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INTERNATIONAL CONFERENCE ON CLIMATE CHANGE

"Climate Change, Management and its Social Impact"

Beijing , China

11th-12th April, 2019

Organized by:

BioLEAGUES Worldwide

Preface

This book reports the Proceedings of the **"*International Conference on Climate Change*"** held at ***Beijing Henan Plaza Hotel, China*** on the 11th & 12th of April – 2019, organized by ***BioLEAGUES Worldwide***.

The publishing department has accepted more than 110 abstracts. After an initial review of the submitted abstracts, 37 papers were presented at the conference and were accepted for publication in the Conference Proceedings. The topics that are covered in the conference include Climate Change & Climatology, Global Warming effects & causes, Environmental Sustainability, Pollution & its effects, Solid Waste Management, Waste Water Treatment, Renewable Resources, Agriculture, Circular Economy, etc... We would like to thank all the participants for their contributions to the conference and the proceedings..

Reviewing papers of the ***ClimateConf 2K19*** was a challenging process that relies on the goodwill of those people involved in the field. We invited more than 15 researchers from related fields to review papers for the presentation and the publication in the ***ClimateConf2K19*** Proceeding. We would like to thank all the reviewers for their time and effort in reviewing the documents.

Finally, we would like to thank all the proceeding team members who with much dedication have given their constant support and priceless time to bring out the proceedings in a grand and successful manner. I am sure this proceeding will be a credit to a large group of people, and each one of us should be proud of its successful outcome…

From Bioleagues Directors's Desk…

On behalf of **BioLEAGUES Worldwide**, I am delighted to welcome all the delegates and participants around the globe to the ***International Conference on Climate Change*** which is going to be held at **Beijing Henan Plaza Hotel, China on 11th and 12th April**.

Transforming the importance of Climate Change, Management and its Social Impact is the main theme of this **"ClimateConf 2K19"**

It will be a great pleasure to join with Scientists, Academicians, Research Scholars, Students, Industrialists and other association people all around the globe. You are invited to be stimulated and enriched by the latest in **ClimateConf 2K19"**, while delving into presentations surrounding transformative advances provided by a variety of disciplines.

I congratulate the reviewing committee, coordinator BioLEAGUES and all the people involved for their efforts in organizing the event and successfully conducting this International Conference and wish all the delegates and participants a very pleasant stay at Beijing, China.

Mr. R. B Satapathy
Chief Executive Officer
Bioleagues Worldwide

From Bioleagues CEO's Desk…

It is indeed a privilege to acknowledge and thank all the supporters and organizers of the "**International Conference on Climate Change**"**,** who contributed greatly to organize the conference successfully.

I would like to acknowledge and thank the Chief Guest for his valuable speech in the ***ClimateConf 2K19, Beijing, China.***

My special thanks to all of our Special Guests who so graciously accepted our invitation to participate in the conference. I also wish to acknowledge and thank the sponsors of the conference whose financial support was extremely grateful.

I would like to specially thank our Advisory Committee Members from various Organization whose continuous support have helped us plan and execute the conference successfully.

I am highly indebted to the contribution given by all the Scientists, Academicians, Research Scholars and Students to the conference.

Mr. Ankit Rath
Chief Scientific Officer
Bioleagues Worldwide

Message from the Conference Chair..

It is a big pleasure to me on behalf of the Organizing Committee of a two-day Climate Change International Conference to welcome all the delegates and participants of this conference held at Beijing Henan Plaza Hotel, China on April 11th & 12th, 2019.

As stated in the title, the scope of the conference covers about climate change and management also social sciences, for the smart living, which are in a fact, requires many disciplines.

This conference may also give opportunities to under and post graduate students and researchers alike to take an active part and present research papers.

I am certain that the conference will prove to be a healthy point of academic interaction and so the students and faculty members as well will not only give but also benefit and draw inspiration also networking from the talks and presentations from the distinguished guests.

I would like to express my deep appreciation to keynote speakers for the efforts to present the ideas and methods in a lively and accessible way.

Finally, but not least, I would like to thank those who have responded to our call to take part and to contribute to this conference. We have a big hope that all of you enjoy, and get more knowledge and fruitful experience through the conference.

Beijing, April 11, 2019

Dr. Bambang Sugiyono Agus Purwono
State Polytechnics of Malang
Indonesia

Conference Chair

Dr. Bambang Sugiyono Agus Purwono
State Polytechnic of Malang
Indonesia

Chief Guests

Prof. Chunde Yao
Deputy Director
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China

Dr. Jinfeng Zhou
Secretary-General of China Biodiversity
Conservation and Green Development Foundation
(CBCGDF),
Beijing, China

Keynote Speaker

China and Global Climate Change Emergency (Provisional)

Dr. Zhou Jinfeng
China Biodiversity Conservation and Green Development Foundation (CBCGDF)

Abstract

Advocating green development and tackling climate change has long been one of the core work of China Biodiversity Conservation and Green Development Foundation (CBCGDF), which includes promoting eco-civilization and green development, calling for accelerated decarbonization, carrying out environmental public interest litigation to actively safeguard public interests of the environment; environmental law researching and decision-making consulting; actively participating in the global environmental governance platform; advocating "good food" -climate-friendly diet; protecting biodiversity and making cities more resilient to climate change; controlling light pollution and protecting dark night; organizing activities related to climate change; conducting environmental education and raising public's awareness; encouraging enterprises to fulfill their social responsibilities of environmental protection, etc. As Secretary-General Dr. Zhou Jinfeng said, actions to slow down climate change are in small things in our daily life and CBCGDF has been working hard on this.

Biography

Dr. Zhou Jinfeng is the Secretary-General of China Biodiversity Conservation and Green Development Foundation (CBCGDF). He is a member of WCEL of IUCN, a member of WCPA of IUCN, and a member of IUCN WCPA Task Force on OECMs. He is the Executive Committee member of the Club of Rome. He is a Board member of the SUNx. And he is the Vice Chairman of the World Green Design Organization (WGDO).

Dr. Zhou Jinfeng was a member of the Ninth, Tenth, and Eleventh The National Committee of the Chinese People's Political Consultative Conference (CPPCC), a member of the Proposal Committee of the National Committee of the CPPCC, a member of the Standing Committee of the All-China

Federation of Industry and Commerce, a member of the China Democratic National Construction Association, and a researcher of the center of the Entrepreneurship of Small and Medium Enterprises of Peking University, etc. From 1992 to 2002, he was elected as the Vice Chairman of the Beijing Chamber of Commerce. From 1992 to 2002, he was elected as the Vice Chairman of Beijing Chamber of Commerce. From 1993 to 2013, he was elected as a member of the Standing Committee of the All-China Federation of Industry and Commerce. From 2004 to 2014, he served as the 9th and 10th Vice Chairman of the China Vocational Education Association. Since the end of 2014, he has served as the Secretary-General of the China Biodiversity Conservation and Green Development Foundation (CBCGDF).

Dr. Zhou has a good reputation in the international environmental protection community and actively participates in the research and promotion of the Global Pact for the Environment. And he has established extensive partnerships with the United Nations CMS, ITPGRFA, IUCN, the Global Compact, UNDP, WWF, AWF, and other international agencies and organizations.

Dr. Zhou is an active promoter, practitioner and researcher of ecological civilization and environmental protection. Under his leadership, China Biodiversity Conservation and Green Development Foundation (CBCGDF) has become China's leading environmental organization. He has published several papers on top academic journals such as SCIENCE, CONSERVATION GENETIC RESOURCES, and so on.

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ABSTRACTS

Climate Change Challenges in South Asia: A Case of Bhutan

VC Shushant Parashar
Amity Institute of Social Sciences, Amity University
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Abstract

The world has today become vulnerable to climate change. At a global level threats are being recognized and measures are being taken to address the impact of climate change. However, the issue of climate change has failed to make any political breakthrough in spite of many conferences taking place and agreements being signed. Negotiations take place like clockwork but still there is a lack of any concrete step being taken. With the rate with which climate change is taking place, it becomes very important for leaders and policy-makers to come up with certain solutions and measures at both multilateral and regional level to lessen the impact of climate change.
Based upon this view, Bhutan has many opportunities to work at a bilateral level in a number of areas to reduce the impact of climate change. Bhutan share many similar problems such as:
1: Occurrence of floods.
2: Population under poverty.
3: Loss of agricultural land and forest to growing urbanization.
4: Air, Water and Land pollution.
5: Energy Crunch.
The proposed research paper aims to explore whether the viable use of existing natural resources will help in achieving economic and sustainable development in Bhutan. The paper also attempts to see whether bilateral cooperation between Bhutan and other countries would lessen the impact of climate change and whether the issue will provide scope for greater cooperation on the sharing of technology and information between Bhutan and neighboring South Asian nations.

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Keywords
South Asia, Bhutan, Climate Change, Environment, Energy Security, Environmental Security

Biography
VC Shushant Parashar is a Ph.D. Research Scholar in Political Science, at the Amity Institute of Social Sciences, Amity University. His thesis focuses on Environmental Security Policy in context to the South Asian region with emphasis on India and Bhutan. He has written and presented papers on the same topic at many conferences. His research interests include politics and environment with reference to South Asia. He has completed his MPhil in South and Southeast Asian Studies from University of Madras, Chennai. He has completed his M.A. in South Asian Studies from UMISARC, Pondicherry University, Pondicherry. He has done his graduation in Bachelors of Journalism and Mass Communication, ASCO, Amity University.

