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FAVORABLE ECOSYSTEMS FOR BIODIVERSITY CONSERVATION

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ABSTRACT

The paper includes the results of the researches on the ecological condition and biological diversity of the representative forest ecosystems Stanca and Humaria, located in the Dniester River Basin. An emphasis has been placed on the biological diversity, the distribution range of flora and fauna, the endangered status in accordance with the IUCN classification and protection status in accordance with the annexes of International Environmental Conventions. The examination of flora and fauna was made seasonally and in their different phonological development phases. The species' systematic origin was established with the help of field reference books and specialized microscopes such as Micmed-5 and MBS-10.The valuable biodiversity of the researched forest ecosystems records species of plants and animals that are protected by both national and international laws. Based on the investigations, new habitats for a number of rare species were observed, and it is suggested that the studied forest ecosystems to be taken under state protection.

Key words: Forest ecosystems, biological diversity, valuable species, flora and fauna conservation, protected areas.

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INVESTIGATING CHANGES IN SOME SOIL PROPERTIES DEPENDING ON LAND USE AND DEPTH LAYERS: A CASE STUDY FOR THE GODRAHAV CREEK WATERSHED IN ARTVIN, TURKEY

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ABSTRACT

The Eastern Black Sea Region is characterized by mountainous and steep terrain, limiting agricultural activities. This, in turn, has been causing the natural lands of mostly forests and grasslands in the region to be converted to other uses, mostly agriculture as an alternative income for the local people. However, it is well known that such conversions negatively affect all the natural resources including soil properties. Therefore, in this study, changes in some soil parameters in the forest and the neighboring agriculture (converted from the forest) lands within the watershed of the Godrahav Creek Watershed were investigated with respect to current land use type and soil depth. For this purpose, a total of 36 soil samples based on land use types (forestland, agriculture) and soil depth (0-10 cm and 10-20 cm) were taken to be analyzed for texture, permeability, bulk density, organic matter (OM), pH. Differences and relations among these properties were statistically examined using the analysis of variance analyses (ANOVA). It was determined that the most of the soil characteristics analyzed were significantly different between the lands of forest and agriculture in the study area. For example, as expected, the amount of OM was significantly higher in forestlands with 6.71% than the agricultural land with 5.50% while the pH was increased from 5.51 to 6.88 after conversion. In addition, bulk density was also increased from 1.07 gr/cm^3 in forests to 1.23 gr/cm^3 in agriculture areas whereas better permeability was found for forestlands (302.32 mm/hr) than agricultural lands (110.96 mm/hr).

Keywords: Land use types, soil depth, soil properties, Godrahav Watershed, Artvin

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PROBABILITY ANALYSIS OF AIR POLLUTANTS IN ORDU, TURKEY

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ABSTRACT

Air pollutants are the main potential health threatened among the other risk components. In the last century, industrialization, motor-driven vehicle, heating purpose are the main sources air pollutants. This study aims that probability analysis of air pollutants in Ordu city of Turkey located in Blacksea region. Analyzed data (PM10, SO2) covers the time span of 2008-2015 years. Daily records were rearranged to describe monthly maximum values. Firstly, data set was analyzed using software to find out likely well-fitted probability distribution. Using the probability distribution, synthetic data were generated for standard recurrence intervals. On the other side, extreme values of the record were also analyzed using likely probability distribution. PM10 data set distribution was well fitted to Log-normal distribution. Findings of this work were interpreted considering human-health criteria used in international standards.

Key words: Air quality, PM10, SO2, Ordu city, Probability.

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A POTENTIAL HEALTH RISK OF OCCUPATIONAL EXPOSED WORKERS IN PETROCHEMICAL INDUSTRY OF BALLSH, ALBANIA

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ABSTRACT

Petrochemical industries are known as sources of many toxic organic chemicals such as n-alkanes, brunched alkanes, cycloalkanes, polycyclic aromatic hydrocarbons (PAHs) and dioxins. Safety and health risk of the petrochemical workers employed at Ballsh oil refinery, located in the Southwestern part of Albania is potentially high. Oil refinery workers are continuously exposed to numerous hazardous materials and working conditions. Nowadays, due to the health problems caused from long-term exposure, the research is putting more efforts in correlating the doses in human body with the levels in the environment. The aim of this study was to investigate the hepatic health effects on occupational long-term exposed workers of this petroleum refinery. Biochemical markers of liver and kidney function were analyzed in serum samples, using turbidimetric method. Liver biomarkers considered on this study were the aspartate aminotransferase - AST (SGOT), alanine aminotransferase - ALT (SGPT) and total bilirubin (TBIL). Furthermore, the kidney function of creatinine and urea were determined as well. Blood samples were collected from 1182 oil refinery workers. The target group control included 263 females from 26 - 63 years old and 919 males, from 19 - 69 years old. Gender differentiation data showed that, even if the mean values for the parameters were higher in males than females, the increases were not significant in most cases. The data were adjusted for age and gender. A statistical analysis of the obtained data has also been done.

Key words: Petrochemical worker, liver biomarker, kidney function, serum sample.

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EFFECT OF CULTIVAR AND MECHANIZATION USED ON *ALFALFA HAY* PRODUCTION

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ABSTRACT

Alfalfa crop, produced in about 15,000 hectares in Kosovo, is an important product that provides high quality feed for livestock. The average yields of alfalfa hay in Kosovo vary significantly depending upon location, production technology and level of mechanization, rainfall or irrigation, and the season. However the potential for alfalfa hay yield is not achieved due to out-dated cultivars, non-adequate production technology and mechanization. The alfalfa crop production is characterized by a very low yield (between 3–5 t/ha alfalfa hay per year from average of 3 cuts per year), high production cost and poor quality of hay. Field experiments included three high potential cultivars and 3 seeding rates, ranging from 15 to 25 kg seed/ha, that were established in two regions in Kosovo. The objective was to determine the impact of proper technology and mechanization used on alfalfa hay yield. The effect of mechanization for soil preparation, sowing, plant maintaining, harvesting, and hay field drying, were investigated at two regions. The cultivars had a significant effect on forage yield, where Banat reached higher hay yield (16.7 t/ha), Mediana (14.3 t/ha), and OS-66 (13.6 t/ha). The highest forage yield was achieved in higher seeding rate (25 kg/ha) with an average of 14.2 t/ha of alfalfa hay, 13.7 t/ha at seeding rate of 20 kg/ha, and 12.1 t/ha at 15 kg/ha of seeding rate.

