



INTERNATIONAL JOURNAL OF ENVIRONMENT

Volume-4, Issue-2, March-May 2015

ISSN 2091-2854

A REVIEW OF IJE PAPERS: (VOL. 3, ISS. 3 & 4)

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This paper provides the review of the papers published in Volume 3, Issues 3 & 4 of “**International Journal Environment**”. The genesis of this paper came from a request to Dr. Naveen Punati by the Editor-in-Chief, **Govinda Bhandari**, in reviewing IJE Issues. As the two issues contained a grand total of forty three (43) papers, Dr. Punati requested the approval of using a colleague, Dr. Ajith Rao, for help in completing the reviews. Mr. Bhandari reviewed Dr. Rao’s CV, and approved the completion of the review jointly. Dr. Punati and Dr. Rao spent five weeks on reviewing and summarizing the papers individually. The entire process was an enriching experience for both Dr. Punati and Dr. Rao, and served to describe the breadth of the excellent work contained in these issues of the journal.

Issue 3 opens with a note from the editor-in-chief, **Mr. Govinda Bhandari**, with an impassioned call on the importance of environmental research, especially in a developing country such as Nepal. He highlights the work of the Progressive Sustainable Developers Nepal, and the successes of the International Journal of Environment. The journal continues to attract high-quality papers on research from around the world, and Mr. Bhandari expresses optimism that this will continue to grow. Mr. Bhandari notes that managing and growing this journal requires the participation of numerous people in various roles, and acknowledges all their work and efforts.

The following is a brief review of some of the articles selected from the following issues:

Volume 3, Issue 3, June – August 2014 contained 30 articles.

Volume 3, Issue 4, September – November 2014 contained 13 articles.

Neema et al. (2014) conducted qualitative and quantitative assessment of the quality of major parks in mega city Dhaka. Authors considered four incommensurate factors: environment, safety and security, landscape and aesthetic value to assess the quality of the parks. From analysis authors found that, some parks, located in highly classified residential area of the city, are superior in safety and security and landscape design whereas other parks, located remote from residential area, are inferior in safety and security and environmental factor. To assess the quality of parks, authors formulated a new index value calculation to rank all parks

in terms of all factors. Authors found that the quality of all the parks are dispersed. In addition, authors also accumulated the universal accessibility of the parks and direct park user's opinion to support findings of this analysis. Based on the major findings of this study, authors provided a number of recommendations for the improvement of the quality of parks in Dhaka city such as involvement of local community and establishment of office for the park authority inside the park to help the quality maintenance of the parks. Authors claim that the findings of this paper can enhance the existing knowledge of city planners a step forward with a-priori knowledge to ensure quality of parks in further city planning.

Sabiel et al. (2014) executed twelve genotypes of groundnut (*Arachis hypogaea* L.) under rain-fed conditions in a semi-arid zone at the Research farm of El Fasher Research Station, Sudan for two consecutive seasons 2006 and 2007. Authors estimated genotypic and phenotypic variability, heritability in a broad sense and genetic advance were estimated in a randomized complete block design with four replications. Authors observed significant differences among genotypes for days to 50% flowering, whereas hay yield (kg/ha), shelling (%), while pod yield (kg/ha) and 100- seed weight were observed to be non-significant. Authors report that the high yielding genotype was ICGV93260 with a pod yield of 1389.1 kg/ha. Authors conclude that the promising genotype identified in the study could provide valuable sources of resistance to climate-change-related stresses and for other consequent breeding activities in groundnut improvement.

Abdullahi et al. (2014) conducted studies at the Teaching and Research Farm of University of Abuja to assess the effect of *Moringa oleifera*, selected leguminous plants and inorganic fertilizer on the performance of orange fleshed sweet potato in Alley Cropping System. Authors proclaim that Randomized Complete Block Design (RCBD) using five treatments with three replications was applied. Authors collected data such as percentage survival of sweet potato, length per vine (cm), number of leaves per vine, leaf area of sweet potato, weed dry matter (g/m²), yield of sweet potato roots. Several important observations were made from the analysis: highest number of leaves per plant was observed in the control plot while the plots with NPK fertilizer had the highest length per vine; higher percent survival of sweet potato was recorded from control plots; stands grown in *Arachis hypogaea* plots produced the highest leaf area while plots in which NPK fertilizer was applied experienced highest weed dry matter; highest root yield (1.2t/ha) was recorded from the plots with NPK fertilizer.

