

ERTEP 2007

Book of Abstracts and Presentations



Building Tools and Capacity for Sustainable Production

First International Conference
on Environmental Research,
Technology and Policy
July 17 - 19, 2007

La Palm Royal Beach Hotel
Accra, Ghana
Africa

Editors

Dr. E.K. Yanful
Cynthia L. Quintus
Shahenda Abou-Aly
Alex Shirriff Dolson
Erin Cullen

construction. *M.E.G. Boscov, V. Soares, R.B. Santini, A.A.P. Ferrari.....Page 51*

(E3.24) Recycling, an emerging option: a case study of recycling of scrape iron and metals in Nigeria. *Prince Blessing Mafimisebi.....Page 51*

(E3.25) Strength and leaching patterns of heavy metals from ash-amended flowable fill monoliths. *Rajender Gaddam, Hilary I. Inyang, Vincent O. Ogunro, Rajaram Janardhanam, Felix F. Udoeyo.....Page 52*

F. Water Treatment Protection and Management

(F3.1) Municipal wastewater treatment challenges and research needs. *George Nakhla.....Page 52*

(F3.2) Bacteriological quality of different drinking water samples in port Harcourt, Nigeria. *Obire Omokaro, Igoni.O.Abigail.....Page 53*

(F3.3) The algae from Turkish freshwaters. *Abel U. Udoh, Ilkay Acikgoz, Tulay Baykal, Kazim Yildiz, Bulent Sen, Feray Sonmez, M. Tahir Alp, Özgür Canpolat, Özgür Özbay.....Page 53*

(F3.4) Groundwater pollution in shallow wells in southern Malawi and a potential indigenous method of water purification. *M. Pritchard, T. Mkandawire, J.G. O'Neill.....Page 54*

(F3.5) Challenges of River Basin Information System (RBIS) as a Framework for the Assessment and Monitoring of Surface Water in Nigeria. *A. O. Eludoyin, O.M. Akinbode.....Page 54*

(F3.6) Activated Carbon for Water Treatment in Nigeria: Problems and Prospects. *Ife K. Adewumi.....Page 54*

(F3.7) Removal of excess fluoride from borehole water in the Bongo District of Ghana, using clay bedding. *D. K. Essumang, D.K. Dodoo,K.C. Adokoh,S.Y. Kpornyo.....Page 55*

(F3.8) An innovative management practice of converting mined out pits into water harvesting structures. *Meena Bilgi.....Page 55*

(F3.9) Seasonal dynamics of physicochemical properties and heavy metal burdens in Mangrove sediments and surface waters of the brackish Qua Iboe Estuary, Nigeria. *Nsikak Udom Benson, Joseph Peter Essien, Sylvester Peter Antai.....Page 55*

(F3.10) Atmospheric transfer of organic pollutants into sediments of water bodies. *Stephen Kudom DonyinahPage 56*

(F2.11) Molecular Detection of Escherichia coli 0157:H7 in Water Sources in Accra, Ghana. *Aiah A. Gbakima, Adrian Carey, Daleb Aghodaze, James A. Higgins, Michael Wilson.....Page 56*

(F2.12) A fuzzy-based surface water quality screening model. *Manar Zafer El-Beshry, Maged M. Hamed.....Page 57*

(F2.13) An assessment of the influence of discharged effluent on the quality of surface water utilized for agricultural purposes. *O.R. Awofolu, R. Du Plessis, I.T. Rampedi.....Page 57*

The presence of *E. coli* and enteric pathogens such as *Shigella*, *Enterobacter* etc., indicated the contamination of the various water sources with faecal matter implying that they are not suitable for drinking.