Dr Shalini Saxena has done her Ph.D. from Lucknow University in March 2010. Prior to this, she completed her M.Phil. from Centre for International Politics, Organization and Disarmament, School of International Studies, Jawaharlal Nehru University (JNU), New Delhi, in International Politics. She has done M.A. (Political Science) from Department of Political Science, University of Lucknow. Currently she is working as Assistant Professor Grade-III in political science and international relations in Amity Institute of Social Sciences, Amity University, Sector 125, NOIDA, UP, India. Earlier she was a Lecturer in Guru Gobind Singh College (Punjab University), Chandigarh. Her core interest areas are international relations, State and local governments, international organizations, campaign management and polling, journalism, electoral politics, research and university and college teaching. She is the editor of Amity's political science journal,'Politica' and has published many research articles and book chapters in reputed national and international journals. Besides convening National conferences and workshops, she has edited a book "Rethinking Contemporary Indian Polity". She appears as a Political Analyst in debates on television

Analyzing of Spatio-Temporal Precipitation Variability and Trends over Ethiopia: Implication for Climate Change Mitigation

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Abstract

The spatial-temporal variation of precipitation significantly affects the hydrological processes and the proper management of surface water resources. This study analyzed the spatio-temporal variability and trends of precipitation over Ethiopia by using a non-parametric Mann-Kendall test from 1980 –2016. The results show that the annual precipitation was 758.504 mm. Monthly precipitation revealed an upward trend in summer season (June to August) and a downward trend in winter season (December to February). The results also showed an increasing trend in the eastern and southwestern parts of Ethiopia and decreasing trend in the northeastern part. The spatial variability of annual precipitation was observed with a CV averaged of 3.03%. The trend analysis of the annual precipitations showed a dramatic decreasing trend in 1984. However, no statistically significant trend was observed in the annual precipitation but increasing and decreasing seasonal trends were observed. The increase in precipitation during rainy season along with the decrease in number of rainy days leads to an increase of extreme rainfall events over the country during 1980-2016. The consistency in precipitation trends over the country confirms the robustness of the change in trends. Studying the precipitation trends serves as a basis for understanding the changes in climate.

Keywords

Precipitation; Trend; Thiessen Polygon; Mann-Kendall test

Assessment of Urban Green Space Landscape Structure and Function for Climate Change Adaptation in Built Environment

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Abstract

Uncontrolled urban development and uncoordinated master planning is common place. Managing green space for climate adaptation may difficult. There is a lack of empirical information in the past and present spatial distribution to predict for land surface temperature (LST). LST is most important parameters to study the energy interactions and cycles between the atmosphere and ground surface. LST is governed by surface heat fluxes, which in turn is affected by urbanization. Surface and atmospheric modifications due to urbanization generally lead to a modified thermal climate that is

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warmer than the surrounding rural areas, particularly at night. This phenomenon is known as urban heat island (UHI), and when LST is used for analyzing the UHI effect, it is called surface UHI (SUHI). The main cause of SUHI is modification of the land surfaces through urban development using the materials that effectively retain heat. This work aims at determining and analyzing the relationship between green space change and land surface temperature (LST) patterns in the context of urban expansion. The integrated approaches of remote sensing, GIS and Land Change Modeler as a decision support tools are needed to provide a basis for effective green space planning. This study evaluate the spatial structure and pattern of green space in Kelantan and its relationship with land surface temperature. The result from this study may provide significant insight into understanding the important of landscape structure of green space for cooling the area and provide healthy environment for dwellers.

Keywords
Climate Change; Urban Green Space; Remote Sensing; Land Change Modeler; Sustainable Planning and Management.

Impact of Climate Change on Groundwater Recharge and Base Flow in the Sub-Catchment of Tekeze-Atbara Basin, Ethiopia

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Abstract
The impacts of climate change are significant on both surface and groundwater resources. However, little attention has been given to the effect of climate change on groundwaterresources. Therefore, the present study is concerned with theeffect of climate change on groundwater recharge and base flow in Tekeze sub-catchment in Ethiopia. The future climate variables were obtained from Coordinated Regional Climate Downscaling Experiment (CORDEX)Africa program for Representative Concentration Pathways (RCPs) of RCP 2.6 andRCP 4.5scenarios.The Mann-Kendall test and Sen'sslope estimator wereused for trend detection using XLSTAT software package. Further, the downscaled and biascorrected precipitation, temperature, and potential evapotranspiration were used as input to the WETSPA model to simulate future water balance changes. The results indicated a decreasing trend in annual rainfall and an increasing trend in average temperature and evapotranspirationfor selected scenarios. At the catchment level,precipitation decreases by 20% for both RCP 2.6 and RCP 4.5 scenarios, and actual evapotranspiration shows 0.4% and 8.1%increment for RCP 2.6 and RCP 4.5, respectively. Consequently, the groundwater recharge decreases by 3.4% for RCP 2.6 and 1.3% for RCP 4.5. Baseflow will also decrease by 1.5%and 0.55% for RCP 2.6 and RCP 4.5, respectively.The results of this study would help policymakers, scientists, government officials and local stakeholders in planning and management of the surface and groundwater resources in the Ethiopian regions.

Keywords
Tekeze catchment, Climate change, Recharge, Base flow, Trend analysis,WetSpa

Modelling the Influence of Climate Change on Current and Future Malaria Expansion in Semi-Arid Areas of Ethiopia

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Abstract

Malaria is a leading and severe disease in Ethiopia, particularly like Tigray region. The main objectives of the study were to model the influence of climate change on malaria transmission in Tigray and identify environmental variables that contribute to malaria. Aiming these objectives, Kafta Humera, Raya Azebo, and Laelay Adiabo districts were purposively selected based on their malaria prevalence. 209 mosquito occurrence points were collected from the study area. Collected occurrence points, altitude and 19 bioclimatic variables were run in Maxent software. Malaria transmission was simulated for the middle and end of the 21st century using two Representative Concentration Pathways (RCP 4.5 and RCP8.5) scenarios driving ensemble of three General Circulation Models. The results show that the area suitable for malaria transmission is simulated to increase by 93.8% (RCP4.5) and 113.9% (RCP8.5) by mid-century and by 161% (RCP4.5) and 149% (RCP8.5) by the end of the 21st century, when compared with the historical baseline. This indicates that the area suitable for malaria transmission is simulated to increase due to climate change over the region. Therefore, the study recommends well prevention and control of malaria to ensure the health of people.

Biography

Haftu Abrha is a lecturer and researcher at Institute of Climate Society (ICS) in Mekelle University. His Bsc is in General forestry and MSc is in climate and society specialization in climate science. He published four articles in peer reviewed journals.

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Climate Change Impact on Coffee and the Pollinator Bee Suitable Area Interaction in Raya Azebo, Ethiopia

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Abstract

Modeling suitable habitat of plants and pollinators helps to find plant and pollinator interactions. Flowering plants are dependent on insect pollinators, pollinators are also dependent on flowering plants. However, there is mismatch of plant and pollinator suitable area due to deficiency of plentiful research. This was conducted using bee and coffee presence, altitude, and climate variables. This study was conducted using spatial regression and ecological niche model. In addition, future common suitable areas were detected in whole Ethiopia using climate analogue in ensemble general circulation models (GCMs) in order to adapt the impact of climate change. Thus, the result showed that there is 666 km2 suitable area for coffee production. Precipitation seasonality and precipitation of warmest quarter are the most contributors for coffee distribution. Similarly, a suitable area for bee is 835 km2. Precipitation of driest quarter and precipitation of warmest quarter are the best contributors for bee distribution. Their common suitable area in relation to the environmental variables is 598 km2. Their interaction is explained by 52.93%. The model shows that there might be future common suitable area in Ethiopia. Therefore, the study remarks that coffee and bee should be cultivated in their common suitable area in order to ensure their pollination and ecological roles.

Biography

Haftu Abrha is a lecturer and researcher at Institute of Climate Society (ICS) in Mekelle University. His Bsc is in General forestry and MSc is in climate and society specialization in climate science. He published four articles in peer reviewed journals.

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Effect of Climate Change on Forest Fire Danger in Desa'a Forest, Ethiopia

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Abstract

Forest fire is a disaster that destroys forest and wildlife. The main purpose of this paper is to monitor the impact of climate change on the forest fire occurrence. Hence, current climate data was projected to near (2010-2039), mid (2040-2069) and end-term (2070-2099) using two Representative Concentration Pathway (RCP4.5 and 8.5) of an ensemble of twenty General Circulation Models using R-software. Current and projected climate data were used to determine the impact of climate change on current and future forest fire period using the Keetch-Byram Drought Index (KBDI). In addition, current and future forest fire-vulnerable areas were mapped using Inverse Distance Weighting and weighed by Diva-GIS. The result indicates, no drought caused forest fire in the current. However, there will be a high forest fire in near-term. Besides, it will become very high in mid and end-term. Forest fire-vulnerable areas will be increased from 0 to 12.85, 18.8, 17.1 and 46.26% in Mid-RCP4.5, Mid-RCP8.5, End-RCP4.5 and End term-RCP8.5, respectively. Its risk will growing to high elevation. In addition, winter and spring will be fire occurrence seasons. In general, this study found out that climate change will initiate and spread forest fire occurrence. Therefore, forest fire management practices should be applied.

