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LEGACY AND LESSONS LEARNT FROM THE CHERNOBYL ACCIDENT

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ABSTRACT

The nuclear accident at the Chernobyl nuclear power plant in Ukraine, by then USSR yet, took place almost thirty years ago, in the night of April 26th, 1986. The paper aims at summarizing the last findings about the health and environmental impact of the accident, at the light of the actual and recent data, more than three decades years after the event. The consequences of the release of around 85 PBq of Cs-137 and 1760 PBq of I-131, estimated by the GENII-FRAMEScode, sum up to a huge Collective Dose to European and Asian population of around 172.000 Svperson. Health effects of the Chernobyl accident are estimated to be around 10.000 total excess cancers.

Key words: nuclear accident, Chernobyl nuclear, power plant, Ukraine

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WASTE WATER SLUDGE WITH AGRICULTURAL WASTE COMPOST USAGE FOR SOIL QUALITY

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ABSTRACT

Increasing population was need natural sources demand for world countries which already effected on water, food and health problems. Agriculture activity deeded more water and land for food sources of increasing population. Management of agricultural might be coordinated and integrated with natural source management of world counties. Sustainability of public health and environment protection is key factors for countries' development. Solid waste composts are used in the agriculture for soil conditioner but also fertilizer to increase food production. Proponents of this practice consider it an important recycling tool since municipal solid waste and also waste water treatment sludge otherwise would be land filled and critics are concerned with its often elevated pollutant concentrations in the field. Large amounts of municipal solid waste compost are frequently used in agriculture to keep crop N requirements and for the addition of organic matter. The main concern is loading the soil with the pollutants as well as metals that may result in increased pollutant content of crops. One of the significant issues of agricultural soils in the world area is the low organic natural matter substance. Composted organic material is being connected on rural fields as an alteration to give supplements and furthermore to upgrade the natural matter substance and enhance the physical, chemical and concoction properties of the developed soils. The composted organic material contains essential nutrients for plant growth, especially N and P. The reusing of agricultural product waste that Includes Tree leaves, Roots, Twigs with Land application of composted material as a fertilizer source not only provides essential nutrients to plants, it also improves soil quality and effectively disposes of wastes. The return of organic wastes to the soil is a step towards more closed nutrient cycles, greater sustainability, and reduced environmental loads. The regulation on fertilizers of organic origin describes the allowed use of organic waste products in agriculture and in landscaping. Waste from agricultural harvesting process contains high organic matter and increase organic matter content of soil if the leaved enough time periods on the soil at naturally decomposition process. In this research, concerning to investigate the positive effects on increase possibility of soil organic matter advantages for inefficient or unsuitable field soils.

Keywords: Municipal solid waste; Organic waste, Compost; Population, recycling, production

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WIND ENERGY AND ITS STATUS IN TURKEY

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ABSTRACT

Turkey's geographical location ensures that the country has a very high potential of wind energy, which is around as 48,000 MW. This number is equivalent to 1.30% of the total surface area of the country. In accordance with the technological developments, the need for energy has been increased for the last few decades in Turkey. To cover this energy need, the studies have been directed to generate renewable energies and this effort also ensures the employment growth in the country, accordingly. In this academic work, the latest position of wind energy in Turkey has been dealt with including wind energy potentials, productions, wind energy utilizations, governmental incentives. Thusly, by preparing this study, it has been intended to give support to the improvements in renewable energy fields, to all production sectors, to the academic and industrial studies in Turkey.

Key words: Wind Power, Turkey, Green Energy, Renewable Energy

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THE CONSERVATION OF REPRESENTATIVE NATURAL COMPONENTS IN SOME PROTECTED AREAS IN MOLDOVA'S CENTRAL REGION

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ABSTRACT

The paper includes the research results of 6 State Natural Protected Areas, which are located in the Central Region of the Republic of Moldova. The research purpose is to establish the representative natural components and rare species of some protected areas and submit the proposals for ensuring an argued scientific sustainable management. The results were obtained on the basis of a comprehensive study conducted during field expeditions and laboratory research during 2015-2016 years. As a result of the research it was found that in most investigated Natural Protected Areas the specific elements correspond to the category of protection and their state is satisfactory. The investigated areas contain a rich diversity of plant and animal species. As conservation measures of the endangered species in the studied areas it is necessary to take under protection the growing areas and perform the periodic control of their populations state. It is argue the possibility to transfer two protected areas from the category of Forest Natural Reservation into Landscape Reservation.