Key words: Alfalfa crop, hay yield, cultivar, location, mechanization

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THE ECOLOGICAL STATUS OF NATURAL ELEMENTS IN SOME PROTECTED AREAS

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ABSTRACT

The object of the research includes some state protected areas, located in the North of the Republic of Moldova, in the Dniester river basin. The studies are based on field research. It is assessed the general ecologic condition and determined the sources and the level of pollution of the environmental components. There were also highlighted the specific elements of protection categories. The natural ecosystems were evaluated in the main phenological development phases of vegetation and animal world, the rare species were registered and their abundance was described. On the basis on the obtained results, it was stated that the local and transboundary sources of pollution don't have a significant impact on the researched objects. The investigated areas contain a rich diversity of plant and animal species and serve as a favorable habitat for 16 rare species protected at national, regional and international level.

Key words: Natural protected areas, local and transboundary impact, heavy metals, biological diversity, rare species, abundance, habitats.

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ACTIVATED CARBON PRODUCTION FROM VAN APPLE SHELL AND USE OF TEXTILE DYES ADSORPTION

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ABSTRACT

In this study, chemical activation of carbon from Van apple shell, its characterization and usage in adsorption of textile dyes were investigated. Active carbon was prepared from apple shell by chemical activation with $ZnCl_2$. Then, Malachite Green and Methylene Blue were used as dyes. In this research, the properties of prepared carbon were determined by BET, XRD, SEM, FTIR systems. Then characterization and zeta potential of these systems and adsorptions of dyes in liquid phase were investigated. SEM image, XRD pattern and IR spectrum show that no zinc is found at the surface of VAAC depending on the chemical activation process to prepare the activated carbon. There is no zinc particle at the surface on SEM image, no characteristic peaks and IR bands belonging to zinc or zinc forms are detected in the XRD pattern and IR spectrum. Experimental data were analysed using the Langmuir and Freundlich equations and equation constants were determined. Adsorption enthalpy (ΔH^0) of thermodynamic parameters, Gibbs free enthalpy (ΔG^0) and adsorption entropy (ΔS^0) values were calculated. In addition, experimental studies have been conducted at four different temperatures, with different initial concentrations. The activated carbon which was obtained from apple pulp impregnated with ZnCl2 has remarkable BET surface area (1067.01 m^2/g) with a well-developed pore structure and the average pore diameter is 2.46 nm. It is produced with a reasonable yield of 43%.

Key words: Activated carbon, adsorption, reactive dyes, waste Van apple shell.

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SOLID WASTE MANAGEMENT IN SINOP ORGANIZED INDUSTRIAL ZONES

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ABSTRACT

One of the most important present day problems of Organized Industrial Zones is their failure to efficiently manage wastes of the firms carrying out production in the zones. Combination of the concepts of development and industrialization, which do not harm the environment, which reduce consumption of natural resources, and which are sustainable in this respect, has become extremely important in management planning of the wastes originating from these areas. Solution of this problem is a condition that can be ensured by a good waste management planning and implementation. Creation of a waste inventory which is reliable and up-to-date at the same time, whereby the amount and composition of the wastes are identified for determination of the extent of this problem, is an important practice. Hence, storage and collection of the industrial wastes at the site of origination, and inventory information such as their amounts, provide guiding in prevention, reutilization and disposal of such wastes. In the study, the firms carrying out production in Sinop Organized Industrial Zone and productions by those firms according to their field of activity were examined, and inventory study aimed at obtaining information on any and all activities carried out by the firms within the scope of waste management was applied. Thus, it has been possible to obtain the general waste information of the firms available so far and implementation data pertaining to storage and transport of the wastes. These planning actions have been evaluated as required by the current management guidelines. Furthermore, a recommendation plan comments has been established for sustainable management of the wastes of Sinop Organized Industrial Zone in the conclusion report.

Key words: Industrial waste management, Sinop, sustainability, waste management

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EVALUATION OF SOME REDUCED-RISK PRODUCTS FOR MANAGEMENT OF POWDERY MILDEW IN GREENHOUSE TOMATOES

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ABSTRACT

Tomato powdery mildew, caused by the fungus *Leveillula taurica*, is more common in greenhouses in Albania especially in second growing season where the infected plants can suffer to the point of severe economical damage if left unchecked. Growers often depend on pesticides for its control. In this study, some alternative reduced-risk products were evaluated for their efficacy to control powdery mildew in greenhouse tomatoes. Trials included Serenade WP (*Bacillus subtilis* QST 713: 10%), Armicarb® 100 (Potassium bicarbonate 85%), UFO (Ultra Fine Oil), Microthiol disperse WG (Sulphur 80%), compared with the untreated control. Each one of these products was applied as single treatment every 7-10 days to each of four replicates of the experimental plot at the same day. Disease severity, expressed as a percentage of the foliar infected area was assessed before each spray and five days after the last treatment. Obtained data show that Serenade, Armicarb and UFO provided more disease control evidencing a severity level by 9,2%, 12,4%, and 18,8% respectively. Microthiol disperse also shows better control compared with untreated control resulting in a disease severity respectively by 20,5 and 30,4%. Experimental results show that reduced-risk products to human health and the environment tested by this study may be considered as potential substitutes of the synthetic fungicides to control powdery mildew in greenhouse tomatoes especially in organic cropping.