Kamble et al. (2014) conducted an audit on the energy consumption of Sardar Patel College in the calendar year 2012. The audit revealed that annual electricity consumption was 93,984 units at a total cost of USD 15059 with an average of USD 0.15 per unit. Authors have also quantified seasonal electricity consumption rate and found that minimum consumption was occurred in July. Authors calculated per capita energy expenditure based on only the students and reported USD 2.31. Several important suggestions were made to decrease the overall

consumption such as: replacing the old obsolete electric wire; integrating the regulators with the ceiling fans to adjust the load based on the ambient conditions; replacing manual switches with automated sensory switches; installing occupancy sensors etc.

Shanker (2014) studied the chloroplastic simple sequence repeats (cpSSRs) found in DNA sequences. Author found cpSSRs in the chloroplast genome of *Ptilidium pulcherrimum*, downloaded from the National Center for Biotechnology Information (NCBI). Author extracted the chloroplast genome sequence of *P. pulcherrimum* with the help of a Perl script named MISA. Author detected 23 perfect cpSSRs in 119.007 kb sequence mined showing density of 1 SSR/5.17 kb. Author found that Penta and hexanucleotide repeats were completely absent in chloroplast genome of *P. pulcherrimum* and also Dinucleotide repeats were the most frequent repeat type (47.83%) followed by tri (21.74%) and tetranucleotide (21.74%) repeats. Author claims that out of 23 SSRs detected, PCR primers were successfully designed for 22 (95.65%) cpSSRs.

Kumar et al. (2014) measured CO₂, CH₄ and N₂O gas fluxes from soil under a Eucalyptus plantation in central Gujarat, Western India during three month duration, and February to April, 2013, at fifteen days interval using closed static chamber technique and gas chromatography method. Authors have simultaneously analyzed soils at 0.0-10, 10-20, and 20-30 cm depth for pH, conductivity, organic carbon, nitrogen, phosphate, sulphate to correlate with gas emissions. Authors demonstrated that the soil in their study was a sink of atmospheric CO₂, CH₄ and N₂O with the flux variation from -65.27 to 14.6, -0.005 to 0.07 and -0.03 to 0.33 mg m⁻² h⁻¹ respectively. Authors found that CO₂ emissions were maximum as compared to other two gases. Authors postulate that the variations in soil N₂O emissions could be primarily due to litter C:N ratio and soil total N stock. Authors attributed differences in soil CH₄ uptake to the soil CO₂ flux and water filled pore space. Authors claim that soil C:N ratio could largely account for variations in soil CO₂ emissions. Authors also found a strong positive relationship between CH₄ flux and soil temperature, N₂O flux and water filled pore space. Authors also claim that the global warming potential of N₂O is highest compared to other two principal gases.

Gupta (2014) studied the role of environment in economic growth, the role of environmental policy in achieving improved environmental results, and closely examined the evidence of decoupling production from environmental damages and discussed decoupling in the context of global economy. Authors performed comparative research with special reference to selected eight OECD nations namely-France, Germany, Ireland, Japan, Portugal, Turkey, UK and USA with coverage period of 1990-2010 Author demonstrates that the rich nations cleverly reduced their emission level without shifting the domestic consumption level and passed on the pollution burden on the developing nations. Author recommends environmental regulations by the local government such as imposing the financial penalties,

slapping pollution taxes, setting strict emission standards, imposing levy effluent charges, and controlling of the tradable permits to control the environmental pollution levels.