Key words: conservation, state protected natural areas, representative natural components, rare species, abundance, human impact.

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DISTRIBUTED ENERGY RESOURCES, THEIR GENERATION SYSTEMS, AND TURKEY

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ABSTRACT

In order to meet the growing energy needs in rapidly developing technology in today's world, energy production from renewable and sustainable energy resources, other than traditional energy resources is the basis of the distributed energy systems. Distributed energy production is an energy production technology that uses clean, environmentally friendly, many different fuels and it improves systems reliability. It is well known that the electrical energy production and consumption are factors to determine countries' civilization levels. Disruptions in the electrical energy production affect basic industry, commercial developments and daily life, negatively. 80% of the world's commercial electrical energy production depends on finite and non-renewable resources such as coal, oil, natural gas and uranium. In this study, for the purpose of gaining awareness about the harms of these resources to environment and human life, it is emphasized the importance of distributed energy resources and also examined and given knowledge about distributed energy generation technologies and their place in Turkey.

Keywords: Distributed energy resources, distributed energy generation, renewable energy, clean energy generation, energy and environment, energy supply security, Turkey.

CAPACITY INCREASE AND ENERGY EFFICIENCY IMPROVEMENT STUDIES IN A BIOGAS POWER GENERATION PLANT

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ABSTRACT

Today, biogas, which is a type of renewable energy source, has been increasingly used in various fields around the world. Energy from biogas is an effective and non-externally dependent energy production model that best utilizes the economic and local resources, also the least harmful to the environment with its technologies. In addition, with biogas productions, the contribution to the energy productions can be made by realizing conversion of waste. As it is well known, waste is an inevitable result in the life cycle of the living and it needs to be evaluated successfully for the sustainable energy developments. In today's fast-paced technology, all natural and local wastes used for biogas production, which are not only considered as waste but as resources that awaiting for the conversion to energy. Therefore, it is necessary to convert waste to energy by using biogas technologies to have green energy. At the present time, while the numbers of industrial facilities are increasing rapidly, the improvement and development studies are also increasing accordingly, in the existing facilities. In this study, the improvement efforts that have resulted in success of a biogas plant in Kocaeli-Turkey have been examined in detail. Initially, the production capacity of the biogas plant was 305 kW, then it has been powered by an additional gas engine, which at the power of 415 kW and with this new addition, the plant production capacity has reach the level of 720 kW. The capacity and efficiency increase options that have been carried out during the process are presented in this work in technical and economical point of view.

Key words: Energy from waste, Biogas, Renewable energy, Energy efficiency

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INVESTIGATION OF INDUSTRIAL SOLID WASTE MANAGEMENT PRINCIPLES IN A FIRM SAMPLE

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ABSTRACT

It is a fact that the Organized Industrial Zones are an important contributor to the development of cities. In order to achieve a planned urban development, firstly the planned development and sustainable production of the industry should be aimed. For sustainable production, it should be directed the use and development of clean technologies, which are among the basic principles of modern waste management, where the least use of natural resources is being used. In addition, it should be made to minimize the harmful effects of waste on human and environment by applying the appropriate techniques to minimize the dangerous effects on the environment in the production, use and final disposal of the products. In the management of industrial wastes as well as in the whole of waste types, it is aimed to ensure sustainability in terms of both environmental and economic as well as socially. The Organized Industrial Zone, an important dynamism of the Sinop province, is intended to have a sustainable management plan for the environment, economy and, certainly human beings. Therefore, evaluations were made on a sample of a company that produces a PVC window and door accessories.