Key words: Tomato powdery mildew disease, reduced-risk products

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ENERGY CONSERVATION AND EMISSION REDUCTION THROUGH WASTE HEAT RECOVERY ON COMPRESSED AIR SYSTEMS

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ABSTRACT

Compressed air is widely used in plenty of industrial sectors even though it is an energy intense and inefficient process. The most of the energy consumed by the compressor transforms to the thermal energy. Energy of compressed air which is fed to the compressed air network is too little with respect to compressor energy consumption. The thermal energy which emerges from air compression process could be recovered using proper systems for either air cooled and water cooled compressors. In this study 50kW thermal energy is recovered from an 82kWe rated power compressor. Investigated compressor is a single stage screw compressor and operating 6,300 hours/year. Recovered heat energy is used to heat 0.66 kg/s water from 45 to 63 °C. With this application 329,313 kWh/year thermal energy is conserved. The conserved energy is equivalent to 31,214 Nm^3/year natural gas and 10,945 USD/year. The thermal energy conservation is followed by 66,784 kg CO2/year emission reduction.

Keywords: waste heat recovery, compressed air, energy efficiency, compressor, water cooling

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DETERMINATION OF SOME AIR CHLORINATED ORGANIC POLLUTANTS IN KRRABA TUNNEL, ALBANIA, USING MOSS AS BIOINDICATOR

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ABSTRACT

Air quality measurements of highway tunnels have attracted the attention of scientists, as they represent cumulative contribution of different sources of pollutants that include direct emissions and resuspensions. Active biomonitoring, so called "moss bag technique" was used for monitoring of some organic pollutants in Krraba Tunnel (Tirana – Elbasan highway). This is an important tunnel, where a big number of vehicles pass every day. *Hypnum cupressiforme* moss bags were placed in six stations from the entrance to the exit of the tunnel, and kept there for six months. Concentrations of organochlorine compounds, such as organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs), chlorobenzenes and DDTs were determined in moss samples. After collection, the moss samples were extracted in hexane/dichloromethane, cleaned-up in an activated Florisil column and injected in a GC Varian 450, with μECD. A Rtx-5 capillary column (30m x 0.32 mm x 0.25μm) was used for organochlorine pollutants analysis. Moss samples collected in the tunnel entrance had low concentrations of chlorobenzenes and OCPs, from which the HCHs were the most abundant. Highly chlorinated PCB congeners and DDTs were detected in all moss samples.

Keywords: moss-bag, OCPs, tunnel, PCBs, *Hypnum cupressiforme*

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DETERMINATION OF HEAVY METALS IN INDOOR DUST

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ABSTRACT

Indoor air quality which is an important indicator of public health, affects not only human health but also sequence quality of the life which is significantly more important. Therefore, the monitoring and controlling of indoor air quality is important as well as outdoor air quality. This study aims to determine how the amount of heavy metal pollution in indoor dust. Factors such as the living close to a major road (in terms of polluters being emitted from traffic), heating source kind, the number of students in the class, wall paint kind of the wall are taken into account when selecting samples in order to be taken as points. Different points of samples needs to be taken from various points, such as the window edge, aerators, ladders, class board, and after the solubilization process, heavy metal concentrations will be determined by using the device of Atomic Absorption Spectrophotometer.

Keywords: Air quality, indoor, health, heavy metal, dust.

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PREFERENCES FOR STREET TREES PLANTING IN KOSOVO URBAN AREAS: CHALLENGES AND BENEFITS

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ABSTARCT

Recent years in the Republic of Kosovo, has started to increase demand for planting trees in road spaces especially in large urban areas, such as Prishtina city, because the role of trees and other vegetation is clean our air and water, create greener neighborhoods, calm traffic, improve public health, provide wildlife habitat and absorb greenhouse gases. Street trees are an integral element of urban life. The purpose of our work was the study of the information on urban green structure (e.g., type of street trees, number of trees, species composition) is essential to improve urban forest management and enhance the ecosystem services provided by trees and other vegetation. The area of Prishtina (572 km2, about 600.000 inhabitant) represents one of the largest Kosovo metropolitan areas. Parks and green space areas in prishtina are less than 5% of total area. The most common street trees plant in Kosovo are Tilia argentea , *Acer platonoides, Catalpa bignonoides, Platanus orintalis, Prunus kanzan*. Tilia argentea, it has been used in Kosovo since 1950, in many cities of Kosovo,whereas today it is one of the plants used in urban areas and individual trees along streets.

Key words: Urban forestry, street trees, urban areas, Kosova

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THE EFFECT OF WHEAT GERM ON THE TOTAL OXIDATIVE STRESS *DROSOPHILA MELANOGASTER*

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ABSTRACT

Wheat germ is rich in polyunsaturated fats and affected the storage qualities of flour. Diet content is important for the oxidant-antioxidant system because insufficient or excessive nutrition can cause health problems in human diet. This study was investigated the effects of a wheat germ flour diet on total oxidation and antioxidant levels and the relationship between them in *Drosophila melanogaster* Meigen (Diptera: Drosophilidae) adults. *D. melanogaster* (W^{1118}) larvae were fed with wheat germ flour (1-5%) until the adult stage. Total oxidant stress (TOS), total antioxidant capacity (TAS) and oxidative stress index (OSI) were determined in adult individuals, and obtained data were compared with SPSS.17 ($p<0,05$). It's stressed that a good amount of increase will occur in the activity of TOS (13,55 μmol/L) which the insects fed by the highest concentration (5%) compared to controls. It is detected that adding wheat germ to nutritional compounds in low concentrations reduces the level of oxidation whereas the consumption of large amounts increases the level of oxidation. The usability of wheat germ was investigated as a source of dietary supplement and determined that wheat germ will be used easily at level of 1% in non-target organisms by paying attention to usage doses and storage conditions.