Muhammad et al. (2014) conducted a study to determine the prevalence of pathogenic bacteria in surgical and open wound infection among patients admitted in some selected hospitals in Sokoto metropolis. Authors obtained 151 isolates from 200 surgical sites and wound samples collected from patients. Authors demonstrated that Usmanu Danfodiyo Teaching Hospital Sokoto (UDUTH) had the highest number of clinical isolates with 64 gram positive and gram negative bacteria followed by Specialist Hospital Sokoto with 57 gram positive and gram negative bacteria and then Maryam Abacha Women and Children Hospital with 30 gram positive and gram negative bacteria. Authors found that Gram positive cocci 108 were more predominant pathogen isolated in the hospitals than gram negative bacilli 43, also *Staphylococcus aureus* had the highest number of occurrence with 54 followed by Coagulate negative *Staphylococci* with 47 while *Citrobacter freundii* had the lowest number of occurrence with 2 isolates. Authors also carried out the susceptibility of the isolates to antimicrobial agents using Amoxicillin, Ampicillin, Erythromycin, Chloramphenicol, Ampiclox, Ciprofloxacin, Gentamycin, Tetracycline, Pefloxacin and Cotrimoxazole. Authors claim that the mean zone of inhibition recorded against *Staphylococcus aureus* by using Amoxicillin antibiotic is 2.20 mm while with *Citrobacter freundii* is 1.00.

Muhammad et al. (2014) studied the prevalence of β -lactamase producing bacteria among patients admitted in three different hospitals. Authors demonstrate that out of one hundred and fifty one isolates obtained in three different hospitals in Sokoto metropolis, only 82 were resistant to the antibiotics tested, the results include 42 isolates from Usmanu Danfodiyo Teaching Hospital, 26 isolates from Specialist Hospital Sokoto and 14 isolates from Maryam Abacha Women and Children Hospital. Authors also carried β -lactamase test on the resistant isolates and the results show that out of the 82 isolates found resistant to the antibiotics tested, about 60 were β -lactamase positive and the remaining were β -lactamase negative. Authors also show that *Staphylococcus aureus* has the highest resistant bacteria producing β -lactamase enzyme with 22 isolates, followed by *Proteus mirabilis* with 10 isolates.

Shafi et al. (2014) carried out experiments at Ornamental Horticulture Nursery of the University of Agriculture, Peshawar, in July 2008, to study the effect of okra seed priming with different phosphorus concentrations (DAP), at various durations on seedling emergence and some related traits. Authors utilized Randomized Complete Block Design in split plot arrangement, with three replications, include four DAP concentrations and different soaking durations ranging from 0 to 48 hours. Authors found that Germination, survival percentages, number of days to emergence, number of days to first flowering, plant height, were significantly affected by concentrations and soaking durations. Authors claim that the

maximum germination percentage, maximum plant height were observed in plot in which seeds were soaked in 0.5% phosphate solution. Authors recommend phosphorus concentration of 0.5 % and soaking time of 32 hours for seed priming in okra.

Hirpa (2014) conducted field studies to determine the effects of intercrop row arrangements and staggered intercropping of haricot bean on the performances of maize crop at Hallaba and Taba areas in 2013 cropping season, southern Ethiopia. Author found that there were significant effects of cropping patterns and staggered inter seeding of the legume component on growth and yield components of maize crop. Author identified significant interaction of row arrangement \times intercropping time of haricot bean was observed with respect to leaf area index (LAI) of the maize crop. Author claims that Maize grain yield showed a significant variation with respect to the staggered sowing of haricot bean, whereby the highest production being recorded when haricot bean intercropping was delayed for 21 days after maize planting Author concludes that the larger maize plant canopy providing larger photosynthetic area, attained when haricot bean inter seeding was delayed, probably resulted in higher grain yield of maize.

Shrestha et al. (2014) carried out a study to know the microbial drinking water quality in the city and to determine the prevalence of water borne infections in the specified region of the district in 2012. Authors collected eighty water samples from Bhaktapur Municipality, one of the most vulnerable regions for water borne diseases, following standard methods as described by APHA, transferred the samples to Microbiology laboratory of Khwopa College, Dekocha, Bhaktapur and preceded immediately for Microbial analysis. Authors determined coliform density in the water samples using Most Probable Number (MPN) method followed by microscopy, colonial morphology and biochemical characterization. Also authors analyzed the presence of *Vibrio cholerae*, a causative agent of Cholera in the same samples by enriching in alkaline peptone water followed by culture on Thiosulphate citrate bile-salt sucrose (TCBS) agar, a selective media for *Vibrio* spp. Authors report that among eighty water samples, 87.5 percent water samples contained coliforms and half of which contained fecal coliforms, *Escherichia coli* and remaining water samples contained no coliforms. Authors found that the drinking water quality in the region was found to be very poor and therefore, recommend the people in the region to treat the drinking water by using any of physical or chemical disinfection methods prior to drinking.