Biography

Haftu Abrha is a lecturer and researcher at Institute of Climate Society (ICS) in Mekelle University. His Bsc is in General forestry and MSc is in climate and society specialization in climate science. He published four articles in peer reviewed journals

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Evaluating the Role of Exclosures on Biomass and Soil Organic Carbon Stock of Northern Ethiopia

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Abstract
Land degradation is a serious problem in sub-Saharan Africa. Several restoration efforts have been made to overcome the challenges. This study, therefore, aimed at investigating the role of exclsoures (EXs) on woody biomass and soil organic carbon stocks over the adjacent degraded open grazing land (DOGL) in the Northern Ethiopia. Two proximate sites were purposively selected. Systematic sampling method was employed. A total of 60 plots (20m x 20m) were surveyed for both woody species inventory and soil sampling (0 - 15 cm, 15 – 30 cm) in each of the studied land use. We used already developed allometric equations to determine the woody biomass. The mean total carbon stock (biomass plus soil, 0-30cm) was significantly higher in EXs (60.41 ± 17.82 t C ha-1) than adjacent OGL (40.42 ± 14.18 tCha-1). The soil organic carbon stocks accounted for 86 and 93% of the total carbon stocks in EXs and OGL, respectively. The conversion of the degraded grazing lands to EXs enhanced the SOC, AGB carbon and herbaceous carbon stock by 38, 197 and 200 % respectively. The total above ground biomass carbon stocks were significantly correlated with the species diversity.

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Finally, this study revealed that EXs on degraded highlands of Tigray contributes to improve total carbon stock of woody biomass and soil.

Key Words
Climate change mitigation, enclosure, land degradation, open grazing land, rehabilitations

Biography
Ashenafi Manaye is a young climate science researcher in Ethiopian environment and forestry research institute, Mekelle center. The author is holder of MSc. Degree in climate change and development, and BSc degree in General Forestry. He has also 9 years' experience on lecturing and research on natural resource, forest and climate change resilience related research projects. The author was participated in several National and international conferences in Ethiopia and abroad.

Traditional Agroforestry Systems for Climate Change Resilience of Tigray Region, Northern Ethiopia

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Abstract

Agroforestry systems are a solution to address the food security of small-scale farmers and synergies between climate change adaptation and mitigations. Thus, the present study was aimed at evaluating the TAF practices of climate change resilience in the different agroecological region of Tigray, Ethiopia. Three districts from each agroecology were purposively selected. Then, systematic random sampling was employed to collect social and biophysical data from a total of 197 households (HHs). Socioeconomic data was collected using semi-structured questionnaires and woody species inventory was done on each HH. Agrosilvopastoral systems were the dominant TAF systems of all agro ecologies. However, parkland agroforestry (AF) practices were dominant in the midland and lowland areas, whereas rotational woodlot practices were dominant in the highlands. Overall the study shows that agroforestry contributes 39.5% of the livelihood products to the community. A total of 59 species, belonging to 48 genera and 32 families were recorded. Shannon diversity index (H') of highland agroecology was higher in home-garden AF while in the midland and lowland the higher H' was recorded in parkland agroforestry. The mean total biomass carbon stock of the TAF system was 21.4 t C ha-1. In the highland and midland, the variation in biomass carbon stock was significant ($p < 0.05$) between each TAF system. Thus, our study reveals that the TAF practices have benefits for providing food security to small-scale farmers and improving climate change adaptation and mitigation strategies.

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Keywords:
Adaptation, Agroforestry practice, food security, livelihood, climate change mitigation,

Biography
Ashenafi Manaye is a young climate science researcher in Ethiopian environment and forestry research institute, Mekelle center. The author is holder of MSc. Degree in climate change and development, and BSc degree in General Forestry. He has also 9 years' experience on lecturing and research on natural resource, forest and climate change resilience related research projects. The author was participated in several National and international conferences in Ethiopia and abroad.

Attitude of Public Secondary School Teachers towards Climate Change Adaptation and Mitigation Strategies: Implications for a Sustainable Environment

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Abstract

The overwhelming trend of global climate change presents the biggest threat to man's existence and that of other living organisms on the planet. All hands must be on deck to ensure a sustainable global environment including the young generation especially the adolescents at the secondary school. Teachers occupy a unique role in preparing adolescent students to actively participate in facing the current climatic issues and those that lie ahead for a sustainable environment. A climate change pro-attitude is at such preparation. This study was carried out to ascertain the public secondary school teachers' attitude towards climate change adaptation and mitigation strategies in Benin Metropolis.

Method of the study: The cross-sectional descriptive survey design was employed. Proportionate random sampling technique was used to select 174 public senior secondary teachers representing 10% of the total population. With a 100% return rate, a self-structured questionnaire (r=0.72) was used to collect data. Data was analysed using mean and standard deviation to answer the research questions raised while ANOVA statistic was used to test the formulated hypotheses.

Findings: The study revealed that majority of the teachers demonstrated negative attitude toward climate change adaptation and mitigation strategies. Also, the teachers' climate change attitude does not significantly differ based on years of teaching experience and also whether they are science, social science or art teachers.

Conclusion: The implications of the findings to the pursuit of sustainable global environment were x-rayed. Based on the findings, the researchers proposed the need for the full implementation of environment education at all level of education in the country

Key Words

Climate change, attitude, sustainable environment.

Practice of Trees on Farm, Drivers, Challenges and Roles in Climate Resilience

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Abstract

The study assessed the type of trees grew and their position on farm, the drivers and challenges of growing trees on farm and the climate resilience role of trees on farm in three selected districts in Tigray, Ethiopia. Three representative villages were systematically selected from each district based on their experience in growing trees on farms, with the help of the respective district experts. 30 respondents were then randomly selected from each sampled village. Primary data were collected through semi-structured questionnaire from 270 households. The results of the study showed that more number of the farmers grew trees as farm boundary (73%) than as scattered trees on farm (47%) averagely in all districts. The trees contributed to household income, firewood, food and feed. The need for fuel wood was the main driver for growing trees on farm in Enderta (100%) and Hawzen (71%). The need for raising income was the main driver for planting trees on farm in Hitalo wojerat (67%). Overgrazing and illegal cutting of trees were the main challenges for growing trees on farm in Enderta and Hintalo wojerat districts where as in Hawzen the main challenge was water shortage. Hence, there is a need for proper implementation of community bylaws so as to overcome the overgrazing and illegal cutting of trees challenges, which could then maximize the climate resilience roles got from trees. Water harvesting structure should be also constructed as it was a serious challenge in the study areas.

Keywords:

Trees on farm, drivers, challenges, resilience

Evaluation of Climate Change Impact on the Magnitude of Rainfall and Flood Frequency: The Case of Hare Watershed, Ethiopia

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Abstract

Developing country like Ethiopia more vulnerable to climate change, because of the less flexibility to adjust the economic structure and being largely dependent on agriculture, the impact of climate change has far reaching implication in Ethiopia. Hare River watershed is located in the Abaya-Chamo sub-basin of the southern Ethiopian Rift Valley and drains to Lake Abaya. The study aims to evaluate climate change impact on the magnitude of rainfall and flood frequency of Hare watershed. In the study the daily data values of rainfall and discharge from 1980-2006 was used based on stream flow measurements carried out by MWIE. The downscaled climate data such as, RCP4.5 and RCP8.5 was used for the future period assessment. Both rainfall and flood frequency analysis was performed using Log-Pearson type III distributed methods for return periods (T) of T = 2 yrs, 5 yrs, 10 yrs, 25 yrs, 50 yrs and 100 yrs. The annual peak flow frequency analysis has been carried out for the future (2020s, 2050s and 2080s) periods using the U.S. Army Corps of Engineers Statistical Software Package (HEC-SSP). RCP8.5 scenario for all return period by 2050s and 2080s predicted an increasing the change in rainfall magnitude. RCP4.5 scenario for all return period by 2020s and 2050s predicted decreasing rainfall magnitude. RCPs scenario predicted the 100-years flood of the current climate seems to increase to a flood return period of (2 yrs, 5 yrs, 10 yrs, 25 yrs and 50 yrs). The rainfall frequency analysis shows climate change will have impact on the frequency and magnitude of rainfall intensity. The future change in rainfall magnitude clearly governs in peak flow magnitude and frequency. The rainfall frequency analysis shows climate change will have impact on the frequency and magnitude of rainfall intensity. The future change in rainfall magnitude clearly governs in peak flow magnitude and frequency

Keywords:

Climate Change; RCPs; Flood frequency; Rainfall frequency; HEC-SSP

Combining Aridity Index and Traditional Agro-climatic Zones for a New Agro-climatic Zonation of Tigray Region, Northern Ethiopia

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Abstract

The aim of this study is to identify the agroclimatic zones of Tigray region based on aridity index and traditional agroclimatic zone. Satellite climate data were used in this study. Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS) for rainfall and Enhancing National Climate Services (ENACTS) data for temperature were used from their respective sites. They have high spatial and temporal resolution. Arc map 10.3 was used for mapping of all climatic variables and zonation of agro-climatic zones. Evapotranspiration was computed based on Hargreaves formula and map was produced accordingly. The ratio of annual rainfall to annual evapotranspiration was used to compute the aridity index of the study area. Besides, the digital elevation model was downloaded from ASTER data. During the process of zonation, the aridity map of Tigray was divided into three index zones 0.03-0.2, 0.2 – 0.5 and0.5 – 0.65. Subsequently, traditional agro-climate zones (in five zones) < 1500 m.a.s.l., 1500-2000 m.a.s.l., 2000-2500 m.a.s.l., 2500-3000 m.a.s.l., >3000 m.a.s.l. The traditional agro-climatic zones have been overlaid on aridity index classes, which divided entire region of Tigray into fifteen agro-climatic zones. Hot semi-arid, warm semi-arid, tepid semi-arid and hot arid were the dominant zones in the region.

