1st ANNUAL CONFERENCE/AGM
Impact Assessment: A tool for achieving the SDGs in Nigeria

SUPPLEMENTARY BOOK OF ABSTRACT AND PROGRAMME

DATE	TIME	EVENT	PRESENTER
DAY 2 08/11/2019	**09:00-10:40**	**TECHNICAL SESSIONS 4C -HALL C** **CHAIRMAN:** Dr. Oji Akuma (HOD Chemical Engineering, Uniport)	
	09:00-09:15	INTEGRATED APPROACH TO WETLANDS AND RIVER BASIN MANAGEMENT: THE CASE OF THE NETHERLANDS MEANDERENE DE MAAS RIVER PROJECT	Okogbue, Blessing C., Sajo, Opeyemi S., Nurtjahya, Eddy and Manandhar, Bikram
	09:15-09:30	APPLICATION OF GIS AND REMOTE SENSING TO THE DELINEATION OF GROUNDWATER POTENTIAL ZONES IN YENAGOA L.G.A	Omu Praise
	09:30-09:45	GEOCHEMICAL DATA HANDLING, USING MULTIVARIATE STATISTICAL METHODS FOR ENVIRONMENTAL MONITORING AND POLLUTION STUDIES	Sikakwe, Gregory Udiea, Nwachukwu, Arthur Nwachukwua and Clementina Ukamaka Uwab
	09:45-10:00	ENVIRONMENTAL IMPACT ASSESSMENT SKILLS NEED OF YOUTH	Nti, J. U.E., Abuta, C.M., Garshon, W.B & Adesope, O.M,
	10:00-10:15	AGRICULTURAL WASTE CONTRIBUTIONS TO CLIMATE CHANGE IN NIGERIA	Abuta, C.M., Aroyehun,, R.A., Onyenma, G. C, & Igbokwe, C.I.
	10:15-10:30	IMPACT OF CLIMATE VARIABILITY ON THE INCIDENCE OF TUBERCULOSIS IN GOMBE METROPOLIS, GOMBE STATE	Weli, Vincent Ezikornwor and JACOB, Jethro Matus
	10:30-10:40	ASSESSMENT OF HEAVY METALS IN SELECTED MUNICIPAL SOLID WASTE DUMPSITES IN POTISKUM, YOBE STATE	Ibrahim, G. D., Abu, G. O. and Nwaichi, E.O.
	10:40-10:55	**TEA BREAK**	

INTEGRATED APPROACH TO WETLANDS AND RIVER BASIN MANAGEMENT: THE CASE OF THE NETHERLANDS MEANDERENE DE MAAS RIVER PROJECT

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ABSTRACT
Stakeholder analysis and participation is very vital in the effective and efficient management of Wetlands. The Maas (Meuse) River basin project in the Netherlands involved the engagement of all stakeholders and interest groups to participate in the planning process which geared towards meandering the river, strengthening the city dykes, developing nature and increasing river water retention for effective water regulation to ensure national safety and in climate change conditions. This exercise involved in-depth consultations with stakeholders which were to culminate to a preferred design out of the six different designs developed to execute the Maas wetlands project. The scenarios and designs were revolved around one or both of agriculture, nature development, dyke resizing or relocation, river bank manipulations and to making more room for the river. So many individuals and organizations might be losing their farms, industries, business, houses, lands or nature area as a result. This study therefore revealed the varying challenges the project may be posing on the people and their respective interests which they want to protect and to be considered by the government. The ecosystem services were analyzed in the face of the scenarios as well as the features of each of them to assess the most eco-friendly option which should be based on both national and international guidelines and policies governing the implementation of wetlands and water-based projects according to the Netherlands water board. There is thus, the need for integrated approach to wetlands and water resources management projects for inclusive consideration, public participation and stakeholder education. Non-engagement of grassroots in such local based projects may have adverse effects on the implementation and management successes or may result to conflicts when devoid of proper communication and linkages.