Keywords: Wheat Germ Flour, *Drosophila melanogaster*, Nutrition, Oxidative Stress.

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FIVE YEAR MONITORING OF BREEDING SUCCESS OF THE WHITE STORK (*CICONIA CICONIA* L.) IN ALBANIA

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ABSTRACT

The breeding success of the White Stork (*Ciconia ciconia*) was surveyed during the five years time 2011-2015 in the Southern region, recognised as the only breeding place of the stork in Albania. Five breeding sites have been surveyed, of which four in Vurgu field (Delvine-Sarande) and one in Drinos valley (Gjirokaster). The number of breeding pairs (HPa) fluctuates between 3 and 4 (average 3.5), the number of pairs with fledging young (HPm) between 2 and 4 (average 3), while the breeding pair occupying a nest but without fledging young (HPo) has been recorded in the year 2011 (in Vrion), and 2013 (in Çaushi). In one case, year 2012, in Finiq, a single nest visitor (HB1) was observed. The lowest number of breeding pairs with fledging young (HPm=2) was registered in year 2013, while the highest number of breeding pairs with fledging young (HPm=4) was registered in year 2014. The total number of fledged young per year in the surveyed area (JZG) fluctuates between 8 (year 2014) and 13 (year 2015), with an average of fledged young (JZm=JZG/HPm) per nesting pair of 3.63 (ranging from 1 to 5 fledging per nesting pair). Four out of five nests were located on worship buildings, such as church or monastery belfries in Çuka, Finiqi (graveyard), Vrioni and Çaushi, while the single nest in Drinos valley was built on the top of the high voltage power line, close to Viroi lake. The latter was occupied only once, in 2014, and the breeding pair could raise only one fledgling. Monitoring of breeding success in the surveyed breeding area shows that the population of the white stork in southern Albania is stable. Based on the spatial distribution and the location of nests, it is concluded that human disturbance plays a major role in breeding site selection and behaviour of the white stork in the surveyed area. Killing of single adults and taking the adults from the nests have been recorded in Vurgu field during the surveyed period. A breeding pair taken from Vurgu field is being kept in captivity in Shkodra, in one of the resorts of the city suburb. Awareness raising campaigns combined with law enforcement and construction of artificial nesting platforms in safe locations may increase the breeding success of the white stork in the southern region of Albania. Designating the Vurgu field as Specially Protected Area (SPA) as part of Natura 2000 sites in Albania, could be used as an important legal tool to safeguard the only breeding area of the white stork in Albania. Maintaining landscape composition and land-use practice in the agri-environment of Vurgu field is vital to the long-term breeding success of white stork in Albania.

Keywords: White stork, monitoring breeding success, Southern Albania

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MODELLING OF SO_2 POLLUTION IN SELÇUKLU DISTRICT OF KONYA WITH ARTIFICIAL NEURAL NETWORKS

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ABSTRACT

Some of the air pollutants cause significant effects on health of human and other livings. SO_2 is one of these air pollutants that may harm the tissues and mucous membranes of the eyes, disturb throat due to the irritating odour and cause problems in the respiratory system and bronchi. Also, SO_2 gas may be lethal for patients who have significant illnesses like lung failure and asthma. In addition, animal life and vegetation are affected negatively from SO_2 gas. Depending on the exposure period, chronic injuries occur in the plants such as decrease in growth and yield, increase in senescence, and colour problems. When all problems originating from SO_2 are considered, prediction of the future concentration of SO_2 is very significant so as to take precautions. In this study SO_2 pollution in Selçuklu district which is one of the biggest districts of Konya was tried to be predicted with artificial neural networks using meteorological factors and air pollutants emitted to the area. Artificial neural networks consist of interconnected structures for making parallel computations. The working principle of human brain is used in artificial neural networks. Measurements of pollutants which are O_3, NO_x, PM_{10} and meteorological factors such as wind speed, temperature, and humidity made in winter period of 2016 were used as a parameter in this study. These air pollutants and meteorological factors were integrated to the model as input parameters and SO_2 concentration of one day and five day later was predicted in order to compare efficiency of the models.

Key words: Artificial neural network, modelling, air pollution, SO_2, meteorological factors

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DIVERSITY OF LOCAL LANDRACES COLLECTED DURING 2009-2010 PERIOD AND THEIR REPRESENTATIVENESS IN ABANIAN GENEBANK

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ABSTRACT

Diversity of 630 geo-observations representing local landraces (27 genera and 36 species) collected in Albanian territory during SEEDN[et] Project on Plant Genetic Resources (2009-2010), and their representativeness in genebank was carried out. The number of observations per species and per district, the area of occupancy, the diversity indices and the richness estimators were assessed using grids cells of 1 x 1 km of 10 x 10 km. The genetic representativeness of collected local landraces was detected creating the circular buffer zones with a 1 and 10 km radius around the genebank ex situ data, and circular buffer zones with a 1 km radius around the external SEEDN[et] collecting data. Geospatial analysis detects areas of high alpha diversity, similarity and differences between 10 principal regions of Albania. Combination of diversity indices as Simpson index (1-D), Shannon-Weiner, Brillouin, and alpha diversity index, found the areas of Elbasan, Korca, Tirana, Shkodra and Vlora regions were richer and more even than other areas. Cluster analysis using similarity method on correlation found higher similarity among Vlora and Gjirokastra, Fieri, Shkodra and Tirana regions (similarity index range from 49.61% to 64.22 %, and correlation coefficient range from 0.63 to 0.86). Comparisons methodology of genebank ex situ data with SEEDN[et] external data proved the presence of new alleles (12 genera, 17 species) in collected germplasm of local landraces, increasing their representativeness in genebank. The ecological areas of Tirana, Korca, Elbasan, Vlora and Shkodra regions, found as more relative stable ecosystem areas, should be used for the assessment of the current status of conservation of plant genetic resources and for the prioritization of potential ecological areas suitable for in situ conservation.