Keywords

Rainfall, Evapotranspiration, Aridity index, Agro-climatic zone

The Comparison of Response Functions of Domestic Soybean Production toward the Types of Seeds, Planting Location and Planting Time to Meet Demand

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ING Wardana
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Abstract
The demand of soybean is increasing; therefore it needs effort to enhance domestic soybean production. This research is conducted to find out the results obtained by looking at the effect of the use of superior seed type, planting location and planting time. The experiment is conducted using three types of superior seedlings planted in two districts in Malang, East Java province with three times planting. Processing and data analysis using experimental design is three factorial designs with fixed model and random model with 95% of confidence level. The result of the study shows that the seed type, planting location, and planting time do not affect the production yield. The interaction of seed type, planting location and planting time do not affect production yield.

Keywords
Superior Seed Indonesian Soybean, Planting location, Planting Time, Interaction, Production.

Biography

Dr. Hj. Nelly Budiharti, MSIE born in Palembang-Indonesia, September13.,1964. Lecturer in National Institute of Technology (ITN), Malang- Indonesia. Bachelor of Science in Textile Technology focus on Textile Chemistry, Islamic University of Indonesia (UII), Yogyakarta-Indonesia (1987). Master Degree in Industrial Engineering, Institute of Technology Bandung (ITB), Bandung-Indonesia (1990). Ph D degree in Mechanical Engineering focus Manufacturing Industrial, Brawijaya University (UB), Malang-Indonesia. As a speaker in numerous International seminars, such as: Strategy Model Alternative of National Soybean Availability to Achieve Self – Sufficiency, Mespic, 2016, UiTM Malaysia. The Use of Indonesian Soybean Variety with Time and Planting Location to the Production to Meet the Demand, International Mechanical and Industrial Engineering Conference (IMIEC 2018) in Malang-Indonesia. National seminars, such as: Model Alternatif for domestic soybean inventory to achieve self-sufficiency, 2016, SENIATI ITN Malang. Variance Analysis of the selection of Indonesia Soybean Variety and Location Planting Toward Production to Meet the Demand, "The 1st Conference on Innovation and Application of Science and Technology (CIASTECH 2018)."

Structural Health Assessment of Bridge

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Abstract
The aging of structures subjected to adverse environmental conditions, earthquake, heavy wind load, mechanical vibration, fatigue, flutter effects and accident etc may lead to damage in the structure. The damage generally begins at the material level and under a particular loading scenario it progresses to component and system level. If the existence of damage in unmonitored and unnoticed, it will lead to undesirable stresses or deformations. This will affect the present or future performance of the structure leading to functional problems and ultimately a catastrophic failure. Hence, the early assessment of structural damage is one of the major challenges in existing bridges. In India, most infrastructure are aged and are still being used despite the deterioration and associated damage. Moreover, the structures are being subjected to earthquakes, bomb blast, mechanical vibrations, and operational fatigue conditions. In such cases, conditions monitoring of these structures is an area of prime concern. The structure under such conditions are to be immediately evaluated and precautionary measures needs to be implemented to avoid catastrophic failures and minimise the down time. The failure of Civil Engineering structures like bridges, buildings etc., More often results in a large number of causalities as well as social and economic problems. Hence, the health monitoring of a structure is an emerging research field to provide a potential to assess the safety and integrity of structures.

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Porous Pavements for Replenishing Ground Water

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Abstract

Over-exploitation of groundwater has led to a continuously decreasing water table. With our exponentially growing population, industries, a nd future requirements, we are on our way to the catastrophic situation of scarcity. For instance, studies show that by 2050, India will be able to provide only 22% of its present per capita demand. Sustainability is the key; we need to precisely utilize our constant cyclic resource for our continuously increasing expectations.

In the current situation, we lose an effective volume of potable rainwater ending up as runoff to inefficient and overburdened sewage treatment plans. Our concrete infrastructure is a barrier for water to reach back to nature. As a measure to bring this water into utilization, tackling this issue, in this study we have tried to look for the effectiveness of a cost-effective and sustainable option. Porous Pavements is an ideology or system utilized for roads, parking lots, and complexes to allow infiltration of water instead of run-off wastage. Porous Pavements allow seepage of fluids through thick and strong

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layers of porous materials, which simultaneously works as a passage and a strong foundation. In this project, we attempt to analyze the scope of efficiency and effectiveness of the idea in various backgrounds for maximum exploitation. Data presents that replacing to porous pavements not only help to replenish groundwater, but it will also be a major step in controlling pollution, promoting hygiene, controlling temperatures in the surroundings, and will be cost-effective on a long run. This study is an attempt to assess the viability of the idea on practical grounds and under various limitations.

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Co2 Emission Due To Excavation

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Abstract
Rapid urbanization in developing countries causes the emission of greenhouse gases. A major part of emission is released by construction sites. Construction processes involve excavation, which is asserted here as being an important area to our study, given that it intrinsically involves changing the site in terms of revealing, disturbing, removing and depositing soil and vegetation. The three major gases associated with excavation process are carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O). These gases (greenhouse gases) are responsible for global warming. Nearly about 22.6% emission of (CO2) is due to earthwork on construction site. Even though excavation is often seen as being economical in terms of providing a flat base for concrete raft construction, the environmental consequences of this approach need to be considered more carefully in terms of impact on the environment. The air quality in Delhi(India), according to a WHO survey of 1600 world cities, is the worst of any major city in the world. In this situation, controlling and reducing of pollution is an area of prime concern.

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Mitigating Adverse Effects of Global Warming Case Study of Rajasthan Ajmer

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Ajmer Rajasthan, India

Abstract

AJmer is located in the center of Rajasthan (INDIA) between 250 38 " and 26 0 58 " north 75 0 22" east longitude covering a geographical area of about 8481sq km hemmed in all sides by Aravalli hills. About 7 miles from the city is Pushkar lake created by the touch of lord Brahma. The Dargah of khawaja Moinuddin chisti is holiest shrine next to Mecca in the world. Ajmer is abode of certain flora and fauna that are particularly endemic to semi-arid and are specially adapted to survive in the dry waterless region of the state. The effects of global warming are the environmental and social changes caused by Human emissions of greenhouse gases. Climate change means climate change that continues for a feasible time. Change in surface temperature, rainfall pattern, frequency of extreme weather. Due to human activities, population growth increase or decrease climate vulnerability.

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Farmers' Level of Awareness and Response to Climate Change in San Jorge, Samar, Philippines

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Reynaldo R. Aquino
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Northwest Samar State University
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Northwest Samar State University
Lagrito Ebert B. Mante
Northwest Samar State University

Abstract

The study was conducted primarily to determine the level of farmers' awareness and response to climate change in the municipality of San Jorge, Samar. It employed a descriptive survey method wherein respondents were selected through stratified random sampling. Structured questionnaire was utilized as the survey instrument. A total of seventy farmers in seven barangays were selected as

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respondents. Data gathered were analyzed using SPSS version 6.0 and Microsoft Excel. Results showed that farmers in San Jorge are mostly middle-aged men, married, elementary graduate and earning income that ranges from less than 5,000.00- 10,000.00 monthly. Farmers indicated awareness about climate change and majority cited that mainly human activities are the causal factor in the occurrence of such event. They identified flooding and damage to agricultural crops as the most possible effects of climate in their barangays. The adaptation strategies include changing crops to a more drought resistant, fast growing and high yielding varieties. The mitigation strategies include planting of trees and implementation of ordinance against burning of garbage and farm waste. Knowledge of the farmers on climate change was obtained through mass media, especially television. Few had indicated that they obtained it through extension agents.

Biography

The main author was born in November 25, 1985 in one of the rural barangays of Leyte, Philippines. Growing up in a rural setting had inspired her to pursue a degree related to environmental management. She finished her Bachelor of Science in Forestry in 2006 and her Master of Science major in Forestry in 2010. She worked as part-time instructor in one of the agricultural colleges in Biliran province. After a year experience, she then applied for a post in the Department of Environment and Natural Resources (DENR) where she worked as extension officer for 6 years. Currently, she's working as an instructor in Northwest Samar State University in San Jorge, Samar handling major courses in forestry.