Key words: waste management, industrial waste, industrial organized zone, Sinop

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SUMMARY OF SIGNIFICANT PARASITIC INFECTIONS IN MOLLUSCA

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ABSTRACT

The adverse social, economic and environmental consequences of uncontrolled movement of live aquatic animals and their products have increased global awareness of the need for improved health management standards. The serious impact of unrestricted international movement of aquatic animals has led to the development of health certification and risk reduction methodologies. Increasing development of shellfish aquaculture, and recent advances in diagnostic techniques, along with diversification of cultured species, continue to provide a seemingly inexhaustible reserve of new or emerging infectious disease problems. Numerous species of parasites have been described from various species of Mollusca. Some of them have had a serious impact on wild populations and shellfish aquaculture production.

Key words: Parasites, Infections, Mollusca

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**THE LEVEL OF KNOWLEDGE, ATTITUDES ABOUT THE PHYSICAL
ACTIVITY AMONG STUDENTS IN SHKODRA REGION**Artan Kalaja¹, Zamira Shaban², Rina Muka³¹University of Shkodra “Luigi Gurakuqi” Faculty of Education, Department of Physical Education, Shkoder, Albania;²University of Shkodra “Luigi Gurakuqi” Faculty of Natural Sciences, Department of Nursing, Shkoder, Albania;³University of Shkodra “Luigi Gurakuqi” Faculty of Education, Department of Teaching, Shkoder, Albania;Email: artankalaja@yahoo.com; shabanizamira@yahoo.com; gerarina@yahoo.com;

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UOI license: <http://u-o-i.org/1.01/ijeess/79279793>**ABSTRACT**

The physical activity is the most effective way of preventing many chronic diseases, build and maintain healthy bones and muscles, control weight, reduce blood pressure, ensure a healthy blood profile, reduce fat, and promote psychological well-being. Patterns of physical activity acquired during childhood and adolescence are more likely to be maintained throughout the life span, thus sedentary behavior adopted at a young age is likely to persist. School can offer physical education and opportunities, both during and outside the school day, for all students to participate in physical activity and sports. Physical activity helps students to stay alert and concentrate better. Students who are physically active are more likely to have higher academic performance and less disruptive behaviors. The study was conducted during February 2017, in Shkodra Region. This is a transversal study. In this study were completed 200 questionnaires. The information is collected through a self-report. We held random cases in different schools among students of 15–18 years old in Shkodra Region. All data collected were calculated with SPSS 20 program. The questionnaire used is part of the standard questionnaire “Global School-based Student Health Survey” (GSHS) Core Questionnaire Physical Activity Module. The questionnaire measures the frequency of health behaviors such as: physical activity, traveling to school, participation in physical education classes, and participation in sedentary leisure behavior. The privacy of participating schools and students was protected.

Key words: education, health, physical activity, school, student.

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THE LEVEL OF KNOWLEDGE AND ATTITUDES ABOUT HYGIENE AMONG STUDENTS IN SHKODRA CITY

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ABSTRACT

Some research findings related to hygiene shows that diarrheal diseases kill nearly 2 million children every year. Hygiene education and the promotion of hand-washing can reduce the number of diarrheal cases by 45%. About 400 million school-aged children are infected with worms worldwide. The study was conducted in Shkodra city during the period October-November 2016. This is a transversal study. In this study were completed 250 questionnaires by 250 different students (13-17 years old). The information is collected through self-report. We held random cases in different schools among students between 13–17 years old in Shkodra city. All data collected were calculated with the SPSS 20 program. The questionnaire used is a part of the standard questionnaire “Global School-based Student Health Survey” (GSHS) Core-Expanded Questions for the Hygiene Module 24. The questionnaire measures the frequency of health behaviors such as: tooth-cleaning, simple hand-washing, hand-washing with soap. The privacy of the participants was protected.

Key words: hand, hygiene, soap, school, student, tooth, water.