(F3.3) The algae from Turkish freshwaters

- **Abel U. Udoh**, *Faculty of Education, Dept. of Biology, Gazi University, Besevler-Ankara, Turkey*
- **Ilkay Acikgoz**, *Faculty of Education, Dept. of Biology, Gazi University, Besevler-Ankara, Turkey*
- **Tulay Baykal**, *Faculty of Education, Dept. of Biology, Ahi Evran University, Kirsehir, Turkey*
- **Kazim Yildiz**, *Faculty of Education, Dept. of Biology, Gazi University, Besevler-Ankara, Turkey*
- **Bulent Sen**, *Faculty of Aquaculture, Firat University, Elazig, Turkey*
- **Feray Sonmez**, *Faculty of Aquaculture, Firat University, Elazig, Turkey*
- **M. Tahir Alp**, *Faculty of Aquaculture, Firat University, Elazig, Turkey*
- **Özgür Canpolat**, *Faculty of Aquaculture, Firat University, Elazig, Turkey*
- **Özgür Özbay**, *Faculty of Aquaculture, Firat University, Elazig, Turkey*

Among the natural assets Turkey has, there is a great number of lakes, wetlands and running waters with various characteristics. There are 48 natural lakes which are being used as sources of water supply, irrigation, fishing and recreational purposes. The characteristic features of the lakes, wetlands and running waters are represented in an image database in Turkey. In addition, the database for the algae recorded in these freshwater habitats are introduced. In the digital image database, main diagnostic features of algal species and its characteristics in occurrence (e.g. epilithic, epipellic, epiphytic, planktonic) are included. The first phase of this project involved the selection of the most suitable digital image database program. In the second phase, images of algal species such as diatoms were taken from permanent slides while those of other algae were obtained from either fresh materials or from articles and books. Images of algae were taken from slides by means of imaging work station while those of algae reported in articles and books were scanned with a scanning machine and stored in a computer. The images of each algal taxon were arranged with their main diagnostic features and occurrence characteristics in the same page. The database will finally be prepared as a web page for internet usage. This study represents only a part of our main database. It contains the number of species of each genus and their most abundant and widespread species. The chemical and physical properties of the freshwaters are not given.

(F3.4) Groundwater pollution in shallow wells in southern Malawi and a potential indigenous method of water purification

- **M. Pritchard**, *Leeds Metropolitan University, School of the Built Environment, Leeds, United Kingdom*
- **T. Mkandawire**, *University of Malawi, the Polytechnic, Department of Civil Engineering, Chichiri, Malawi*
- **J.G. O'Neill**, *Centre for Research in Environment and Health, York, United Kingdom*

The provision of safe drinking water is a fundamental right of basic health and an extremely high priority of the Malawi Poverty Reduction Strategy. Only 37% of the people in Malawi have access to safe drinking water. Conventional water purification systems are prohibitively expensive for developing countries. The majority of research work undertaken on water in developing countries has focussed on surface and borehole water quality with hardly any work undertaken on shallow wells. The extent of pollution in shallow wells together with innovative, sustainable, economical solutions needs to be developed. This research work has focused on establishing a data-base on water quality from shallow wells in southern Malawi with the view to developing a technology that uses indigenous plant extracts to purify the groundwater. An in-situ water testing kit was used to determine the water quality. The majority of the physico-chemical parameters were found to be within the recommended limits, however, microbiological water quality results show that the water can be grossly polluted with faecal matter. Values of over 1,000 faecal coliforms per 100ml in covered wells and over 10,000 in open wells were found, indicating gross faecal contamination and the likely presence of disease causing microorganisms. Preliminary laboratory tests on a powdered extract from the common indigenous plant *Moringa oleifera* are sufficiently encouraging for microbiological purification (e.g. 90% improvement) for further more detailed work to be planned.

(F3.5) Challenges of River Basin Information System (RBIS) as a Framework for the Assessment and Monitoring of Surface Water in Nigeria

- **Eludoyin, A. O.**, *Department of Geography, Obafemi Awolowo University, Ile-Ife, Nigeria*
- **Akinbode, O. M.**, *Department of Geography and Planning Sciences, Adekunle Ajasin University, Akungba – Akoko, Nigeria*