construction of relevant instruments to the objectives of the study. To ensure reliability, piloting was done and data collected pre-tested using Cronbach's alpha minimum criteria of 0.7. Collected data was coded and analysed using the SPSS software, where descriptive and inferential statistics was generated to test the study hypotheses. The findings of this study is beneficial to Baringo County and the Kenyan government in the management of flash floods and the achievement of sustainable development goals in which the residents of Marigat sub-county are direct beneficiaries.

Keywords

Keywords: Marigat, Flash floods, Management.

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Track Classification: Environmental Management for the Big Four Agenda

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

INFLUENCE OF POLYTHENE BAG ALTERNATIVES ON COMPLIANCE TO ENVIRONMENTAL LEGISLATION ON POLYTHENE BAG BAN IN RONGAI SUB-COUNTY, NAKURU COUNTY, KENYA

Abstract. Polythene bags have been preferred for packaging purposes because they are light in weight, cheap and resistant to degradation. Despite the benefits, poor disposal of polythene causes degradation and pollution of soil, water, land and air resources leading to health problems and Climate change. Furthermore, polythene kills the wild game, livestock and aquatic organisms. These problems led to the introduction of legislation banning polythene bags of less than 30 microns in 2017. Reports of availability of these polythene bags and emergence of poor quality alternatives in Kenya indicate lack of compliance to the environmental Legislation. Therefore, the objective of this study was to determine the influence of polythene bags alternatives on the extent of compliance to environmental legislation on polythene bag ban in Rongai sub-county, Nakuru County, Kenya and to recommend possible solutions. This descriptive research design sampled 259 respondents using proportionate stratified random sampling from a target population of 18,377 households and 580 traders and purposively selected 6 Key informants. Instruments used included Piloted questionnaires (0.74 Cronbach's alpha level), focus group discussions Observation and photography. Data analysis was done using SPSS version 20. Percentages were used in descriptive statistic while Chi-square at 5% level of significance ((α=0.05) was used in the inferential statistic. Results indicated that 50% of respondents use propylene bags which was attributed to the lack of alternatives by the majority significantly agreeing (p<.0001). This study is important in the reforms of Environmental policy, promotion of awareness and compliance of this environmental legislation in Kenya.

Keywords

Compliance, Polythene bag, Environmental legislation

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Track Classification: Environmental Management for the Big Four Agenda

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

The factors impeding Clean Development Mechanism (CDM) implementation and carbon emissions reductions and energy management in relation to climate change and sustainable development in Africa.

Abstract

The paper focuses on researched information on impediments to the implementation of clean development mechanism, the effects and solutions on carbon emissions reduction and energy management initiatives for sustainable development in relation to climate change in Africa. The objectives are to identify some countries in Africa where experimental studies have been done on factors which hinter implementation of CDM and the research methods, results, findings obtained and application in providing solutions for implementation of CDM in Africa, to highlight the impacts of the failure and or success to implement the clean development mechanism on carbon emissions reductions and energy management in relation to climate change and sustainable development in Africa and to suggest solutions that can be used to accelerate the implementation of CDM in Africa. The methods used to collect data in both Kenya and Burkina Faso studies were questionnaires, interviews and workshops, whereas SPSS computer package method was used to analyze the data. CDM is a tool provided by Kyoto Protocol in 1997 established by United Nations Framework convention on Climate Change, that ensures all parties (developed & Developing Countries) of the Protocol benefit from project activities designed to reduction of greenhouse gases in to earth's atmosphere. The findings of the studies done in Kenya, and Burkina Faso show the following factors to be hindering implementation of CDM:- policy barriers, project financing gaps, institutional barriers and gaps, lack of information and knowledge on CDM, government bureaucracy, corruption and limited resources. The solutions proposed for Burkina Faso and Kenya are given as- introduce efficient carbonization techniques, enhance community participation, create a black and white lists for approving CDM projects, promote in-country expert capacity building in CDM projects and provide tax incentives to CDM investors.

Keywords

Clean Development Mechanism, Climate change, Barriers, Implementation, Africa, carbon

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Track Classification: Emerging and Crosscutting issues in Environmental and Energy Management

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

AWARENESS AND ADAPTATION TO CLIMATE CHANGE IN ARID AND SEMI-ARID LANDS. A CASE OF BARINGO COUNTY

The main objective of this study was to determine the awareness and adaptation to climate change in Baringo County. The study adopted a descriptive survey design. Purposive sampling technique was used to obtain the sample. A total of 376 households were selected for the study. Questionnaire, key informant interview schedule and observations were the main instruments of data collection. Analysis of data was done using the SPSS. Percentages were used to analyze awareness and adaptation to climate change. About 70% of the households in the area are aware of climate change and have adapted to it by using small containers, storage tanks and dams. Governmental and non-governmental organizations in Baringo create awareness through group meetings and construction of dams. However, many households use basic methods and technologies yet these are arid and semi-arid lands (ASALS) where droughts are frequent and rains more erratic. There is need to create awareness on improved technologies in Baringo in order to adapt to changing climate.