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THE EFFECTS OF RELAXATION EXERCISES ON SLEEP QUALITY AND CONTENT OF ATHLETE'S DREAMS AT NIGHT BEFORE THE COMPETITION

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ABSTRACT

The purpose of this study was to investigate the effect of relaxation exercises on sleep quality and dream content on the night before the competition in female football players. The subjects of this study were 12 female athletes ($M_{age}=22$) who were a member of football team in university of Tehran in 2016. They were purposefully selected and they were randomly divided into the control group ($N=6$) and experimental group ($N=6$) for the participation in a design of this study with pre-test, post-test. The instrument of this study was included Pittsburgh Sleep Quality Index, Sherdel's dream content analytic scale, and Winter and Martin's relaxation program. The intervention lasted 2 weeks in 14 sessions (30 minutes per night). The collected data were analyzed by independent t-test and Mann-Whitney U test ($\alpha<0.05$). The results of this study showed that relaxation exercises had a significant effect on sleep quality in athletes except good sleep components, sleep latency, the use of sleeping drugs, and daytime dysfunction on the night before the competition ($P=0.024$). Also, relaxation exercises had no significant effect on dream content and its components on the night before the competition athletes ($P=0.643$). Therefore, it seems that the application of this intervention can be useful to improve athletes' sleep quality in competition training camps.

Key words: Psychology, relaxation, sleep, dream, sport, competition.

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ANALYSIS OF THE FACTORS INFLUENCING COEFFICIENTS OF PM₁₀ EMISSIONS FROM HOUSEHOLD HEATING IN SKOPJE REGION

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ABSTRACT

This article provides general information about the air pollution in the Skopje valley, its geographical, climatic and meteorological conditions, that contribute to high concentrations of PM₁₀ and PM_{2.5} in the city, especially during the heating season. The measuring network shows that PM₁₀ concentrations in all measuring point in the city of Skopje is drastically above the limit of 50µg/m³, with accident reaching value up to 1000µg/m³. Part of this research is done by conducting a survey on 5044 households in 17 municipalities of the Skopje plan region, with analysis of the type of system they use for heating the household, the surface area of the object they live in, the part of the object they heat during the winter (heating season), the fuel they use or source of energy for heating, and the amount of fuel for one heating season. The analysis of the type of wood fuels used within a the region of Skopje include proportional (percentage) breakdown of the typical types of wood (oak, spruce, pine, etc) and nature of equipment in use (age), maintenance patterns and frequency of wood, the emission factor for PM10 is calculated and proposed that can be used in further TIER1 calculations.

Keywords: household heating system; wood logs combustion, air pollution.

VISITORS SATISFACTION, PERCEPTIONS: THE CASE OF HATILA VALLEY NATIONAL PARK

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ABSTRACT

The National Park of Hatila Valley is one of the 40 protected areas of Turkey. It is of major ecological value, due to the existence of a large number of plant variety and biodiversity. Today, the protection status of the area does not exclude the continuation of human activities, particularly in relation to outdoor recreation activities. The present study was conducted with the use of a specially developed questionnaire, in order to examine visitors' satisfaction, regarding various factors, such as the region's natural characteristics, the level of service and the adequacy of the accommodation facilities for visitors. The main objective of this paper is to examine the level of visitors' satisfaction regarding the National Park of Hatila Valley area, in order to improve the efficacy of its management, particularly regarding the perceptions about the natural characteristics of the region, and the service and adequacy of the accommodation facilities offered to visitors. The measurement of service quality through visitor/customer satisfaction survey may be considered as the most reliable information for the performance evaluation of any organization. Thereby, it is possible to analyze consumer behavior and determine future improvement actions and programs based on the voice of the visitor/customer. The emerging results focus on identifying the factors affecting visitors' satisfaction level, as well as the critical points that the management authority of the National Park must concentrate its improvement actions.

Key words: Visitors' satisfaction, Ecotourism, National Park, SPSS

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SUCCESSFUL TREATMENT OF A CHILD WITH CHRONIC MYELOID LEUKEMIA

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ABSTRACT

A nine year old child is diagnosed in an incidental way with Chronic Myeloid Leukemia in chronic phase. She started treatment with Hydroxyurea, Imatinib and lately Nilotinib and she achieved complete molecular remission after 3 months of therapy. Chronic Myeloid Leukemia is a malignant disease which is very rare in pediatric age. This disease is characterised by Philadelphia chromosome, which results by a translocation between chromosome 9 and 22. This translocation results in an abnormal fusion called the oncogene BCR-ABL which codes a chimeric protein called BCR-ABL. This protein is the underlying cause of CML. Nilotinib is a newly licensed drug for CML in adults. Structurally, it is similar to imatinib (the older tyrosine kinase inhibitor), but it is much more potent in inhibiting BCR-ABL due to its much increased affinity for its binding site. Specific guidelines for CML treatment in children have yet to be determined. In our patient, nilotinib was used as an off-label drug because it is not licensed for children. According to the pharmacokinetic response to drugs, children cannot be considered small adults irrespective of their weight. Off-label drug use based on evidence that it is the best treatment available is an important tool in the hands of expert treating physicians.