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Climate Change Mitigation and Adaptation

Cindy Gretel Rodriguez Mayorquin

Clima Renovable Honduras

Abstract

CLIMA RENOVABLE HONDURAS (CRH). The Company solves the supply of water, energy and food safety through renewable sources and develop the Eco-constructions at the national level, promoting and strengthening new technologies for Renewable Energy and Energy Efficiency, identified by different sectors of the world thanks to our struggle in mitigation and adaptation to Climate Change. Solar energy in newly built homes: producing electricity on the roof, they will increase the cost of building a new home, but they will save more than $ 19,000 in energy and maintenance costs in 30 years. Also recycling projects, like houses with containers with renewable energy and houses built with "Brick Bottles", for people of lack of resources.

Current # of end users of the solution: 2,700,000 millions of people.

Customers

Private Sector, Government, NGO´s, Embassies.

GOALS & OBJECTIVES

1. Solve the problem of garbage accumulation
2. Accelerate the economy
3. Generate recycling habits
4. Encourage environmental education
5. Generate inclusive sources of employment (people with disabilities).
6. Agriculture through solar energy
7. Possible to meet growing energy demands and cover deficit areas.
8. Can substantially reduce consumption of kerosene and diesel for lighting and power generation which will help in to reduce air pollution.
9. Provide power access and empowerment at grass root level.

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10. Safe food for rural and urban area BOTH.
11. Reduce ROI period for solar projects.
12. Will provide guideline for future Agrovoltaics projects.
13. Will gives solutions for existing solar projects to make extra revenue

AGROVOLTAICS: is the concept of combining power generated from PV and to enhance Agriculture productivity simultaneously.
What is Soilless culture?
Soilless culture is a methods of growing plants without soil.
Why do the grower turn to Soilless culture?
The difficulty and cost of controlling soil born pests and diseases.

1. Soil salinity.
2. Lack of fertile soil.
3. Water shortage.
4. Banding of using Methyl Bromide.

Coconut peat is used for a wide range of soilless crop production throughout the world including: tomato, cucumber, eggplant, capsicum,zucchini, strawberry, melons, carnation, rose, gerbera, gypsophila, lisianthus, chrysanthemum etc. Coco peat has no harmful environmental impact. The high water holding capacity of this substrate provides a buffer in high temperatures and high crop load demand without compromising air supply. The presence of organic compounds in Coconut peat can stimulate root growth and offer some natural resistance to plant disease.

STRENGTHS
In Honduras there is no law that make the citizen to recycle, so we could promote the approval of this law and be the guarantors that the same be fulfilled.
There are no institutions that encourage recycling, so Clima Renovable Honduras (CRH) would have the greatest coverage. Information is available for the recycling process and the installation of new technologies in renewable energy and sustainable houses.

In Honduras we have the interest of climate change mitigation, recycling, green energy, sustaibanle houses, clean water and food safety are very important factor to achieve this goal.

WEAKNESSES

We do not know the origin of the funds to execute the projects Lack of quality control because is a new technology in Honduras. There are no public policies to develop this type of programs.

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OPPORTUNITIES
Some State institutions and Private Initiative have expressed their interest in climate change mitigation.
The theme of recycling and renewable energy has no opposition.
There are companies in foreign countries that we could count on them as allies or some kind of

support
The political conjuncture generates interest from all political parties on issues of climate change mitigation and self-sustainable communities.
The development and progress that communication and information technologies currently have. International Cooperation has expressed interest to provide technical and financial support to the topic of climate change.

THREATS
No records and updated statistical data on the result in recycling plants. The possibility of a budget cut due to low execution.

Not being in a permanent budget since we belong to a category of other obligations of the State.

Biography

Cindy Gretel Rodríguez Mayorquín, civil engineer graduated from the Catholic University of Honduras and master's degree in Renewable Energy and Energy Efficiency from the Rey Juan Carlos University, Madrid, Spain. In 2008 she participated representing Honduras in the Second World Water and Climate Change Congress as a speaker in the city of Mérida, State of Yucatán, Mexico. The same year was published by the Embassy of Taiwan for representation in Honduras and the assistance to the course of Design of Structures for the Prevention of Danger in the NCREE study center in the city of Taipei, Taiwan. She speaks three foreign languages: English, French and Portuguese. It has been prepared at the Theodor-Heuss International Leaders Academy, in Gummersbach, Germany on issues of political communication on social networks. In Sao Paulo Brazil she attended a training on Facilitation Techniques for events such as: seminars, workshops, forums, etc., as well as several Leadership seminars in Guatemala and Costa Rica.

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Climate Change! Trouble for Aviation Industry??

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Abstract
The changing Weather patterns and Climate, spell certain trouble for the worldwide Aviation Industry, an important part of the modern world, economically and socially. With Maximum Temperatures rising every day, the thrust generated by planes is reducing, as air density decreases, having a negative impact on take-off performance, which can possibly lead to delayed flights till conditions are cooler. The loss of thrust due to increasing temperatures is overcome presently by achieving higher speeds on the runway (requiring longer runways and more fuel). The jet engines designed may not be suitable in future climates for the very same reason. Furthermore the construction of new airports require further planning in tropical areas or in coastal regions as the frequency and intensity of cyclones and intense precipitation is rising. Current climate changes are leading to conditions more favourable to airframe icing which current commuter flights are not equipped to handle. The climate changes will have a prominent impact on the Aviation Industry and these changes need to be analysed for future problems and challenges so that they can be overcome.

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Fighting Against the Climate Change through Environmental Educationand Public Awareness: Study From Marathwada Region of Maharashtra, India

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Abstract

The climate change phenomenon in Marathwada region of Maharashtra, India is a phenomenon of changing weather conditions to extreme and which are shifting the average values of weather parameters. Today the climate change phenomenon in Marathwada region is being observed in significant manner by altering the normal , uniform seasonal rainfall to abnormal rainfall resulting in abrupt cloud busting phenomenon in one region, whereas in another region there is no rainfall resulting in to flooding and drought condition respectively.

The climate change in Marathwada is influencing the each and every important sector of human life ranging from its food, health, agriculture and national monuments etc. directly as well as indirectly, resulting flooding and droughts hazards frequently. Marathwada region is frequently facing severe droughts resulting in severe water crises. The scarcity of water is resulting various problems such as, decreasing water table in region, health problems to living organisms including man, decreasing agricultural yield, loosing biodiversity, triggering desertification etc.Therefore to tackle the climate change problem, there is a need of proper environmental education among the society members through formal and non formal systems and make them aware about climate change and its adverse impacts and how to overcome them. It is realized that, the percolation of gogreen concept in societyand public awareness are the major tools to mitigate the impact of climate change in Marathwada region.

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Biography:

I am Prof. Dr. M. B. Mule, Working as a Professor in the Department of Environmental Science at Dr. BabasahebAmbedkarMarathwada University, Aurangabad MS India. Born in economically backward rural part of Maharashtra, i.e. from Marathwadaregion and serving since last 27 years in educational field as PG Teacher in university.

I born on 15 June 1965 at Mulewadi, District Osmanabad of Marathwada region of Maharashtra. I have taken my primary education up to fourth class in school from my native place and up to 7 thin nearby villages near to my native place. I have taken my high school education up to 10th class at Dahitane, Tal. Akalkot, DistSolapur and joined Junior college at Omerga, DistOsmanabad and passed 10th and 12th in second class in years March1980, and March 1983 respectively. I have joined my B.Sc. education at R. P. College, Osmanabad and completed my B.Sc. degree in first class in March1986. Then I have completed my M.Sc. degree in Environmental Science from former Marathwada University in the year 1988 in first class with distinction and stood first in rank of merit. Subsequently I have completed my Ph.D. in Environmental Science in the year 1991. My Ph.D. work was on eco-toxicological aspects and I have studied the impact of toxicants on fresh water snails. Specifically, I have worked out the effect of pesticides and heavy metal pollutants effect on fresh water snails Thiaratuberculata along with their toxicity assessment.

Started my career as a teacher at Shivaji University, Kolhapur and served there up to 26th December 2005 and later on from 27 December 2005 I am working at Dr. BabasahebAmbedkarMarathwada University, Aurangabad as Professor in the Department of Environmental Science. I have contributed as a teacher and researcher in the subject of environmental Science.

As a researcher in the field of Environmental Science, I have worked on ecological aspects, limno-biological aspects of fresh water bodies. The water pollution study has been carried out using water quality parameters analysis. Simultaneously I have studied the indicators of water pollution, specifically the phyto and zoo plankton's indicator species were worked out for indicating river water pollution sources and pollutants.

The wild life conservation and management was also studied from Western Ghats of Maharashtra i.e. Chandoli Wild Life sanctuary. The finding of this work was useful for conservation and management of wild life in Western Ghats of Maharashtra.

As an important topic from Environmental Science I have worked on solid waste disposal problem of Aurangabad city. Specifically I dealt with the composting of organic waste and disposal of plastic waste along with its reuse potentials.

The urban centers are facing severe problems of ground water quality due to industrialization and unsafe disposal of liquid and solid waste. Also I have worked out the underground water quality in vicinity of Aurangabad city and currently working on the water purification methods for sewage and salt contaminated water. Fly ash is a major problem of environment during the electricity generation from coal, and due to industrial use of coal. I have worked out various aspect of reuse and recycle potential of fly ash and completed one major research project. Under my guidance one M. Phil. and nine Ph.D. students has been awarded for their Ph. D. degree. Presently seven students are working for their Ph. D. course. As a outcome my research work, I have published about 48 research papers in scientific journals. Some papers are published in proceedings and in books and about 69 papers were presented in scientific conferences, workshop, seminars etc along with my research students. One book was published from Germany.