Key words: Stakeholder Analysis, Wetland Management, Meuse River, Climate Change, Aquatic Ecosystem, Ecosystem Services

APPLICATION OF GIS AND REMOTE SENSING TO THE DELINEATION OF GROUNDWATER POTENTIAL ZONES IN YENAGOA L.G.A

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ABSTRACT

The integration of remotely sensed data and geographical information system (GIS) for the delineation of groundwater potential zones has become a useful tool globally for better and careful exploration of groundwater resource. The aim of this study is application of GIS and Remote Sensing in the delineation of groundwater potential zones in Yenagoa L.G.A. in order to achieve the objectives of this study, nine thematic layers(drainage density, drainage proximity, geology, landuse, lineament density, rainfall, slope, and soil) would be analyzed and integrated in the GIS working environment (ArcGIS 10.5) with the assistance of Analytical Hierarchy Process (AHP) a multi-criteria decision analysis tool, by assigning weights to them. Each of these weighted thematic layers are then computed statistically to get the potential zones of groundwater in the study area. The groundwater potential zones would be shown in three different classes, the high, the moderate, and the low class. The method applied in this study would reveal the usefulness of the result for future planning and better management of the groundwater resource.

KEY WORDS: Geographic Information System (GIS), Remote Sensing, Groundwater, Groundwater delineation, Potential areas.

GEOCHEMICAL DATA HANDLING, USING MULTIVARIATE STATISTICAL METHODS FOR ENVIRONMENTAL MONITORING AND POLLUTION STUDIES

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ABSTRACT

Multivariate statistics such as hierarchical cluster and principal component analyses were used in interpreting physicochemical parameters and potentially toxic heavy metals in water and stream sediment data. Three Principal components loadings (PC1, PC2 and PC3) were produced from water samples data. Eigen values (20.563, 8.477, and 7.635) for each PCs were obtained. The percentage total variance (28.563, 11.774, 10.605), cumulative eigen values PC1 (20.566), PC2 (29.043) and PC3 (36.678) were achieved and Cumulative percentage of PC1 (28.563), PC2 (40.337) and PC3 (50.942). In stream sediments, eigen values for PC1 (12.290), PC2 (5.473), PC3 (3.191) and PC4 (2.103) and Percentage total variance of PC1 (39.647), PC2 (17.651), PC3 (10.292) and PC4 (6.782) were obtained. Cumulative eigen values of PC1 (12.290), PC2 (17.762), PC3 (20.952) and PC4 (22.305) and Cumulative percentage for PC1 (39.647), PC2 (57.298), PC3 (67.590) and PC4 (74.372) were also obtained. PC2 scores revealed that the groundwater in the area flows through two different aquifer types. High positive NO_3 shows presence of anthropogenic contamination in water and stream sediments. High positive loading of Ba is due to barite mining in the study area. PC score loading show that none of the elements pose serious health threat due to contamination.

Keywords: Multivariate Statistics; Principal Component Loadings; Anthropogenic Contamination; Physicochemical Parameters; Potentially Toxic Heavy Metals

ENVIRONMENTAL IMPACT ASSESSMENT SKILLS NEED OF YOUTH

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ABSTRACT

No doubt, we live in a dynamic world; however, the 21st century comes with a lot of social, technological and economic changes. These have modified and redefined our way of life. Most employers of labour in developing countries have widely criticized the quality of graduates produced by higher educational institutions in developing countries, Nigeria inclusive. The skills need of youth have been shown to encompass soft and hard skills required to meet the ever change conditions in the environment. As a result of the fast paced change in our environment, most of the projects and programmes come with implications on the environment (pollution, climate change, release of gas, improved livelihood and so on). There is need to properly determine the effect of (future) projects and programmes to meet the Sustainable Development Goals of the United Nations. This study reviewed the environmental impact assessment need of youth, as our environment forms an integral part of our survival and sustainability, thus harm to the environment is harm to man's existence. As leaders and managers of the future, there is need to understand the skills youth should possess for proper environmental assessment and management.