Key words: child, chronic phase, Chronic Myeloid Leukemia

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GEOSYSTEMS OF ENVIRONMENTAL CONTACT: SOME METHODOLOGICAL ASPECTS OF TYPIIFICATION AND CLASSIFICATION

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ABSTRACT

The problem of state assessment and change forecast in the geosystems is basis of modern landscapes studies. The main task is to study spatial-temporal self-organization of the landscapes structure under different of physical-geographic conditions, reflecting practically all changes in the environment for a concrete time period and space. With such an approach, a geosystem is considered as a system which forms and develops as united one and forms interdependent links with systems of other hierarchical level and with territorial attachment in general. The study of the vegetation communities of the geosystem of the environment transition zones of the Baikal region were showing the present tendency forming the facies structure of the landscapes of different areas of Pre-Baikal. This is has classification value and characterized intrazonal differences of the geosystem of the big regions. The vegetation communities of the geosystem of the environment transition zones is reflection of the physical-geographical conditions concrete territories and for period of time.

Keywords: geosystems, physical-geographic conditions, spatial-temporal self-organization, geosystem, structure of landscapes, ecotone, paragenese, typify, classification.

DETERMINATION OF THE AESTHETICAL AND FUNCTIONAL USE OF CERTAIN NATURAL PLANTS IN HATILA VALLEY NATIONAL PARK IN LANDSCAPE ARCHITECTURE

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ABSTRACT

Selection of plant material is very important in landscape planning. Use of the indigenous plant material increases the success of landscape architecture applications and it is the economic approach to preserve urban and environmental integrity. Thus, it would be possible to utilize different characteristic of natural species that represent the identity of the region in the planning phase. In the present study, the flora in Hatila National Park and environs was evaluated from this aspect of the landscape architecture design. Plant taxa, part of natural vegetation, reflecting woody and herbaceous plants property with their functional and esthetics values in landscape architecture, were investigated. In the present study, 769 plant taxa that belong 95 families obtained from a study titled "Artvin-Hatila valley flora" conducted between 1994 and 1997 were evaluated. From 769 plants, 401 taxa were determined as suitable for utilization in landscape architecture design. The evaluated plants, from various growth media (especially rocky, roadside, riverside, wet place, slope, mixed forest, alpine and subalpine conditions) and landscape values of about 401 taxa from 76 families were determined. The objectives of use of 401 plant species scrutinized in the study were determined based on their landscape values and growth medium properties. Based on ecological, aesthetical and functional roles of all plants scrutinized in the study, most were suitable for aesthetical utilization and least were suitable for ecological utilization in landscape planning.

Keywords: Natural plant, urban areas, floral design, Hatilla Valley National Park, functional and aesthetical use.

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THE ASSOCIATION BETWEEN ANATOMIC REGION, MICROBIAL ETIOLOGY AND FEVER PROFILE IN INFECTIOUS RACHIDITIS

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ABSTRACT

Affections of rachides by infections is an important pathology, with considered potentiality of invalidisation. This is a cross-sectional study including 92 cases with IR, with an age range 16-75 years, during March 2005–December 2015. The diagnose of rachidites is based on clinic, imaging, microbiologic and serologic exams. We noticed affections of all levels of Rachides; lumbar dominated with 32.5%. We deffer 14 causative agents from which Brucella dominated with 55%. In a lumbar affections the commonest pathogen was Brucella, 72%; in thoracal level was M. tuberculosis, 46.1%. In our study Infectious Rachiditis were presented without fever in 16% of cases. We spotted 5 type of fever: febris intermittent dominated with 38.1% and the most frequent fever according to degree of temperature was low grade fever with 26.1% followed by moderate fever 22.8%, high 19.6%, hiperpireksia 4.3%. Intermittent fever was more frequent in Infectious Rachiditis caused by Brucella with 76.2%. Microbial spondilodiscitis are a complex and problematic pathology in the clinic, microbiologic and imaging level and need a multidisciplinary expensive managing.