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Environmental Policy Engineering in a Legal Perspective (Case Study: Forest Burning in Indonesia

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Abstract

Legal policy engineering in the environmental field starts from the interaction between social and legal changes which raises two paradigms, namely the law serving the society needs and the law creating social change in society. These two paradigms also influence the legal cases in the environmental field. This research is a qualitative one with interview instruments and document review, using a content analysis approach on certain case. Disruption to the ecosystem chain occurs, one of which is caused by economic activities that make natural resources and energy as the main capital for the ongoing process of economic development. This alignment with economic progress has resulted in natural and energy resources becoming victims of the development progress. The purpose of this study is to analyze regulations that do not take side on sustainable environmental development with case studies of forest burning in Indonesia. Research findings show that Law Number 32 of 2009 concerning Environmental Protection and Management in Article 69 paragraph 1 letter (h) explains, people are prohibited from clearing land by burning. However, in Article 69 paragraph 2, referred to paragraph 1 letter (h) clearly pays close attention to local wisdom in their respective regions. These laws then form the basis of Central Kalimantan Governor Regulation Number 15 of 2010 which

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legalizes land burning. The provision opens the opportunity for the community to burn the two hectares of land as mentioned in the regional regulations. The importance of revising Law 32 of 2009 will be regulated in detail regarding the norms for prohibiting land clearing, including evaluating the permits granted by village heads and sub-district heads.

Keywords
Policy engineering, environment, forest burning

Biography

Dr. Saifullah, SH, MHum was born in Tanjungg Redeb on 5 December 1965, Lecturer at the Sharia Faculty of Maulana Malik Ibrahim State Islamic University Malang, Indonesia. First degree at Muhammadiyah University of Jember, Indonesia (1989); Master degree at Diponegoro University of Semarang, Indonesia (1995); Doctorate degree at Diponegoro University of Semarang, Indonesia (2003). Researcher and speaker at the national seminar. Presented in Short Course and Internship in International Class Program at the Department of Sharia Faculty of Islamic Studies in the National University of Malaysia. (2013); As a presenter at The 1st Biennial International Conference and Cultural Events on the Moderate Islam in Indonesia (2017); As participant at International Conference on Law, Technology and Society (2018). As a presenter at 4th Go green Summit at Kuala Lumpur, Malaysia (2018).

Go Green Education, Management, and Implementation in Al Kaaf Orphanage (Small) Foundation

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Abstract
The Indonesian population is about 261 million people (Indonesia's Statistics Agency/BPS, 2017). A part of them is in absolute poverty. Indonesia's absolute poverty rose to 27.77 million people in March 2017 (from 27.76 million in September 2016). However, the country's relative poverty figure fell to 10.64 percent of the population in March 2017 (from 10.70 percent in September 2016). This seeming paradox – the rising absolute poverty but falling relative poverty - is caused by Indonesia's growing population. Another characteristic of poverty in Indonesia is that poverty in the rural areas is worse than in urban areas. The BPS data show that in March 2017 Indonesia's urban poverty rate was 7.72 percent (of the urban population), while the nation's rural poverty was much higher at 13.93 percent (of the rural population). Some of the poor people are orphans. The Al Kaaf Orphanage (Small) Foundation (TAKOSF) keeps in touch with the orphans (about 70 boys and 60 girls). Some of them live in TAKOSF is baby since the age 2 weeks. They live in a rural area (1.4 ha) in Malang municipal. The leader and staff teach religion, implement daily jobs, cultivate "Koi" fish and goats, and plants the vegetables and fruit trees. The leader manages the financial allocation according to the donators

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suggestions and the result of compromises. This paper aims to indicate, to inform, and to understand the orphans condition in TAKOSF. The research method uses qualitative or subjective approach. The result of this observation informs about the increasing spirit of the orphans, skills, self manage, and they also help each other. We can also see the increasing the sustainability of the orphanage foundation management. .

Keywords

Orphan, gogreen, implementation, educate, sustainability.

Biography

Dr. H. Ali Nasith, MSi, M Pd I born in Jombang – Indonesia, July 5, 1964. Lecturer in State Islamic University of Maulana Malik Ibrahim, Malang - Indonesia. Bachelor of arts degree in Indonesian Letters Department - Faculty of Teaching and Training, Malang Islamic University (UNISMA). Master degree in Public Policy – University of Merdeka, Malang (2002). Master degree in Islamic Science, Darul Ulum University, Jombang (2011). Ph D degree in Social Sciences, University of Merdeka, Malang, Indonesia (2013). As a speaker in numerous National and International seminars, such as: International Conference on Islamic Education in Malang, Indonesia (2017), Accounting Skill and English Competition (ASEC) Java-Bali, Indonesia (2018). As a presenter at 4th Go Green Summit International Conference at Kuala Lumpur, Malaysia (2018).

Strategy of Simulation Effect between an Angle of Attack and Turbines Blade and the Power Generated by VAWT NACA 641212

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Abstract

The demand of Indonesian energy is growing faster and the non-renewable energy has decreased very rapidly, and the gap between demand and supply of energy is wider and wider, the government of Indonesia tries to shift and to look for an alternative energy to prevent future scarcity of energy resources. One alternative used is to utilize wind energy and the wind energy is no pollution, cheaper, and easier to find it. Wind energy potential in Indonesia is more than 90 GB and the production electric energy using wind energy has not been explored optimally. The paper aims to analyze the strategy simulation using Vertical Axis Wind Turbine (VAWT) using turbine blades NACA 641212. VAWT used 4, 5, and 6 unit turbine blades and the variation wind speed is 3.2 till 6.0 m per

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second. The research variables are variation of angle of attack (0, 15, and 30 degrees) and variation of turbine blades, and the electric power is generated by VAWT. This research applies quantitative method is experimental design using one way classification and data simulation. The finding of this research reveals is the decreasing of the angle of attack and the number turbine blades, the higher electric power generated. The null hypothesis 1 (alpha 0 degrees) is rejected, it is means that there is a difference effect between variation of turbine blades to the electric generated power by VAWT. The null hypothesis 2 (alpha 15 degrees) is rejected, it is means that there is a difference effect between variation of turbine blades to the electric generated power by VAWT. The null hypothesis 3 (alpha 30 degrees) is accepted, it is means that there is no difference effect between variation of turbine blades to the electric generated power by VAWT.

Keywords
VAWT, Simulation, Energy, wind energy, strategic, turbine blades, NACA 641212.

Biography
Dr. Ir. Bambang Sugiyono Agus Purwono, MSc born in Maospati, Indonesia, 5th March 1954. A lecturer in Mechanical Engineering Department - State Polytechnic of Malang, Indonesia. Bachelor of Science in Mechanical Engineering, Faculty of Technology, Brawijaya University, Malang, Indonesia (1982). Master degree in Industrial Engineering, ITB, Bandung, Indonesia (1988). Doctor in Management Science, Faculty of Economics and Business, Brawijaya University, Malang, Indonesia (2011).

Textbooks have already published are Strategic Planning, Production Management, Heat Transfer, Maintenance Management, Entrepreneur and Technopreneur, and Research Methodology.

Also as a speaker in numerous international conferences and national seminars about Entrepreneurship and Cooperative, Balance Scorecard, SWOT Analysis, Strategic management, and Renewable Energy, Wind Turbine, Plastic Waste, Quality Control, Water Treatment Plants, and Micro Hydro Power Plants in Malang, Bali, Yogyakarta, Bandung, Jakarta - Indonesia, Timor Leste, Melbourne - Australia, Hong Kong Polytechnics University - Hong Kong, National Institute of Technology (Tiruchirappalli - India), Bangkok- Thailand, Manila – Philippines, and Kuala Lumpur - Malaysia. As a Keynote speaker at 4th Go Green Summit International Conference at Kuala Lumpur, Malaysia (2018). As a conference chair in International Conference on Smart Green Technology in Malang – Indonesia (August 27-28, 2018), and 4th Go Green Summit International Conference at Kuala Lumpur, Malaysia (December 29-30, 2018). HIV AIDS advocacy in Bangkok – Thailand (1998) and Wuppertal – German (2002) as a participants are sponsored by UN AIDS.