Key words: Diversity indices, geographic analysis, local landraces.

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KONYA CITY URBAN SPRAWL AND ENVIRONMENTAL POLLUTION RELATION

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ABSTRACT

Konya is the biggest city of Turkey with respect to surface area which covers 5% of total surface area of Turkey. Moreover, population of the city is increasing day by day with immigrations and births. This extreme growth of population causes some problems in city planning and urban development. Urban sprawl is one of the most significant consequences of wrong urban planning in order to provide demand of settlement. It is defined as insatiable and inefficient use of land with continuous monotonous development and discontinues rapid development. Urban sprawl has seen mostly at the centre districts of Konya (Meram, Karatay, Selçuklu) and around Seydişehir ring road. This sprawl problem of Konya city has many effects on humans and also environment. These effects include both social and economic aspects. For example, increasing air pollutants because of the urban sprawl and unplanned settlement may create health problems on people and spoil air quality of the city. Destruction of ecological life and natural environment, pollution in rivers and streams are some of the other environmental problems caused by urban sprawl. In this study, environmental pollution originating from urban sprawl problem in Konya city was investigated and possible recommendations to solve urban sprawl problem was explained.

Keywords: Urban sprawl, environmental pollution, unplanned settlement, Konya

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THE GRADIENT STUDY OF RADIATION USING LINEAR ACCELERATOR BASED IN THE TREATMENT PLANS OF CARCINOMAS BY RADIOTHERAPY

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ABSTRACT

Cancer is a widespread problem and concern throughout the globe. Almost half of cancer patients treat by radiation. Based on this, the aim of this research is concerned with the study of radiation doses, generated by the linear accelerator(LINAC) applied during cancer treatment in radiotherapy. To realize tumor treatment plan , is used source of energy photons 15 MV. The results obtained showed that the isodose distributions in tumor volumes includes tumor volume inside surface of isodoses D95 (%) and D90 (%) and safing the risk organs around the tumor volume in the percentage allowed.

Key words: radiotherapy, cancer, linear accelerator, treatment

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THE ESTIMATION OF TURKEY'S EXPORTVALUES TO ALBANIA FOR FIBREBOARD BY THE TIME SERIES METHOD

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ABSTRACT

In this study, it is aimed that the analysis of Turkey's export values to Albania for fibreboard with Box-Jenkins forecasting techniques which has an important role in the time series analysis and the best suitable time series model for values of export was determined. The data used in this study were obtained from Turkey Statistical Institute (TSI) and monthly data covering the period of January 2007 and December 2015. Augmented Dickey-Fuller test is used to the stationarity test. Temporary model which have significant parameters and the minimum values of akaike information criterion (AIC) and schwartz information criterion (SIC) was determined. Model which is suitable (whether plot of autocorrelation has white noise) was determined by using the Box-Ljung test. As a result, ARIMA(2,1,3) model was found as the best forecasting model.

Key words: Time series, Box-Jenkins, Export, Fibreboard

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ENERGY, ENVIRONMENT AND ECONOMIC ANALYSIS OF DESIGNED TRIGENERATION SYSTEM

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ABSTRACT

Increasing energy demands and reliability problems with supply chains necessitate using energy resources more efficiently. Besides, in terms of environmental issues energy efficient technologies offer an opportunity for reducing of emissions. Therefore, trigeneration systems are one of the most encouraging technologies in this aspects. In this study, for an industrial facility which provides electrical needs completely from the circuit and steam needs of the system with natural gas fired boilers systems' energy, environmental and economic analysis was performed. This paper proposes a gas engine based trigeneration system that uses both engine jacket water and engine exhaust gases. Trigeneration system produces chilled water with an absorbtion chiller by jacket water and saturated vapor via exhaust gases. The system is designed interoperability with the electrical network. The first priority is estimation of electrical demand for the system. Afterwards thermal demands identified. In this study, making energy and economic analysis starting with calculation of gas engines thermal efficiencies prepared feasibility analysis of the implemented system.

Keywords: Trigeneration, cogeneration, energy analysis, energy conservation, energy and environment, Global Warming

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THE IMPLEMENTATION OF EUROPEAN UNION ELECTRICAL AND ELECTRONIC WASTE LEGISLATION AND STANDARDS IN MACEDONIA

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ABSTRACT

Development of technologies produces increasing of electrical and electronic equipment and waste generation from this equipment. Electrical and electronic waste sector is one of the fastest rising sectors in the waste area. This waste is a very complex mixture of components and materials which because of hazardous characteristics can produce environmental and health problems. It causes an urgent need for reducing the hazardous substances in the electrical and electronic equipment. The European Union as one of the world leaders in environmental sphere has developed a comprehensive legislation that introduces a high level of standards of electrical and electronic waste management. These standards strive toward to the minimization and reduction of this waste and protection of the environment. Macedonia as a country with candidate status for full membership of the EU has many obligations in the area of environment and waste management, including electrical and electronic waste. In this area the country has unsatisfactory results, despite starting of transposing of EU legislation. The level of recycling and other forms of recovery is very low. The most of the electronic and electrical waste without any pretreatment is deposited on the landfills which do not meet EU and national standards. It produces the numerous of risks on the environment. Separate collection of this waste stream has not completely established. The shortage of recycling capacities for many components of electrical and electronic equipment, presents export as the only solution. In the future Macedonia has to make significant efforts to improve the management of electrical and electronic waste. The current situation disables the achievement of the targets determined in the national legislation. There is a lack of researches in this waste sector. The main goal of this paper is to analyze the implementation of the EU electrical and electronic waste legislation and standards in Macedonia. Also the paper makes efforts to give some recommendations and to initiate further researching in this waste sector.