Key words: infectious rachiditis, microbial agents, fever.

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COMPARATIVE STUDY ON HEAVY METAL POLLUTION IN THE SOUTHEASTERN REGION OF ALBANIA

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ABSTRACT

The assessment of heavy metal pollution is an important indicator of air quality. The major causes of heavy metal contamination are human activity. Many methods for assessing air pollution from heavy metals are used, but a widespread approach is that of using the moss as a highly efficient bio-monitor. Bio-monitoring with moss, provides us good information on levels of pollution in space and time. The purpose of our study consists in the comparative assessment of the heavy metal pollution of the southeastern region of Albania. The study covers an area of about 4000 km inhabited by 300,000 residents. *Hypnum cupressiforme* is used as a bio-monitor. This moss species was spread and can be found easily in the study area. Sampling took place in two periods June 2010 and June 2015 at 7 stations in the study area. Samples of the same kind of moss were collected at the same stations in both cases. Sampling was performed in accordance with the LRTAP Convention – ICP Vegetation protocol and sampling strategy of the European Program on Bio-monitoring of Heavy Metal Atmospheric Deposition. Eleven elements Al, Cr, Cu, Fe, Li, Mg, Mn, Ni, Pb, V and Zn were analyzed with ICP-AES technique. The results obtained from the two monitoring periods, were statistically processed using linear correlation analysis, multivariate analysis (cluster and factor analysis) and principal component analysis. From the analysis of the results we conclude that the levels of pollution by heavy metal metals Al, Cr, Fe, Li, Mg, Mn, Pb, V and Zn in the southeastern region, have dropped over 5 years. Easily raised values represent Ni and Cu elements.

Key words: moss, bio-monitor, heavy metal, ICP-AES, multivariate analysis

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EVALUATION OF RECREATIONAL PREFERENCES OF VISITORS IN NATIONAL PARK, TURKEY

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ABSTRACT

The intense pace of urban life can create extensive pressure on people. The people need recreation activities to feel more comfortable and peaceful. Thus, especially preserved area relieves people in several ways. Karagöl-Sahara National Park, one of the preserved areas in Artvin, has rich natural and cultural potential. In this study, we aimed to investigate user characteristics, participation level in activities and recreational demands. The questions in the interview form, 25 in total, were about user characteristics, user–resource relationship, satisfaction and preferences and participation in. As a result, certain recommendations were made which could be a reference for recreational demands of the participants and could guide future urban development plans.

Keywords: Recreation, protected areas, user characteristics, recreational preferences of visitors, Artvin, Karagöl-Sahara National Park.

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GROWTH MODELS COMPARISON IN SEABASS (*Dicentrarchus labrax* L.1738) CULTURE

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ABSTRACT

In this research, the growth models (von Bertalanffy, Logistic and Chapman-Richard methods) were compared in the cage culture of seabass (*Dicentrarchus labrax*) which are economically valuable species. The growth data obtained from the 5th months when the fish stocked to the cages to the 21th months when the harvesting done were used. The methods were compared and afterwards evaluated by Akaike Information Criteria (AIC). While the average error square was 1187,8 in Von Bertalanffy method, it was 236,2 in logistic model. Correlation coefficient were 0.86 and 0.84 in Chapman-Richards and Bertalanffy methods, respectively. Appropriate methods for growth description were suggested according to Akaike Information Criteria. These growth patterns suggested in sea bass may be used to assess growth parameters in other cultured fish.