Chatterjee et al. (2014) presented results from the testing conducted on pollen grains of seven genera under Apocynaceae family namely, *Allamanda*, *Alstonia*, *Catharanthus*, *Nerium*, *Plumeria*, *Thevetia* and *Tabernaemontana*, in some basic cultural media, such as Brewbaker's media, 6% Glucose solution, 4% Calcium Nitrate solution and 3% Boron solution. Authors report that the *Alstonia* pollen grains exhibited highest percentage of germination rate in all the cultural media and Glucose and Brewbaker's media is found to be

highly suitable for efficient pollen germination in all the genera. Authors claim that Boron solution is effective for germination of pollen grains of tree species, In vitro pollen germination can be easily carried out in laboratories and these results can be utilized in plant breeding programs to improve cultivar and varieties.

Ishaq et al. (2014) evaluated thirty four genotypes of pearl millet at Sudan, including two released varieties, Ugandi and Ashana at Gezira Research Farm and Rahad Research Farm in the autumn of 2009. Authors utilized randomized complete block design with three replications and found that grain yield and some yield components including number of productive tillers and panicle length, varied significantly among the thirty four genotypes. Authors report that the Sadag Togo had the highest grain yield followed by Okashana-3, whereas IP 19745 had lowest grain yield across tow site. Authors also found that the genotypic coefficient of variability and broad sense heritability estimated grain yield and head weight varied significantly among the thirty four genotypes.

Bhartie et al. (2014) carried out a study to assess the presence of heavy metals in the water of Sahastradhara hill-stream. Authors collected samples from five different sites and report that heavy metals were found in fluctuated trend from first upstream to last downstream. Authors claim that the solid waste dumping site situated after the third sampling site might be the reason for the presence of excessive heavy metals in the downstream locations.

Adam et al. (2014) carried out a study to evaluate the antimicrobial activity of *Datura innoxia* (Seeds, leaves and roots). Authors extracted different parts of the plant and examined the activity against standard microorganisms by using the agar-well diffusion method. Authors prepared extracts of methanol, and aqueous of seeds, leaves and roots and tested against four types of bacteria namely: *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Proteus vulgaris* and two types of fungi namely: *Aspergillus niger* and *Candida albicans*. Authors report that the methanolic and aqueous extracts of leaves showed high activities against fungi (*A. niger*) and less effect on the all bacteria, the methanolic extracts of seeds showed high activities against all organisms except fungi (*C. albicans*), while the aqueous extracts of seeds showed no activity on the bacteria. Authors examined all organisms against known standard antibiotics and then compared the results of plant extracts with standard antibiotics, the results indicated that the antibacterial drug is less active than the plant extracts, whereas the antifungal drugs are more active than the plant extracts.

Kouider et al. (2014) evaluated the impact of livestock grazing on the floristic composition in the mount of Tessala (Western Algeria). Authors carried out phytoecological surveys at seven stations around north and south slopes of the mount and the obtained results, through Principal Components Analysis (PCA), indicated the impact of man and herd on the floristic composition of sampling stations. Authors report that the stations with low grazing have

greater species richness marked by the strong presence of palatable species, unlike stations under permanent grazing, characterized in particular by the appearance of non-palatable species. Authors also claim that the dominance of therophytes at all stations is not only due to grazing pressures but also due to drought in the study area.

Tilahun et al. (2014) performed studies to assess pesticide use, practice and risk in Gedeo and Borena Zones. Authors collected primary data was collected through in depth interview and group discussion in the selected sub districts. Authors report that Malathion, DDT, Karate and 2-4D are the chemicals most frequently used to control pests by the respondents and they rely of self-judgment for such use. Authors also observed that most respondents do not use proper protective equipment and not aware of the harmful effects. Authors claim that due to the wrong pesticide use and practice in the sample area, there were pesticide poisoning incidents recorded such as poisoned-recovered, illness/injury and death incidents. Authors emphasize the need for proper training and also regulatory measure from the government monitor, control and regulate pesticide trade, use and practice in the area.