Business Strategy and Innovation in Weather Anomaly Entering Mea and Cafta in the 'BREM" Industrial Business Centre in Madiun East Java Indonesia

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Abstract

Global warming that is currently happening causes climate change and weather anomalies. We often experience shifts or climate change. Likewise with peculiarities, oddities and deviations from normal weather conditions also hit almost all countries in the world, including Indonesia. Weather anomalies in Indonesia cause a dry season which often rains so it is called the wet dry season. Prolonged weather anomalies have a broad impact on all sectors of people's lives. Community business groups in the industrial center "Brem" Madiun, East Java, Indonesia feel the effects of weather anomalies on decreasing productivity and sustainability of businesses that have now entered the era of the Asean Economic Community (MEA) and free trade area the China-ASEAN Free Trade Area (CAFTA). This study examines entrepreneurial strategy innovation in weather anomalies conducted by

community business groups in the industrial center "brem" Madiun, East Java, Indonesia to maintain business continuity and increase the productivity of its business in entering MEA and CAFTA. Through a qualitative research approach, the results of this study indicate that: (1) the entrepreneurial strategy while still positioning it as a Micro, Small and Medium Enterprise (MSME) is proven to be able to maintain business continuity, (2) Innovation of 4P marketing mix strategy covering product, price, place, and promotion is very effective to increase productivity and sales volume in entering MEA and CAFTA, (3) Increasing productivity and sales volume in entering the MEA and CAFTA can improve living standards and welfare so as to realize economic empowerment and independence of the community. Suggestions that can be given from the results of this study include: (1) Attention to aspects of human resources (HR) and marketing is an important part of implementing an entrepreneurial strategy, (2) Innovation of 4P marketing mix strategy including product, price, place, and promotion should be emphasized to increase sales productivity and volume in entering MEA and CAFTA, (3) Realizing an "angel circle" by regulating a more innovative entrepreneurial strategy to increase the productivity and volume of sales in entering the MEA and CAFTA in order to improve living standards and welfare so as to realize empowerment and independence of economic community.

Keywords
Entrepreneurial, business strategy, innovation, weather anomalies, MEA and CAFTA

Biography
Dr. H. Abdul Bashith, S.Pd., M.Si., was born in Gresik – East Java – Indonesia, October 02, 1976. Lecturer in State Islamic University of Maulana Malik Ibrahim, Malang – Indonesia. Bachelor of Accounting Education degree in Business Education Department, Faculty Social Sciences Education, Malang Teacher Training and Education Institute (IKIP MALANG), East Java, Indonesia (1999). Master degree in Business Administration, Faculty of Administrative Sciences, Brawijaya University, Malang, Indonesia (2002). PhD degree in Economic Education – Graduate Program – Malang State University, Indonesia (2008). As a speaker in numerous National and International Seminar, such as: International Conference of Social Studies Education by International Social Studies Association (ISSA) (2015), International Conference of Islamic Education (ICIED) (2015), National Seminar – Education evaluation based on Higher Order Thinking Skills (HOTS) (2016), National Seminar – Curriculum K-13 Revised (2017), International Conference on Islamic Science and Technology (ICONIST) (2018), International Conference of Islamic Education (ICIED) (2018).

The Dynamics of Traditional Sulfur Miners Their Contributions to the Environment Sustainability at Ijen Mount Area, Banyuwangi East Java, Indonesia

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Abstract

Traditional sulfur miners in Tlemung, Banyuwangi East Java, Indonesia have a unique life. They mine sulfur by climbing Ijen Mount which has an altitude of 3,850 m above sea level. The distance traveled is approximately 8 km returns. From the summit of Ijen Mount, to obtain sulfur, the miners must descend the steep cliffs towards the crater. The sulfur is carried out manually to the village for sale. This research explores the dynamics of miners' life. Some miners carry out economic transition through some activities. The activities support the environmental conservation and the sustainability of Ijen Mount area. The research result reveals that (1) The life of traditional sulfur miners has distinctive dynamics and characteristics, (2) Through economic transition, traditional sulfur miners are able to improve their social and economic welfare, (3) Through economic transition, traditional sulfur miners are able to support the environment conservation and sustainability of Ijen Mount area.

Keywords

Traditional Sulfur Miners, Ijen Crater, Dynamics, Economic Transition.

Biography

Dr. Alfiana Yuli Efiyanti, MA, born in Jombang, at July 1,1971. A lecturer in Economic Education Study Program - Universitas Islam Negeri Maulana Malik Ibrahim Malang, Indonesia. Bachelor of Science degree in Business Administration – State Polytechnic of Malang (1993) and Faculty of Economics, Malang Islamic University, Indonesia (2002). Master degree in International and Development Economics, FHTW (HTW), Berlin, German (2004). Doctor in Economics Education - State University of Malang, Indonesia (2016). Journal titles have already published are: High Technology City of Bangalore Karnataka, India, State Owned Enterprises Reform in Indonesia, and The Implementation of Design Based Research (DBR) in the Development of Entrepreneurial Learning Model for Fisherwomen in the South Coast of Malang , Indonesia As a speaker in numerous international conferences and national seminars about Entrepreneurship, Poor People Empowerment, Economic Development, and Children Character Development.

Performance Analysis of AODV, DSR, OLSR and DSDV Routing Protocols Using Ns3

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Abstract
Path routing and protocol selection are the primary strategies to design any wireless network. In Mobile Adhoc Network (MANET) the selected protocol should have best in terms of data delivery and data integrity. Hence the performance analysis of the protocols is the major step before selecting a particular protocol. In this paper, the performance analysis is carried out on Adhoc On-demand Distance Vector (AODV), Dynamic Source Routing (DSR), Optimized Link State Routing (OLSR) and Destination Sequenced Distance Vector (DSDV) protocols using NS3 simulator. This project is to calculate metrics like the delay, throughput, control overhead, packet delivery ratio, etc. for performance analysis of these algorithms.

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Building Green Information Technology Animated at TESDA School in the Province of Rizal, Philippines

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Abstract

Global warming and climate change were the trends that were bring about by a lot of emissions of Carbon Dioxide (CO2) in the atmosphere. Information Technology is one of the sector that was contributed at least 3% of the CO2 emissions and the percent is keep increase from day to day as Information Technology become one of the need in human's daily life. In order to endure the environment, Green IT has been introduced. Unfortunately, Green IT in the Philippines is still in slow progress and can be identified as at alarming condition. IT industry has a significant role and contribution to the economy globally, but on the other hand IT is responsible for 2-4% of CO2 emission around the world. This is about the same as emission by aviation activities. The main IT device such as computer had contributed a lot of the environment whereby the computer components contain toxic materials1. IT device was contributed indirectly to the environment around the world and the impact was still not being realized by the end user2. The level of Green Computing awareness among Filipinos focusing on TechVoc student was still unidentified. TechVoc Institution is one of the providers of Technical and Vocational Education and Training institution that were aimed to produce at least

thousands of professionals. These future professionals should be educate with Green Computing knowledge to ensure the sustainability of the environment for the future. As such, this conceptual paper aimed to discuss the need of build up the TechVoc student with Green computing knowledge through formal education and guided with ITE curriculum.

Keywords
Green Computing, awareness, ITE Curriculum, TecVoC Student, TESDA.

Electricity Generation Potential from Biogas of Kano Central Abattoir, Kano State, Nigeria

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Abstract

Demand for livestock meat is continuously on increase in Kano as it is the most populous state in the most populous country in Africa. This make Kano to possess a great potential for biomass production. The continued slaughtering of livestock result in increase in bio-waste production and management problems. The use of traditional waste management methods, such as incineration and landfill has been unable to contend with the increase in bio-waste generated. Energy demand is also increasing rapidly owing to the rapid increase in population and industrialization. To meet this ever-increasing demand, access to clean and green energy is essential for the sustainable development of human society. Hence, this work aimed to estimate the biogas potential of Kano central abattoir. Field Survey was conducted in which data was collected through semi structured questionnaire, interviews and personal observations as well as documentary sources of information. Results showed that not less than 18,000 livestock are slaughtered on monthly basis in Kano central abattoir. Minimum of 185 ton of bio-waste is generated on monthly basis, though the bulk of the organic waste are booked and purchased by farmers to be used as farm manure while the left over are inadequately dispose. The inadequately disposed waste, if redirected into biogas production could reduce the electricity consumed in the abattoir by 27.5%.

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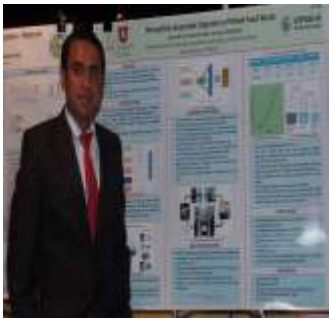
Kinetic Study of an enhanced Anaerobic Digestion of Organic Fraction of Municipal Solid Waste (OFMSW) using Iron Oxide Nanoparticles



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Abstract

Kinetic study or mathematical modeling helps in the process designing, reactor dimensioning, and up scaling of any system . A kinetic study of batch AD of OFMSW was carried out at mesophilic temperature (37±0.5°C) for the HRT of 60 days. Fe3O4 NPs were added to OFSMW, to investigate the volatile solids (VS) removal and methane (CH4) production potential. The different concentaration of NPs were used such as 50, 75, 100, and 125mg/l. The rate of reaction (k) was calculated by using first of order kinetic model by considering initial and final data. The k value for all concentration was achieved as 6.1x10-3, 1.4x10-2, 1.8x10-2, 9.6x10-3, and 7.1x10-3 (d-1). The higher rate of VS reduction was achieved at 75mg/L addition of NPs. Furthermore, the governing equation for whole process was obtained on the basis of cumulative CH4 generation and the equation was; y = -515.06x2 + 3193.2x - 103.98 with 0.852 of coefficient of correlation (R2).

Biography

I am a PhD (Environment) pursuing student at Mehran University of Engineering, Jamshoro, Pakistan under the USAID funded water center at University. I did Masters in Energy & Environment from University of Shenyang Aerospace University, China. Currently, I am working on the production of biogas from the organic waste through anaerobic digestion technology. I published and presented papers on the various methods to stabilize anaerobic digestion process and enhancement of energy production nationally and internationally.