Key words: electrical and electronic waste, equipment, standard, legislation.

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GEOGRAPHIC INFORMATION SYSTEMS (GIS) BASED APPROACH FOR SITE SELECTION OF MEDICAL WASTE LANDFILL IN KONYA

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ABSTRACT

Medical waste generally consists of many different types of materials so it cause environmental hazards and public health risks. Therefore to protect public and environment local authorities must take special measures associated with medical waste management. Medical waste site selection has been taken into account for better management in urban areas. In this study, candidate sites for an appropriate landfill area in Konya are determined by using the integration of Geographic Information Systems. For this purpose, six input map layers including, settlements (urban centers and villages), roads (Highway and village roads), railways, slope, irrigation canal, grasslands are prepared and simple additive weighting method is implemented to a geographical information system. A final map was generated which identifies regions showing suitability for the location of the landfill site. At the end of the analyses, candidate sites are determined. Among these candidates, the most suitable potential landfill site should be selected by decision makers in Konya.

Key words: GIS, Medical Waste, Site Selection.

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EVALUATION OF LAND TENURE FORMS AND SIZE OF AGRICULTURAL HOLDINGS IN TURKEY USING GEOGRAPHIC INFORMATION SYSTEM (GIS) TECHNOLOGIES

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ABSTRACT

Agriculture sector plays strategic roles in the process of economic development because agriculture is the basic source for food supply of all countries in the world. While population increase day by day, global resources like oil, fresh water, topsoil and also agricultural products decline so land management is very important for heritage of sustainable planet. The legal expression of farmlands among with operator is land tenure which is a significant component in agricultural land use. Determination of land tenure and the farm size is important for a better understanding of the structure of the agricultural land. Geographical Information Systems emerge that can expressed such as situation. Geographic and non-geographic attributes of spatial datasets enable them to be integrated and analyzed in GIS applications through visualization and analysis tools. The purpose of this paper is evaluate to land tenure and the farm size in provinces of Turkey using GIS. The land operated by size, number, rented land, share basis, their own land of agricultural holdings and land tenure forms analyzed. It is detected the differences among provinces from analyzed results taking everything into account. The results obtained from the study are discussed and suggestions are made.

Key words: Agriculture, Agricultural Holdings, Land Tenure, GIS.

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POSITIONING WITH THE HELP OF GEOGRAPHICAL INFORMATION SYSTEMS FOR ALTERNATIVE TOURISM ACTIVITIES: KONYA PROVINCE EXAMPLE

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ABSTRACT

Tourism is an important activity in our country just like it is all over the world. Konya province is famous with religious tourism. It is known that Rumi, in other words Mevlana, shows are followed by whole world. The province also used to be the capital of Anatolian Seljuk Empire so it contains many Islamic pieces of art. It owns a living history with inns, hostels, cupolas and mosques and left behind from Seljuks. In this study researches were made for alternative tourism activities so as to let our province be known for the other types of tourism activities. The suitable areas for alternative activities were aimed to be determined by geographical information systems. Natural and cultural properties of research area were determined and numerical database se was formed. By using the database and with the help of ArcGIS program, altitude, slope and exposure maps were produced. For determination of suitable areas according to alternative tourism type, national and international legislations were taken as a basis so as to determine technical and economic criteria in location selection and the limitations to be taken as a basis during application were detected. Mountain bike, ski tourism, paragliding, tableland tourism, camping – caravan tourism activities were selected. Location selection process was realized with the help of GIS, abilities to analyze and visualize positional data.

Key words: Konya, alternative tourism, GIS and analysis

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SHADING IN OUTDOOR THERMAL COMFORT CASE STUDY: DURRES' PROMENADE

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ABSTRACT

"Durres' Promenade" is a public space, used mainly for leisurely walk. Actually this area is completely exposed to the sunlight and it misses shading elements. This leads us to think that the thermal comfort principals were not considered during the urban design process. The aim of this paper is to assess outdoor thermal comfort, taking into consideration the microclimate modifications produced by shading. The study is experimental and analyzes "Durres Promenade" 1km length, as a case study. At the beginning it provides the types of shading used in promenade both artificial and natural shades. Field measurements considering air temperature, relative air humidity, wind speed, mean radiant temperature, dew point, and thermal images are taken in different places of promenade during the year in different times. At the end, it compares, in the light of thermal comfort, the results obtain from measurement, between the shaded and not shaded areas. Furthermore is pointed out the difference of temperature between an area shaded by trees, to an area shaded by tends (artificial shads) and to an area without shades. The results will show how much influence in the built environment will provide the use of shading in promenade and public spaces in terms of microclimate conditions and thermal comfort.

Key words: urban thermal comfort, shading, public spaces, vegetation, microclimate.

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DETERMINATION AND ENVIRONMENTAL RISK OF ANTI-INFLAMMATORY DRUGS IN URBAN WASTEWATER

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ABSTRACT

In this study, anti-inflammatory drugs including diclofenac (DICLO), ibuprofen (IBUP), naproxen (NAPROX), ketoprofen (KETOP), mefenamic acid (MEFEN. ACID) were determined in wastewaters and environmental risk level was evaluated using obtained results. Analytical method for determination of anti-inflammatory in wastewater was optimized. The detection of anti-inflammatory was carried out by HPLC/MS-MS. Wastewater samples were taken from Konya Urban Wastewater Treatment Plant input and output. DICLO, IBUP, NAPROX, KETOP, and MEFEN ACID were determined between 35.8-533, <dl-4597, 25.5-6476, 11.6-579, 13.9-50.2 ng/L in influent samples and <dl-574, <dl-108, 20.8-114, 8.5-180, 20.6-54.3 ng/L in effluent samples, respectively. DICLO compound demonstrated moderate risk for fish (PEC/PNEC: 1-10) while IBUP compound demonstrated low risk for fish (PEC/PNEC: 0.1-1). The HQ values of NAPROX, KETOP, MEFEN ACID were determined as <0.1 for fish, *Daphnia magna* and algae which means insignificant environmental risk to aquatic organisms.