Gautam et al. (2014) tried to assess the causes and consequences of conflict between Bankariya and other stakeholders regarding the usage of forest resources in Handikhola VDC of Makwanpur district, a rural community of Nepal, between May to December 2013. Authors applied case study, key informant interview and Focus Group Discussion (FGD) methods for primary data collection. Authors report that the major problems faced by Bankariya community regarding to use of forest based resources are; not having their own permanent land for settlement and agriculture purpose, provision of present rules and regulation, and attitude of other elite persons/groups for dominating them. Authors conclude that forest resource based conflicts of Bankariya is mainly related with local people and other forest user group committee members as compared to Parsa Wild Life Reserve and District Forest Office of Makawanpur.

Kamble et al. (2014) have attempted to record the presence of manganese in different environmental matrices such as air, water, soil, food, and its effects on plants, animals including human beings. Authors conducted a thorough investigation and proposed several recommendations.

Sanda et al. (2014) conducted studies to analyze the chemical quality of three sources of irrigation water: drainage water, fresh irrigation water from canal, and drainage/irrigation water mixture, from Kadawa irrigation Project for year 2013 and 2014 cropping seasons, with the view to evaluate the potential risks associated with their use in irrigation and hence their suitability or otherwise for irrigation purposes. Authors report that the use of drainage water alone for irrigation may result in problems associated with salinity, while a blend of

drainage/irrigation water in the ratio of 1:1 is a viable means of water conservation and a good means of crop production.

Aladesanmi et al. (2014) conducted a survey among postgraduate students undergoing training in environmental and non-environmental fields. Authors primarily focused on evaluating the impact of environmental training on the postgraduate students' awareness, perceptions and behaviors with focus on the attitudes of the respondents towards environmental sustainability, and how these attitudes affect their behavior. Authors considered 50 and 47 students undergoing training in environmental and non-environmental respectively. Authors utilized SPSS statistical analyses and report that most of the students in environmental fields readily transferred the knowledge acquired in their training to a sustainable behavior.

Fasola et al. (2014) documented the medicinal plants used by the Urhobo people of Ethiopia West and Sapele local government areas of Delta State of Nigeria. Authors considered fifty one plant species belonging to thirty one families which are commonly used for the treatment and management of diseases such as measles, diabetes, stroke, jaundice, malaria, typhoid, hypertension, gonorrhoea and rheumatism. Authors emphasize the need to conserve these medicinal plants in the region and also conclude that the study will serve as a lead for further scientific studies aimed at ascertaining the veracity or otherwise the therapeutic claims ascribed to the plants by the indigenous people of the region.

Khan et al. (2014) studied the use of allelopathic effect of aqueous leaf extract of three different species to investigate their effect on germination, shoot and root lengths of two food crops Maize and Wheat. Authors adopted the procedure which involves: crushing the mature fresh leaves of three species and soaking for 24 hours; diluting the filtrates to make different concentrations. Authors found that the aqueous leaf leachate of three species have inhibitory effect on germination, shoot, and root elongation on the tested crops. Authors report that the inhibitory effect was much more pronounced at higher concentrations, and the effect increased with the increase in concentration, also among trees, Eucalyptus has much more effect on the tested crops than other species.

Bhusal et al. (2014) conducted a study to assess the concentration of arsenic in groundwater at Makar VDC of Nawalparasi district by both field kit test and Atomic Absorption Spectrometry (AAS) test methods and assess the possible natural sources of arsenic mobilization in groundwater and further identify the safe and contaminated aquifers and their distribution below the ground. Based on the field and laboratory analysis, authors report that the aquifer lying in between 30-70 feet is contaminated with arsenic in toxic level (>50 ppb) while the horizons of aquifers shallower or deeper than this depth are found safe. Authors demonstrated that about 38 %, 23 %, 19 % and 20 % of aquifers as safe tolerable, toxic and

very toxic respectively. Authors conducted study on the mineralogical composition of the soil and sediment, and showed that it is rich in arsenic bearing minerals like pyrite, biotitic, iron-coatings and opaque minerals. Interestingly authors report that no adverse health effects are seen on people although the concentration is found at toxic level. Authors speculate this might be either due to hesitation of people to expose their infected organ in front of the research students or the researcher's inability to identify the symptoms, as it has no normal symptoms and need the experts from the medical field. Authors conclude that the present study is able to pinpoint the depth of contaminated aquifer, which is useful for the safe drinking water development strategy.