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Analysis of High Salt Concentration in Industrial Discharge: The Use of Microbial Desalination Cells as a Pre-Treatment Method

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Abstract

Water supply nowadays increasingly relies on alternative water sources (thus, treated wastewater, seawater, and rainwater) in addition to surface and groundwater, mainly due to water shortage, vast wastewater discharge, and increasing stringent wastewater discharge standards, therefore the rising need for industrial wastewater treatment in various parts of the world. High salted water contains high concentrations of pollutants if discharging directly into water bodies will lead to pollution and environmental damage though it has not been given much attention in the trend of pollutants in wastewater. High salts concentrations cause plasmolysis which has inhibitory effects to the conventional biological and compromises its performance and efficiency notwithstanding its impact on the aquatic life. Therefore their removal (pre-treatment) is essential in the industrial wastewater treatment process. Existing technologies though are efficient, have high operation cost and energy consumption.

Microbial Desalination Cells (MDC) have proven in the last few years to be a useful tool in; seawater desalination, brackish water desalination, water softening, hydrogen and chemical production and groundwater remediation. Researchers prove that MDC is primarily appropriate for desalinating water with high salt content at a low energy requirement. And so far the technology has been successful and promising for further work in desalination and energy production in small scale but has not been applied in the treatment of industrial wastewater and also in a continuous flow mode of operation. This study, therefore, seeks to; (i) Assess MDC in terms of factors, directly and indirectly, affecting it process to improve it efficiency; (ii) To apply the knowledge from the study in (i) to enhance this technology as a pre-treatment method to reduce high salts concentrations in industrial discharge as well as COD in a continuous flow conditions; (iii) Enlighten the relevance of Pre-treatment methods before treatment wastewater treatment Plant (WWTP) and propose a flow of wastewater treatment.

Biography

Mr David Ewusi-Mensah was born in 1991 in the capital city of Ghana. I am 25 years of age and currently a graduate research student in Hohai University, Nanjing-China reading Environmental Engineering. And I am specialising in Pre-treatment of Industrial Discharge. Am a young environmental scientist with a thorough knowledge and understanding of the physical, chemical and biological aspects of the environment which considers areas such natural resources management, climate change, pollution control and mitigation, evaluating alternative energy system, waste management, biodiversity and global change, human population and androgenic effects. My

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educational and working experience in diverse fields of Environmental disciplines have equipped my ability to research and solve environmental problems.

It is my ambition to develop and advance my understanding, technical knowledge and practical skills to enable my success in the environmental industry as well as other relevant disciplines. With the aim of employing this knowledge to enhance working activities so as to improve environmental quality, minimise operation cost and improve productivity. The raising appreciation of the need for environmental protection has generated a high demand for good quality environmental experts and engineers as well.

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Analysis and Simulation Combustion and Emission in Small Engine

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Abstract

The application of gasoline and diesel in internal combustion engine is substituted to alternative fuel which one of the alternative way to save raw non-renewable resources. Nowadays, people are aware both of these fuels will be depleted over the time. The usage of gasoline and diesel lead to heavy environmental problem. Moreover, excess of carbon dioxide (CO2) emission from vehicles were release to atmosphere that caused global warming. This paper discusses the Liquefied Petroleum Gas (LPG) as alternative fuel and the development of simulation program for the actual process thermodynamic for four-stroke spark ignition (SI) engine. Cylinder pressure, gas temperature, heat release, mass fraction burn, brake power, brake torque, indicated specific fuel consumption and exhaust gas emissions were found to strongly influence the performance of gasoline and LPG fuel. The target is to predict and analyse the performance and exhaust gas emissions. The understanding of parameter and method used is very important in order to optimize the best result of the engine performance.

Biography

Prof. Dato' Rosli Abu Bakar is the lecturer in Faculty of Mechanical Engineering, Universiti Malaysia Pahang, Malaysia. Previously, he completed his degree, master and PhD study at Hanyang University, Seoul, South Korea. After that, he went back to Malaysia and started his education and research career path at Universiti Teknologi Malaysia and continues his research and career at Universiti Malaysia Pahang since 2004. Some of his expertises and teaching experiences are thermodynamics, fluid mechanics, automotive and combustion technology. After joined UMP, he was assigned as the Dean of Faculty of Mechanical Engineering and director of Automotive Excellence Centre for 6 years since 2005. Up to date, he had stepped down from the dean and director post, and become the member of SIRIM standard Malaysia, an active committee of Malaysia Quality Assurance for higher education institution accreditation and still serves as professor in Universiti Malaysia Pahang. Write more than 140 papers in journal and more than 170 papers in conference international and national.

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Exploring Effectiveness of Windrow Composting In the Maldives

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Abstract

Being a small island nation, Maldives faces enormous challenges in solid waste management due to land scarcity, geographic isolation, small economy of scale and lack of financial and human resources. Change in consumer lifestyle and increase in population are the main drivers behind solid waste generation in the Maldives. About 70% of waste generated in the islands are organic wastes. Recently, many islands in the Maldives have started to adopt Windrow composting as a method to recycle organic waste produced in the islands. Windrow composting is a promising approach in the Maldives as this method has the capacity to recycle large quantities of organic waste generated in the islands. Hence the main aim of the study is to explore effectiveness of Windrow composting in the Maldives by taking the very first island which was able to sucessfully implement Windrow composting as an exploratory case study. The data for the study was collected for a seven day period, during which time, total organic waste brought and utilized to make windrow compost was weighed every day. Results showed 79 % of organic waste brought to the waste managemnt center was used to make compost, while 20% of organic waste are thrown away or burnt. On a monthly basis, the waste management centre was able to sell 3000 kg of compost made from Windrow composting to local farmers and resorts. The exploratory study showed Windrow composting is a low cost effective method to recycle organic waste generated in the islands. The study also showed there is a growing demand for local compost by farmers and private resort owners in the maldives.

Keywords

Solid waste management, Windrow composting, organic waste, compost.

Biography

After graduating with Masters from University of Queensland, Australia, Ms. Shadiya has been working as a Lecturer at Maldives National University. She has a Postgraduate Diploma in Research Studies and an additional Masters degree in Social Research. She is actively involved in various research projects undertaken by faculty of Science of Maldives National University.

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Product Life Cycle Approach to Green Management

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Abstract

Energy and environmental concerns are intricately linked to the supply chains of various goods. Increased public awareness of such issues is reflected in the contemporary business environment as well as government legislation. Green Supply Chain is a new trend of industrial development. Because of the legislation of RoHS and WEEE announced by European Union, many industries have to incorporate environmental issues into supply chain management. This requires to apply systematic techniques to quantify the environmental impacts of supply chains, and to identify opportunities for making improvements. This attributes to the Green Management of a product.

While global warming has been an urgent issue, education of how to achieve green environment from its basic methodology and concepts becomes essential. Since to produce a green product is not only to control and manage the whole supply chain under required green levels; but also to properly treat the used materials. How to cope with such complicate and correlated issues such that the "3R" of Reduce, Recycle and Reuse required for green engineering can be ensured has required the industries to utilize more analytical and measurable approach. This research aims to provide a complete production methodology by incorporating engineering and management solution techniques so that within a life cycle of a product, environmental and economic issues can be practiced and ensured.

Keywords

Supply chain and demand chain management; assessment & resolution; life-cycle approach

The Influences of Water Content on Performance and Emissions of Si Engine Running With Blending of Fusel Oil – Gasoline

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Abstract

Biofuels from Biomass are meant to decrease significantly dependence on fossil oil and reduce the environmental influences in energy use. Fusel oil one of biofuel that composed of a mixture of alcohols. Fusel oil obtained by-product during fermentation of agricultural products such as beet, cone, sweet molasses, grains, potatoes. According to the high research and motor octane rating also a high density of fusel oil compared with other fuels maybe it will get an essential place in the alternative. The main objective of this study was to determine the impacts of moisture on performance and emissions characteristics of a four-cylinder engine running with fusel oil –gasoline blends. The experiments were performed on spark ignition engine under 4500 rpm engine speed, different engine loads and the different blending ratio of gasoline- fusel oil (G100, FBWE20, and FAWE20). In addition, the effects of test fuels upon brake power, brake thermal efficiency, brake specific fuel consumption, maximum in-cylinder pressure, and emissions (nitrogen oxide NOx, hydrocarbon HC, carbon monoxide CO, and carbon dioxide CO2) were examined. The heating value of fusel oil after water extracted (FAWE) become 33.8 MJ/kg that improved by 13% compared with original one (FBWE) 29.9 MJ/kg. Mostly at all blending of fusel oil –gasoline the brake power is slightly increased than that of gasoline. Also, the brake specific fuel consumption (BSFC) and thermal efficiency improved by reduced the water content of fuel oil. Furthermore, the NOx emission decreased with fusel oil -gasoline blends compared with pure gasoline at all engine loads. However, HC, CO, and CO2 emissions increased with fusel oil -

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gasoline blends. In general, the higher oxygen content and octane number of fusel oil with reducing water content led to improving the engine performance and NOx emission.

Keywords
Fusel oil; Spark ignition engine; Water content reduction; NOx emission; Alternative fuel