Key words: Anti-inflammatory, Ecotoxicological Risk Assessment, Solid Phase Extraction, Wastewater.

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SPECIES MONOCOTYLEDONS (*MONOCOTILEDONAE*) ON FLORA MOUNTAIN SHARR

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ABSTRACT

In this scientific paper entitled "MONOCOTILEDON SPECIES (MONOCOTILEDONAE) in the Flora of Shara" is provided data on the 3 year scientific research (2013, 2014, and 2015). This scientific research is undertaken for the first time, in particular within the researchers conducted by international and local researchers about the flora of the Shar Mountain. This study will complement research of flora in the Shar Mountain. The study is focusing on more than 20 stations in the Shar Mountain. The collection of scientific material is carried out during the period of vegetation, by preparing herbarium associated with data for landfill, date, biotope, etc. During the study they found about 600 species of plant leaves, within which are collected 21 plant species belonging to the species with one embryonic leaf (monocotiledonae) [Table no. 2]. The Sharr Mountain lies in the southeast-west-southwest direction, and is located in the northwestern part of the Republic of Macedonia. The Sharr Mountain represents the largest mountain massif in Macedonia and lies in the geographical coordinates: between 42o41'43 "and 42o16'34" geographical north latitude and between 20˚34'51 "and 21˚16'00". The Shar Mountain massif stands for a great variety of habitats, which represent the settlements for about 2,000 plant species, or 2/3 of higher vascular plants in Macedonia. -During this study it was accumulated a rich material, of about 600 copies. From the conducted floristic preliminary analysis it results that the flora of the Sharr Mountain is rich with numerous plant species. The set material consists of 70 families, 216 genuses and 600 plant species. -In The study area (Sharr Mountain) during this research were found 21 plant species belonging to the one core species (monocotiledonae), which comprise 3.3% of the total flora of Shar Mountain and are included in 8 families, 16 genus within 600 species found by us (table no. 2). Their spreading starts from the lower areas of the Shar Mountain ranging from 550 m. altitude up to 2500 m. of higher areas of Shar Mountain. Table no. 2 shows that species with one embryonic leaf (monocotiledonae) are belonging to 8 families, 16 genuses. From 21 plant species with one embryonic leaf (monocotiledone) in the Flora of Shar Mountain some are Mediterranean endemic Illyricum scardica plant species of the Sharr Mountain like: Crocus scardicus kosanini [photo no. 1], Lilium albanicum Griseb [photo no. 2], and Narthecium scardicum Kosanini.

Key words: species, monocotyledons, flora, mountain Sharr

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HEAVY METAL ACCUMULATION IN THE SHEEP BLOOD GROWING AROUND SIZMA REGION

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ABSTRACT

Mining activities have been the main requirements of the civilizations since first centuries. There are several deformations of the natural environment created in the areas in which mining activities mostly have been done. The negative effects of the mining activities are getting decrease nowadays. However, old mines still spread dangerous compounds to the environment close to the mining area. Especially heavy metals are one of the most dangerous factor causing environmental pollution. Heavy metals create flora and fauna pollution with the effects of air, water and soil. Within these metals mercury is the most dangerous one because of its highly toxic content and accumulation feature in the living forms. Some limitations have been applied to the production of this metal for preventing negative effects on the natural environment. Mercury mines also include some other metals like antimony and zinc. The working area of this study was chosen considering this information. Sızma region was selected as working area which is located in the north part of Konya. There is old mercury mine closed in 1993 after 25 year of production period. Investigation of mercury and related metals in the sheep blood and evaluation of environment which is close to the mine area are the main purposes of this study.

Keywords: Mining, mercury, heavy metal, accumulation, pollution

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ASSOCIATION OF LEPTOSPIROSIS WITH ABORTION IN RUMINANTS IN FLOODED AREAS IN NORTHWEST ALBANIA

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ABSTRACT

This study was designed to determine the seroprevalence of Leptosirosis in aborted ruminants in Northwest Albania. It was selected these area, because of flooded two years ago and the human cases reported recently, 2014, infected with Leptospirosis. Sera from 35 aborted cattle originated from Shkodra and Lezha between February 2014 and November of 2014 and 101 sera (4 herds) from aborted sheep originated from Shkodra between January-March 2015 were used for this investigation. The antibodies agaist Leptosira was detected using Micro Agglutination Test. It was found that *L. sejroe* was present in 64 small ruminants' herds. We found also four serogrups *L.gripotiphosa*, *L.autumanalis*, *L. australis*, *L. ballum*. None of the sera originated from cattle was positive for Leptospira. With this study we aimed to provide reliable data for Leptospirosis infection in aborted in animals in Albania, as the knowledge of the presence is important to prevent animals becoming infected and reduce human health risk. Leptospirosis diagnosis should be applied. The elimination of this infection will increase the quality and the safety of the animal products for the region and reduce the spread of the disease to human.

Key words: Leptospirosis, abortion, serology, MAT

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OSTEOBLASTOMA: A RARE CASE IN A CHILD

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ABSTRACT

To report a rare occurrence of osteoblastoma involving the left lateral thoracic wall, lateral segments of the ribs and the underlying lung with consequent deformation of the respective ribs. Microscopic features showed hypercellular large epithelioid osteoblasts in a fibrovascular stroma with osteoid formation.The mean age incidence of osteoblastoma is 20.4 years. In our case, a rare presentation of osteoblastoma was seen in the first decade. The child was admitted with a 1-year history of increasing back pain and radiculopathy. The child was evaluated with X-rays, computed tomography scan and magnetic resonance imaging. Cases involving the spine. Osteoblastoma occurs most commonly in males (M:F, 2.5:1). The most common area of involvement is the cervical spine followed by the lumbar spine. Posterior elements of the vertebrae are commonly involved.

