

Effect of Soil Conditioner (Biosil) and Recommended Dose of Fertilizer on Soil Properties, Growth and Yield of Wheat

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A novel soil conditioner 'Biosil' has been developed from flyash through the process of magnetization. Field trials were carried out on wheat cultivar GW-273 using magnetized flyash 'Biosil' doses from 150 kg/ha to 900 kg/ha in combination with recommended dose of fertilizers (RDF), keeping control treatments of recommended dose of fertilizers and vermicompost (VC). These biosil doses were very low as compared to conventional doses (10% to 100%) given by other authors. It was observed that Biosil treatments improved the physico-chemical properties of soil and wheat productivity with 750-900 kg/ha being optimum for most of parameters. Production of wheat grains in biosil treatment was 30% more than the recommended dose of fertilizers control. Maximum percentage increase under Biosil doses over recommended dose of fertilizers control in relation to plant population plant height, number of leaves/plant, number of effective tillers, length of earhead, number of grains/earhead, test weight and straw yield were 13.33%, 4.85%, 65%, 50.51%, 6.52%, 26%, 10.98% and 20.77%, respectively. Vermicompost control treatment was superior to recommended dose of fertilizers control treatment and over 150-450 kg/ha Biosil treatments in case of most of the parameters. However, long term field trials are required for recording maximum benefits of Biosil treatment at these low doses.

KEYWORD

Flyash, Chemical fertilizers, Vermicompost, Soil fertility, Wheat productivity.

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Adsorption of Basic Green 1 Dye Using Activated Carbon From *Curcuma longa* : Kinetics, Equilibrium and Thermodynamic Studies

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The adsorption potential of activated carbon prepared from *Curcuma longa* (turmeric plant) for the removal of basic green 1 (BG) dye from aqueous solution was studied. The effect of influencing parameters, such as pH(4-10), adsorbent dose (0.02-0.5 g/100 mL) and initial dye concentration (50-250 mg/L) were analyzed by conducting batch experiments. The adsorbent was characterized using scanning electron microscopy, Fourier transform infra-red spectroscopy and point of zero charge techniques. Adsorption kinetics was studied by employing Pseudo-first order, Pseudo-second order, Elovich and intraparticle diffusion kinetic models. Isotherm models, such as Langmuir, Freundlich, Tempkin and D-R isotherm were analyzed. Kinetic and isotherm model depicts the best-fit model as Pseudo-second order kinetic and Freundlich isotherm for the removal of basic green dye. Thermodynamic parameters, such as change in enthalpy, change in entropy and Gibb's free energy were studied and the result reveals that the process is spontaneous, feasible and endothermic in nature. The optimum conditions for the maximum removal efficiency of 88.7% were obtained as: pH 8, adsorbent dose 0.2 g/100 mL and contact time of 25 min, for the removal of basic green dye from aqueous solution.

KEYWORD

Curcuma longa, Adsorption, Activated carbon, Basic green 1 dye.

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Applications of Remote Sensing and GIS, for Identification of Ground Water Prospecting Zones in and Around Nandalur, YSR District

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Groundwater is considered the major part of the world's freshwater resources. One of the main challenges facing the sustainable development of Kadapa is the need for better management of its limited fresh water resources. The present study on integration approach on remote sensing and geographical information system to generate groundwater potential zones using various thematic layers, such as geology, geomorphology, hydrogeomorphology and other meteorological data, like rainfall. This landuse and land cover alter in turn has influence on various hydrogeomorphological processes, such as soil erosion rate, sediment deposition in rivers and dams and also stream flow pattern in a catchment. Qualitative and quantitative analysis of landuse and land cover (LU/LC) changes is necessary to assess the impacts of change in the pattern of natural vegetation on the earth's environment. Satellite images can provide useful information regarding spatial and temporal variation of landuse/land cover in an area. In this study, to delineate the groundwater potential zones in the Nandalur mandal, Kadapa district, Andhra Pradesh. Groundwater exists in the Cheyyeru river south eastern part of the Kadapa in Rayalaseema region. Hydrogeomorphological mapping of groundwater resources is one of the key tools for the controlling development of groundwater resources. In the present study area different hydrogeomorphic units, like channel bar, flood plains (FP), pedi plain moderate (PPM), pedi plain shallow (PPS), Pediment (PD), structural hill (SH) are identified. River, channel bars, flood plains are having very good groundwater potentials, pedi plain moderate have good, pedi plain shallow have moderate and the pediment. Structural hills are indicated as runoff zone so these are poor groundwater potential zones. Remotely sensed surface indicators of groundwater provide useful data where sensible standard alternatives are not available. Integrated remote sensing and GIS are widely used in groundwater mapping. Locating potential groundwater targets is becoming more convenient, cost efficient than persistent methods and efficient with the advent of a number of satellite imagery. The nature of remote sensing-based groundwater investigation is to delineate all potential features associated with localization of groundwater data.

KEYWORD

Nandalur Mandal, Groundwater potential zones, Geographical information system (GIS), Landuse/landcover, Remote sensing.

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E-waste Management and Handling in India: Modeling of Enablers (Drivers) Using an Interpretive Structural Modeling (ISM)

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The aim of this article is to analyze the interaction of various enablers (drivers) in management and handling of e-waste in India, which paves the way for an efficient e-waste management either by effective recycling/reuse or through safe and secure disposal for sustainable development. After review of literature on e-waste management in India and other countries, major driving factors of e-waste management have been identified. The literature review coupled with the experts' opinion revealed during various field visits was instrumental in developing the relationship matrix, which is further used in the development of an Interpretive Structural Model (ISM).