Keywords

Awareness, Adaptation, Climate change, Arid and semi-arid , Baringo county

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Track Classification: Climate Change and the Sustainable Development Goals

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

The blue economy concept: untapped potential of Baringo County

Blue Economy Concept (BEC) refers to economic gains got by sustainable utilization of the oceans. This concept has gained prominence from the Sustainable Development Goals (SDGs), goal number 14 on life under water. Whereas BEC gives emphasis on Oceans, in Kenya fresh water systems (FWs) accounted for 80% of fish production translating to KES 943,365.20 million accounting for 0.11% of our GDP in 2018. Therefore, BEC is important in FWs. Baringo County constitutes mainly Arid and Semi-Arid Lands (ASALs). Although agriculture is practiced in the highlands, pastoralism is the main economic activity whereas the riparian communities depend on fishing. This county is endowed with many aquatic ecosystems for BEC, thus promoting the Big Four Agenda. This paper examines the potential of BEC in Baringo County towards securing a robust economy by reviewing literature on success stories from water bodies in the country. A case study of Lake Naivasha showed that its fish production tripled from 633 tonnes in 2014 to 2,287 tonnes in 2018 translating to KES 4,810.80 M and 17,381.20 M respectively. This is because of restocking of the lake unlike L. Baringo whose fishery is on a declining state (i.e. 302 tonnes in 2014 to 145 tonnes in 2018; KES 1,193.20 M loss) due to overfishing. Restocking of aquatic systems within Baringo County can improve fish production 50 fold thus create wealth. We recommend for the adoption of BEC in Baringo County for sustainable development.

Keywords

Blue Economy Concept; Sustainable development; Aquatic ecosystems; Lake Baringo; and Arid and Semi-Arid Lands

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Track Classification: Environmental Management for the Big Four Agenda

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

Effectiveness of co-management regime in African Great Lakes Fishery: A case study along Lake Baringo Kenya

There is a common agreement that establishment of co-management through beach management units (BMUs) could be of benefit to fisher community and other stakeholders across the African Great Lakes as regards to promoting community livelihoods and sustainability of the fishery and lakes ecosystem. However, the effectiveness of established co-management regimes remains unknown. This study evaluated the effectiveness of established co-management units specifically the Beach Management Units (BMU's) along Lake Baringo. Information and data was collected through site observations, and questionnaire led interviews involving the key informants and BMU members. The study reported presence of illegal gears (5.7%), pollution (10.2%), insecurity (3.4%) and targeting of undersized fish (1.1%) among others. In order to manage the aforementioned, it was noted that the role of BMU's to curb or minimize such challenges was overall below 36% i.e. enforcement (17.6%), conflict resolution (33.8%), Welfare (35.5%) and awareness creation (13.2%). The existences of such measurable attributes are indicative of lack of effectiveness of co-management in Lake Baringo. Furthermore, key registers and records were known to most of the members although there were no signs of progressive growth in the BMU themselves, due to lack of continuous awareness creation amid the changing lake environmental conditions and dynamics in the specific species fishery. There is need to sustain the achievements so far attained in promoting improved co-management and ecosystem sustainability, as enforcement of laws and regulations can be a challenging undertaking without government support. County governments should ensure financial and material support in expanding capacity in co-management units to perform, promoting alternative livelihoods, establishment of good educational and health facilities for easy access by fishing communities and provision of solar power, electricity, and better road networks to existing and new co-management units before establishments.

Keywords

Lake Baringo; Co-management, BMUs; effectiveness; fisheries.

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Track Classification: Sustainability in Natural Resource Management

Contribution ID: **9**   Type: **Abstract for Research Paper**

IMPACTS OF INFRASTRUCTURE DEVELOPMENT ON AFRICAN CAPE BUFFALO BEHAVIOR: A CASE STUDY OF LAKE NAKURU NATIONAL PARK, NAKURU COUNTY, KENYA.

Infrastructure development is a necessary activity; however, if the developers do not consider the environment during the design, planning and construction stages, ecosystem losses are bound to happen. African Cape buffalo behavior alteration is the main challenge caused by the existence of infrastructure in Lake Nakuru National Park. The primary purpose of this study was to assess the effects of infrastructural development on African buffalo behavior in Lake Nakuru National Park. Primary data collection was done using; Key Informant Interviews (KIIs), structured questionnaires and field observation. Secondary data was collected by reviewing government documents, published documents and related documents. Quantitative data was managed using Statistical Package for social science (SPSS). The study sought to recommend strategies to remedy the behavioural changes of the African Cape buffalo triggered by infrastructure existence in Lake Nakuru National Park.
Key words: Infrastructural development, Africa Cape Buffalo behavior

Keywords

Infrastructural development, Africa Cape Buffalo behavior

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Track Classification: Sustainability in Natural Resource Management