Key words: Environmental impact assessment, skills need and youth

AGRICULTURAL WASTE CONTRIBUTIONS TO CLIMATE CHANGE IN NIGERIA

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ABSTRACT

This study was undertaken to review the strategies for reducing agricultural waste contributions to climate change in Nigeria. To achieve this purpose, literature materials concerning agricultural waste and climate change was reviewed. Findings from reviewed literature reveal that agriculture is a vast sector encompassing crop, animal, forest resource management and utilization systems. These systems especially in developing countries generate a lot of waste, of which on decomposition emits greenhouse gases. Agricultural wastes are mostly bio-degradable; however, some animals emit methane, urea and so on which may contribute to the concentration of Green House Gases in the atmosphere. Research has shown that plant parts when decomposed in large quantity as a result of microbial activities/spoilage release gases which facilitate global warming. Most toxic gases as it concerns agriculture are released during production, processing and even utilization (consumption, especially if not responsibly consumed) stages. Various agricultural activities lead to the generation of wastes and gases that have adverse effects on the environment. Agricultural activities such as bush burning, deforestation, fumes/air pollutants from farm machinery/equipment as well as processing plants also contribute to climate change. Strategies such as use of organic agriculture, reduced use of fertilizer and climate smart agricultural practices amongst others are greatly recommended. However, great attention should be given to these agricultural waste because there will be a substantial decrease in agriculture contribution to pollution and climate change in Nigeria if agricultural waste is properly managed.

Key words: Agricultural waste, climate change, Environmental impact

IMPACT OF CLIMATE VARIABILITY ON THE INCIDENCE OF TUBERCULOSIS IN GOMBE METROPOLIS, GOMBE STATE.

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ABSTRACT

This paper examined the impact of climate variability on the incidence of tuberculosis in Gombe metropolis. The study employed cross-sectional and ex post factor research design. Primary data was collected on perception of the people regarding the factors responsible for the incidence of tuberculosis using questionnaire. Data on rainfall, temperature, relative humidity and wind speed were collected from Nigerian Meteorological Agency (NIMET) for the period of 20years (1997-2016). Purposive sampling was used to select the centre for leprosy and tuberculosis, specialist hospital, in Gombe metropolis and 8 locations were used as sample for the study. Simple random sampling was used to select the individuals for the study and stratified sampling method was used to determine the quota of sampling size to be giving to each location. Times series analysis and simple linear regression were used for data analysis. Student T-test was used for testing hypotheses. Findings revealed that there is a weak positive relationship between rainfall and tuberculosis (r = 0.043), temperature and tuberculosis (r = 0.037), relative humidity and tuberculosis (r = 0.194), wind speed and tuberculosis (r = 0.019). The regression analysis reveals that 4.3%, 3.7%, 19.4% and 1.9% of the variance in tuberculosis can be explained by the climatic parameters under study. This implies that there are other factors which are responsible for the disease. Such factors include: malnutrition, lack of awareness and poor drug adherence. The disease is more during dry season than rainy season and it is clustered within the study area. From the hypotheses tested, there was impact of rainfall and relative humidity. This is because they were significant at P (0.59) < or = 0.05; P (0.23) < or = 0.05. Temperature and wind speed were not significant at P (0.61) > or not = 0.05; P (0.71) > or not = 0.05. Climate variation is accountable for 29.3% of the incident of tuberculosis in Gombe metropolis. There should be awareness campaign on tuberculosis, health education on the danger of smoking cigarettes and implementation of new policy on waste management.

ASSESSMENT OF HEAVY METALS IN SELECTED MUNICIPAL SOLID WASTE DUMPSITES IN POTISKUM, YOBE STATE

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ABSTRACT

This study was conducted on five municipal solid waste dumpsites that are provided, controlled and managed by the local council authority in Yobe state. Combustion and deposition were the main waste management practice and the waste consist of household waste, animal dung, leaves, polyethylene bags and those from commercial facilities. The concentration of As, Cd, Cu, Pb and Zn in these selected dumpsites were determined using Buck Scientific 201VGB Atomic Absorption Spectrometer (AAS). The concentrations and distribution of the metals were found to be As (0.15±0.02) < Cd (0.88±0.01) < Cu (100.41±1.12) < Zn (191.72±0.65) < Pb (194.66±0.53). The concentration of As was found to be negatively correlated at $p < 0.05$ with Cd, Cu and Pb however it has weak positive correlation with Zn in the selected dumpsites. The mean concentrations of As, Cd, Cu and Zn were found to be within the acceptable limits in $mgkg^{-1}$ of 40, 0.8, 100 and 7000 for As, Cd, Cu and Zn respectively while the concentration of Pb was above the limits of 85$mgkg^{-1}$ limits set by the world health organization (WHO). Conversely, the heavy metals concentrations observed in these selected dumpsites were below the limits in mgkg-1 of 55, 380, 190, 580 and 720 set by the department of petroleum resources (DPR) for As, Cd, Cu and Zn respectively. Therefore, it is necessary to caution the inhabitants adjacent to these dumpsites against possible Pb contamination of ground water sources from the leachates and the health implications.