Al-Jbawi et al. (2014) conducted field experiments, in 2011 calendar year, to study the effect of plant spacing on yields and its components of four fodder beet cultivars. Authors utilized randomized complete block design in split plots arrangement with three replicates, plant spacing were assigned to the main plots and fodder beet cultivars were allotted to the sub plots. Authors found that spacing had a significant effect on all the quality traits except protein content of shoot, spacing and varieties exhibited highly significant differences in all the studied characteristics. Authors claim that varieties affected dry matter content of root, and protein content of shoot and root significantly whereas dry matter content of shoot, ash content of shoot and root, and organic content of shoot and root were not significantly affected by varieties.

Chakir et al. (2014) reported morphosedimentary study of alluvial fans formed by the Wadi Beni Mhammed, on the southern piedmont of the western High-Atlas, has indicated three main generations of deposits ranging from ancient to Holocene and recent formations. Authors report that the first generation, comprising small boundary fans, were deposited prior to lateral migration and subsequent entrenchment of the drainage pattern and the confluence of these powerful streams gave birth to the principal fan that extends to the Souss valley. Authors claim that the third generation of fans was constructed after the incision of the principal fan, by the re-activation of a high secondary fan that was formed from downstream progradation. Authors determined the morphological characteristics of the fans, such as their area, shape and gradient, from catchment data and, in particular, from the lithology of their provenance areas, which defines the nature of gravel material, sedimentation processes and, finally, the distribution of constituent materials. Authors conclude that fan shape also depends on the available accommodation space on the piedmont and the Wadi Beni Mhammed fans are elongated, because they are constrained by the mega fans of Wadis Irguitene and Aoukourta.

Yusuf et al. (2014) built an inventory of medicinal species diversity in the flora of the Kingdom of Saudi Arabia has been made for 15 angiosperm families and 61 species of medicinal plants are recognized. Authors presented an enumeration of these medicinal

species, each with current nomenclature, Arabic name, English name, medicinal uses, pharmacological properties and status of occurrence in the flora. Authors claim that the communication will emphasize the planning and implementation of national conservation strategies for sustainable management of the medicinal plants of the Kingdom of Saudi Arabia.

Bouiadjra et al. (2014) procured geographic information of Tessala Mountains and processed the data using specialized software. Authors claim that this area constitute a fragile ecosystem, as they are confronted with several problems with knowing loss of the farmed lands, bad distribution and occupation of the soil, low organic matter, rough and unstable soil. Authors identified the areas that susceptibility to erosion. Through data analysis, authors claim that over 80 % of the land of the study area is susceptible to hydrous erosion at different degrees: highly sensitive (32.5%), moderately sensitive (44%) insensitive (15%) and stable (7.5%).

Mohamed et al. (2014) conducted a study at Um Kaddada, North Darfur State, Sudan, considering two sites for two consecutive seasons 2008 and 2009, and mainly focusing on flowering and seed setting stages to evaluate range attributes at the locality. Authors utilized a split plot design to study vegetation attributes, factors studied were management systems and growth stages, and assessed vegetation cover, plant density, carrying capacity, and biomass production. Authors also performed chemical analyses for selected plants to determine their nutritive values. Authors report that closed areas have higher carrying capacity compared to open rangelands, crude protein (CP) and ash contents of range vegetation were found to decrease while crude fiber and dry matter yield increased with growth. Authors concluded that closed rangelands are better than open rangelands because it fenced and protected.

In the first article of Issue 4, Dahal et al.(2014) tackle the issue of environmental impact assessment for infrastructure development project. Their paper focuses on the Kathmandu Terai fast track (KTFT) project, initiated by the Government of Nepal. This project aims to create a road that connects Kathmandu, the capital city to the south in a route along the Bagmati river. Before the environmental impact assessment study was carried out, water and soil samples from different localities were collected and analyzed to obtain baseline information on the region. The biological environment was studied as well. It was seen that the implementation of the KTFT project was likely to bring various environmental impacts as a result of changes in the bio-physical and socioeconomic environment. The authors identify and suggest various mitigation measures to be implemented during various stages of the project. It is seen that most measures need to during the construction stage, but there were also a few in the operational stage. The authors state that proposed measures are practical, but require additional resources.