KEYWORD

Driving, Dependence, Levels, Enablers, Interpretive structural modeling (ISM).

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Evaluating Neural Networks Model in Forest Cover Changes Using Satellite Data

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Also estimating vegetation with conventional method that includes overall estimate of vegetation is time-consuming and also does not give very precise information. Hence remote sensing is very useful technology that because of time and cost reduction is preferred over other methods. In this study it was attempted to produce forest cover map using the techniques of remote sensing and ETM⁺ sensor image of 1999. The results of image digital classification of the study area to mapping the landuse using neural networks classifier and neural networks with participating different bands sets indicated that at best state, the total accuracy of image classification by ETM⁺ neural network method of 1999 was estimated 0.80 and kappa coefficient of 0.82. Also the study results showed that the forest cover reduction in neural network classification was 2354.2 ha.

KEYWORD

Forest area, Neural network method, Satellite data, North of Iran.

Feature Article

A Study on Green Building Techniques to Reduce the Environmental Impacts of Buildings on Human Health and Natural Environment

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A sustainable building or green building is an outcome of a design philosophy which focuses on increasing the efficiency of resource use-energy, water and materials. Many countries have developed their own standards for green building or energy efficiency for buildings. A recent survey by the World Business Council for Sustainable Development finds that green costs are overestimated by 300 %, as key players in real estate and construction estimate the additional cost at 17 % above conventional construction, more than triple the true average cost difference of about 5 %. Green building is interpreted in many different ways, a common opinion is that they bring together a vast array of practice and techniques to reduce and ultimately eliminate the impacts of buildings on human health and the natural environment .

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Polythene and Plastic Waste Management : Coping Strategy for Health and Environmental Hazards

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Present scenario use of polythene and plastic bags are integral part of our day to day life but polythene and plastic bags created threat of pollution in environment. In this research paper researchers highlighted different threats of polythene and plastic bags through literature, available data and suggested different course of action for policymakers and all stakeholders to tackle different challenges through technological application. There is normally policy of production of polythene and plastic bags but there should be also strong consumption policy.

KEYWORD

Waste management, Impact of polythene, Plastic and environment pollution.

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Water Quality Index of Kolavai Lake, Chengalpet, Tamil Nadu

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Water quality index (WQI) has been calculated for surface drinking water in Kolavai Lake, Chengalpet Taluk, Kancheepuram district, Tamil Nadu at 4 different sites in the monsoon, post monsoon, summer and pre monsoon seasons. 13 water quality parameters were selected as per the BIS guidelines and water quality physico-chemical parameters were estimated following the standard methods and procedures. The lake water of some sites was found to be moderately contaminated. Water quality index during the years 2011 and 2012, in general, the water quality showed deterioration. It is felt that some remedial measures are urgently required to optimize the water quality for this region.

KEYWORD

Kolavai Lake, Water quality index, Physico-chemical parameter.

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Feature Article

Environmental Ethics and Mineral Legislations in India for Sustainable Development

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Mining and mineral exploration practices are very much essential for the economic prosperity of the country. The environmental ethical problem of this field is the economic benefits on one hand and the environmental costs on the other hand. The problem of environmental impacts on exploitation and utilization of mineral resources presents a complex socio-economic dilemma defying solution. Responsible mining principles and DPSIR (drivers, pressures, states, impacts and responses) analysis are the 2 analytical tools which are highly supportive in a decision-making process. Through drivers, pressures, states, impacts and responses and stakeholder analysis, we can assess how future mining in India can be sustainably implemented. The analysis revealed that numerous stakeholders have to be taken into consideration with a wide range of different interests. Strict environmental legislation of 'National Mineral Policy', 'Environment Impact Assessment' and 'Polluter Pays Principle' can ensure economic benefits while environmental impacts remain negligible.

KEYWORD

Responsible mining, India, Ethics, Environment, Mineral legislations.

Remote Sensing In Public Health Engineering

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The public health related problems have grown up enormously and more comprehensively identified in the recent times. The man's activities have also increased in all its dimensions in the twentieth century activities. We are also uncomfortably aware that growth and technological progress are beset with problems. 'With a growing awareness about the environmental quality, the people are confused and angry. Many probably harbor vague fears about being slowly poisoned by the air they breathe or the water they drink or the land and environment they live in. The great society while basking in its effluence, is worried about its effluence, both gaseous and liquid (Paul, 1966)'. The method of using land, water and air particularly for waste disposals have impaired their quality such that these are no longer usable in many situations for our own needs and purposes. Rivers and open drains have almost become universal sewers that carry away the wastes of the people and the oceans have become the ultimate sink for all kinds of wastes generated through the numerous activities of man (Bhargava, 1985).

The technological management of energy for our sole benefit has been developing for years. The sequence has been thermal, electrical and nuclear energy development and utilization. All these causes great stress on the environment. Many countries are experiencing rapid urban development both industrial and residential. With growing urbanization and industrialization, the water resources in India are getting polluted at a very fast rate (Bhargava, 1985), as a result of which, most of the natural water resources have become polluted and unfit for most of the beneficial uses (Bhargava, 1985). Everyone, by the senses of sight, smell and taste, makes a measure of the quality of the surrounding environment, of the liquids and solids offered and of the air breathed. For proper management of the environment, resources and quality data must be obtained through appropriate means. These data must be put in permanent forms as they are of great advantages if they lend themselves readily to processing for rapid analysis, comparison and interpretation. In this direction, remote sensing can play a vital role (Bhargava, 1986; Lillesand, 1979).

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