Keywords: benign tumors of spine, osteoblastoma in childhood, treatment

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CORRELATION OF TISSUE DOPPLER VARIABLES WITH LEFT VENTRICULAR FILLING PRESSURES

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ABSTRACT

Diastolic dysfunction is common in cardiac disease and contributes to the signs and symptoms of heart failure. The assessment of diastolic filling by Doppler echocardiography gives important information about left ventricular (LV) status only in selected subset of patients. evaluation of reliability of tissue Doppler imaging indexes in prediction of high LV filling pressures. 105 patients were included in the study. They were divided in groups according to left ventricular end-diastolic pressure (LVEDP) and left ventricular ejection fraction (LVEF). LVEDP was obtained before coronary angiography and ventriculography. An elevated LV filling pressure was defined as LVEDP ≥ 16 mmHg. 42 patients had elevated LV filling pressures. During echocardiographic examination the LVEF, Doppler velocities of early (E) and late (A) diastolic flow, the deceleration time (DTE), peak systolic (S') and peak early (E') and late (A') diastolic mitral annular velocities were obtained. E/E' and E'/A' ratios and E'/(A'xS') and E/(E'xS') indexes were then calculated. The parameters of transmitral flow correlates with LVEDP only when EF was reduced. The ratio of E/E' shows a better correlation with LVEDP for all levels of systolic function. For predicting high LVEDP an E/E' ratio >7.7 provides a sensitivity and specificity of 70%. Deceleration time of E wave, E/E' ratio and E/(E'xS') index were more accurate than E'/A' ratio and E'/(A'xS') index in predicting high LVEDP. The E/E' ratio is the best predictor of LV filling pressure for all levels of systolic function, but it can't be used in isolation for the assessment of left ventricular diastolic dysfunction.

Key words: echocardiography, diastole, tissue Doppler, pressure

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PRIMARY MEGAURETER TREATMENT

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ABSTRACT

Primary obstructive megaureter (POM) without vesicoureteral reflux has classically been managed by open surgery with ureteral reimplantation. We present seven patients with POM who were treated endoscopically with balloon dilatation of the distal ureter.This is a prospective study of 87 patients with diagnosis of primary megaurether admitted to the pediatric surgical department of the University Hospital Center "Mother Teresa" in Tirana, Albania over the period 2000-2010. The postnatal diagnosis was also achieved by ultrasonography, along with a diuretic isotopic renogram with MAG-3, intravenous urography, and filling cystography. The age at surgery was 1 to 3 years. The mean follow-up of the patients is 36 months. Their clinical progress was highly satisfactory. 16 (18.4%) of the 87 patients underwent surgical intervention while 71 (81.6%) had a conservative treatment. After a follow-up period of 36 sia months 40 out of 71 children that had a conservative treatment remained stable while 31 of them improved. The decision regarding surgical repair of a megaureter in infants requires a complex balancing act by the pediatric urologist.

Key words: Primary obstructive megaureter, surgical treatment

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LARGE - SCALE SNOW DEPTH – ELEVATION RELATIONSHIPS OF WORLD'S MAJOR MOUNTAIN REGIONS

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ABSTRACT

This study presents large-scale statistical relationships between snow depth and elevation for some major high mountain regions over the Northern Hemisphere estimated from climatology. Routine in-situ measurements of snow depth are concentrated in low-elevation sites whereas satellite remote sensing data of snow depth distribution are available but are considered inaccurate over the mountains. Canadian Meteorological Centre (CMC) daily snow depth analysis data over the Northern Hemisphere at 24 km resolution is available from 1998 to 2015. Snow depth is estimated using optimal interpolation of in-situ measurements and a snow accumulation and melt model driven by analyzed precipitation and temperature. To derive snow depth-elevation relationships, CMC monthly snow depth data were used and matched to elevation at the same resolution. Of particular focus were the mountain regions over Continental US, European Alps, and Himalayas.

Key words: Snow Depth, High-Mountain Regions, Optimal Interpolation, Climatology

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ENVIRONMENTAL ASSESSMENT AND MANAGEMENT OF LIQENAS COMMUNE

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ABSTRACT

Environmental management is now a term encompassing planning, protection, monitoring, assessment, conservation and sustainable use of resources now accepted as a major guiding factor for sustainable development at regional and national level. Concept of sustainable development has become widely acknowledged by governments and institutions. Concept of environmental planning emerged as an alternative to the traditional sector approach to solve environmental problems that emerged after 1990 and on. In appropriate and inefficient procedures have contributed to the creation of new environmental problems mainly to the difficulties in policy coordination. The activities of the local population in the past has increased the level of pollution, urbanization and other related developments are pushing the environmental impacts closer to the thresholds of tolerances. The deviation of Devolli River to flow toward the Prespa Lake was the major detrimental intervention to the environment and the water system. Consequently the amount of deposits carried out in to the lake is near the catastrophic levels. The vegetation has eaten up by the lake' space, reducing it to a small surface area. This represents additional reason to prepare a Local Environmental Action Plan for the commune of Liqenas which will contribute to the creation of a harmonious relationship between the local community and the environment as the basis for sustainable development of the commune. The reason to undertake such a small environmental planning is related with to ensure a multi functionality of the forest area for biodiversity conservation and increase of incomes to local community; intensification of natural clusters growth through silvicultural interventions, especially in degraded coppicces of this economy, aiming at the same time improving the age structure of classes, increase of the surface of forest cover and ensuring continuity of natural regeneration; special attention is paid to planning policies, for having a sustainable husbandry and multifunctional forest. It is aimed to achieve really productive potential of forests to protect biodiversity and the environment in general.

Key words: Liqenas, environmental assessment, tourisms, biodiversity, natural resources.