A Polychlorinated Biphenyl (PCB) is a synthetic organic chemical compound that was widely used as dielectric and coolant fluids, especially in electrical apparatuses. PCBs were found to be a persistent organic pollutant, and deemed to be a human and animal carcinogen. Laxman et al. (2014) describe a research study undertaken to find out the degree and extent of PCBs contamination in transformer oil in the Kathmandu Valley in Nepal, and to explore its impacts on occupational health and safety issues of the workers and on the environment. Their study covered 53 power transformers, 2988 distribution transformers within 8 sub stations, 10 distribution centers and workshops. Both quantitative and qualitative methods were used for this study. The quantitative portion included analyzing the transformer oil for PCB concentrations, and the qualitative portion included field visits and surveys. The results showed that while no PCB contamination was found in power transformers in the Kathmandu valley; contamination was seen in distribution transformers. The authors found out that the level of knowledge about impact of PCB-contaminated transformer oil on health was very low among workers who regularly come in contact with it. They also noted that in the study, it was difficult to establish causality of illness or disease with exposure to PCBs. In the next paper, Haider and Adnan (2014) that through rapid growth of population, massive deforestation and anthropogenic activities, noticeable change in climate conditions is being observed in Pakistan. They use a Geographic Information System (GIS) for the assessment of aridity in Pakistan from climatic data of fifty years (1960-2009) collected from fifty-four stations. By leveraging the use of the GIS system, aridity maps were created using different indices such as the De Martonne's Aridity Index, Thornthwaite's Precipitation Effectiveness Index, Thornthwaite's Moisture Index, UNESCO Aridity Index and Erinc Aridity Index. The maps are presented in the paper, and their data is analyzed. The authors conclude from the data that the climate of Pakistan is mostly arid in nature. It is seen that almost 74.73% to 88.38% of the area possess semi-arid to hyper-arid climate, while 0.07 % to 12.96% is dry sub-humid to very humid. The whole of southern Pakistan is seen to be arid to extremely arid, and are seen as the most vulnerable to drought. The results highlight an urgent need for providing more emphasis in the development of technologies for reducing the water losses, conservation of rainwater and the development of crop varieties that require less water. The authors state that measures such as building underground canals or water channels, integrated micro watershed management and rapid forestation should be undertaken in the region to handle the critical situation.

Mikhailova et al. (2014) describe a study on the relation between deterioration of vital state parameters of Scots pine (*Pinus sylvestris* L.) tree-stands that were polluted by various technogenic sources, and the level of polluting agents accumulated in the needles. The authors note that technogenic load is currently considered to be one of the most powerful factors in destabilizing forest ecosystems of the boreal zone. The Scots pine was chosen as the subject of this study based on the results of many years of studies of boreal forest

ecosystems. The research was conducted in the Eastern Siberia (Irkutsk region) region of Russia, in the background territories and zones that have been polluted by technogenic emissions of three different industrial centers. For each experiment, 5-6 pine trees of the second age class were selected to collect needles samples. The needles were analyzed for various elements ranging from sulfur to vanadium and molybdenum. Also as part of this study, control samples of pine needles were collected at the distance 100-250 km away from industrial centers. The results showed that significant amounts of polluting elements had accumulated in tree needles in the areas polluted by various technogenic sources. The pollutants were seen to exceed the background levels by 1.5 - 13.5 times. The authors state that the accumulation of polluting agents results in an eventual reduction of tree-stands productivity.

In the next paper, Abid et al. (2014) describe a study on employee's exposure to carbon monoxide in Pakistani steel mills. The authors note that many processes in steel making industries emit carbon monoxide, which causes a variety of toxic effects on human health such as fatigue, impaired memory, headache, and nausea. Elevated exposures can also cause a loss of consciousness and even death. In this study, the occupational exposure of fifty-eight randomly selected employees of Pakistan Steel Mills to the carbon monoxide were investigated. Pakistan Steel Mills is located southeast of Karachi, and employs over 16,000 people. The selected employees' exposure to carbon monoxide was monitored by a device consisting of an electrochemical sensor and a data logger. The sensor continuously measured the concentration of carbon monoxide in the air ranging from 0-300 ppm with a resolution of 0.5 ppm. The results showed that the exposure did not exceed the guidelines of World Health Organization for carbon monoxide. However, the author's note that the production in the steel mills during the study period was at a low level, and an increase in the exposure to carbon monoxide was recorded when a unit showed an increase in its production. In addition, the authors describe in detail the carbon monoxide levels in different parts of the manufacturing plant.