Key words: Seabass, Growth models, von Bertalanffy, Logistic, Chapman-Richard, Akaike Information Criteria

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EVALUATION OF BACTERIA *SHIGELLA* SUBTYPES IN THE ALIMENTARY TRACT OF FISH SPECIES (*SQUALIUS CEPHALUS* AND *CARASSIUS GIBELIO*) AND HUMAN HEALTH RISK ASSESSMENT

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ABSTRACT

The aim of this study was to isolate enteric pathogenic bacteria from fish that could be transmitted to humans after the handling or consumption of those fishes. Fish samples were collected applying the electrofishing method alongside Sitnica, Lepenci, and Lumbardhi I Prizrenit rivers. Evaluation of *Shigella spp.* species from fish samples was performed using standard bacteriological procedures. In addition, the bacteriological analyses involved Bacteria genus of Gram-negative *Shigella spp.*, on the following fish species: *Squalius cephalus* and *Carassius gibelio*. *Shigella* was conducted according to ISO 6579:2002 methods. This microbiological parameter was analyzed from 60 samples, results that *Shigella* is not found in the alimentary tract of this fishes. The analysis of various serovars of *Shigella spp.* from different sources indicates that distribution of this bacteria in the mentioned rivers is not normally present. As we know, the variability of subtypes of different microbiological aspects reflected for research, risk management, and public health strategies.

Keywords: Fish, river pollution, Bacteria genus Gram-negative-*Shigella*

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CEREALS HAVE GREATER ROOT AND SHOOT BIOMASS AND LESS ROOT: SHOOT RATIO THAN FORAGE LEGUMES

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ABSTRACT

This study aimed to determine root and shoot traits in cool-season forage legumes with tap root (pea and Hungarian vetch) and cool-season cereals with fibrous root (wheat, barley, triticale, oat and rye) at 200 cm long tubes under field weather condition. In the study, it was found that there are statistically significant differences between field crops with regard to root length, root biomass, root biomass distribution, plant height, shoot biomass, root: shoot ratio and root: total biomass ratio. The maximum root length reached up to 136.7 cm at triticale and the lowest root biomass distribution at the top soil was observed at Hungarian vetch. As a result, cereals with fibrous root had higher root and shoot biomass and lower root: shoot ratio than forage legume with tap root.

Keywords: Root and shoot, Field crops, Tap and fibrous root system

**OBSTACLES FACING OF RIVER HYDROELECTRIC POWER PLANTS
ON ENVIRONMENT (*Example of Eastern Black Sea Region*)**Hüseyin AYAZ^{1*}, Sevim INANÇ²^{1*} Department of Law, Black Sea Technical University, Trabzon, Turkey;² Department of Forestry, Artvin Coruh University, Artvin, Turkey;*Correspondence authors: Hayati Akman and Sevim Inanç e-mail: hayaz@ktu.edu.tr; inanc_sevim@hotmail.com;

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UOI license: <http://u-o-i.org/1.01/ijeess/09434539>**ABSTRACT**

The energy need increases in parallel with the increase in the world population and the technological advancements. The pollution arising from the energy production by the fossil fuels have exceeded the acceptable dimensions in recent years. Since many countries, including Turkey, cannot produce fossil fuel from own resources so as to satisfy the needs, they spend a significant part of the domestic income for the energy import. As from the early of the 2000s in Turkey, it has been enabled to generate electricity from the water and wind power by the private sector by constituting the legal basis. Much as this approach has provided a sum of increment for the national-sourced energy production, the legislative regulations remain incapable about the issues such as not to interfere to the national sources beyond the sufferable border and also not to be endangered the sustainability of the ecosystem. Moreover, there are technical and administrative difficulties to make the precautions of laws and regulations actual. Eastern Black Sea region is almost selected as the pilot area for building the run-of-the-river hydroelectric stations (RORHS), and it is planned to make 316 RORHS in 5 provinces as of 2010. The carrying capacity of this geography, the load and such effects of the facilities to be built for carrying the energy produced. These plants which have been put into practice without making any remark and comprehensive research to analyze the region-wide and on basin-basis cause serious apprehensions. The need for the local community to the water source, desires and expectations aren't considered enough. Moreover, there is not provided training for both of the individual entrepreneurs and the local community to gain environmental consciousness at sufficient level. It should be kept in mind that the training to increase the knowledge and consciousness levels of especially the investors about the nature conservation may be more effective than the penal measures.

Key words: Energy production, Run-of-the-river plants, Energy production planning on watershed bases, Sustainable management of water resources.