Remote Sensing (RS) is the science of obtaining information about objects or areas from a distance, typically from aircraft or satellites. RS has a wide range of applications in different fields, and has been widely recognized as an effective technology for the monitoring and mapping the urban growth and environmental change. Gupta et al. (2014) describe a study using RS, along with GIS, to look at urban expansion and its impact on green spaces in the city of Dehra Dun, located in the Uttarakhand state of India. Urban green areas are critical in helping moderate the impact of human activities by absorbing pollutants and releasing oxygen. They also provide clean air and water that can improve the urban climate and maintain the urban ecosystem equilibrium. The results are presented for the years 2000, 2005 and 2009. They show that Dehradun has experienced significant environmental deterioration in the span of one decade especially in green areas due to unplanned urban expansion.

In the next paper, Gupta et al. (2014) describe a study focusing on the species composition, phytosociological diversity and concentration of dominance of various tree species in the Kuthar watershed of Himachal Pradesh, India. An extensive field survey was carried out on the forest types of the watershed. A seasonal study was conducted on herbaceous vegetation between May 2008 and November 2008, for three different seasons including the monsoon and post-monsoon season and pre-monsoon seasons. A nested quadrats technique was used for sampling the vegetation. Different parameters for each species were calculated with the help of specific formulae to derive frequency, density, dominance, etc. In addition, RS techniques were also deployed, and the results are described in detail. The dominant species of trees and shrubs are identified. The results show that the adopted methodology combining RS and ground inventory provides an effective means for rapid assessment of phytosociological characteristics of an ecosystem.

Karki et al. (2014) made an attempt to summarize the recent research on weed dynamics and their management aspects in the conservation agriculture systems. Authors claim that changes in patterns of tillage, planting systems, and other management strategies can alter the soil environment and lead to shifts in weed populations. Authors found that weed patterns and populations are not always stable but vary with location, crop, and herbicides use. Authors report that in many long-term conservation management studies, a general increase in perennial weeds and grass species has been observed. Authors conclude that the development of low-dose of non-selective pre and selective post emergence herbicides, and transgenic crops has greatly improved the feasibility of conservation agriculture systems.

Rao et al. (2014) presented the work that enumerated four species of Bryophyte which are used routinely amongst the tribes of North coastal Andhra to treat various ailments. Authors report that Bryophytes are ecologically friable and very prone to extinction and conclude that these types of studies are important as it will bring more and more new species of Bryophyte with exceptional therapeutic properties into light.

Chatterjee et al. (2014) presented a study describing the use of pollen characters for establishing taxonomic groups. Authors report that such datasets are seldom used for the studies and the integrated study undertaken for the current work can be useful in redefining the status of families in higher group of plants. Authors claim that Apocynaceae, a Eurypalynous family exhibits variation in possessing more than one type of pollen grains from simple porate to compound colporate apertures and conclude that the developed pollen key, based on pollen attributes, would help to distinguish genera solely on the basis of pollen characters.

Ekwere et al. (2014) studied the adaption rate of root and tuber technologies in Anambra state agricultural development Program. Authors used stratified random sampling techniques to determine the sample size of 112 including the farmers and the staff. Through analysis authors found that technology adoption is production dependent, i.e. ABANA 85, ADAKA 96 and EKPE 88 for Yam, while TMS 305SS, TMS 30 and TMS 30572 for Cassava and White P. 179 and RED P. 162 for Potatoes. Authors conclude that the farmers are satisfied with the use of technologies even though their income levels are remain unchanged.

Ghimire et al. (2014) collected vehicular emissions data, of Kathmandu valley, applying different techniques such as video tapes, field visits, surveys and literature review. Authors quantified the total emissions in the valley and reported highest Carbon Dioxide emissions. Authors also quantified the vehicular segments responsible for the emissions. Authors recommend that, with projected dramatic increase in the transportation activity, stringent emission control measures should be implemented.

Rabha (2014) recorded the above ground biomass and carbon stock information of an undisturbed Sal forest of Goalpara district, Assam, Northeast India. Author identified high carbon sequestration potential of the stand in near future, and claims it will help mitigate the climate change. Author attributes the observed phenomena to the conservation measures taken by the local community and the government.

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