

Vol. 12 (3): 1-8 (2022)

## SOIL MICROBIOME UNDER THE INFLUENCE OF NANO AND BIOPREPARATIONS

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### ABSTRACT

The results of the study of soil microbiome in Kent soybean crops under the influence of nanopreparation "Avatar 2 Organic" and biopreparations "Groundfix" and "Ecostern" are presented in the paper. It is shown that nano- and biopreparations can significantly affect the number of major groups of soil microorganisms. Features of exposure depend on the type of preparations and compositions in which they are used. It was found that the combined use of nano- and biopreparations inhibits the development of oligotrophs, cellulosic and sporeforming bacteria. As a result, there is a weakening of the destruction processes of organic matter and the predominance of its synthesis. It is shown that the nanopreparation "Avatar 2 Organic", subject to the recommended application standards, does not have a toxic effect on biopreparations that contain soil bacteria *Bacillus subtilis*, *Enterobacter* sp., *Bacillus megaterium* var *phosphaticum*, *Enterococcus* sp, *Paenibacillus polymyxa*, *Azotobacter* sp. The antimicrobial activity of the nanopreparation begins to appear after increasing the rate of its consumption by more than 100 times.

**Key words:** biopreparation, Ecostern, Groundfix, nanopreparation, soil, soil microbiome, physiological groups of microorganisms.

Vol. 12 (3): 9-14 (2022)

## CONTROL OF PROTEINURIA IN PATIENTS WITH DIABETIC NEPHROPATHY ACCORDING TO TRADITIONAL PERSIAN MEDICINE, THE EFFECT OF PLANTAGO SEEDS: A LITERATURE REVIEW

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### ABSTRACT

Diabetic Nephropathy (DN) is characterized by albuminuria and renal function loss (GFR) in diabetic patients. To prevent the progression of diabetes-related cardiovascular-kidney disease, a combined method including blood pressure control as well as glucose and lipid control is needed in addition to lifestyle changes. Despite blocking the renin-angiotensin system as the first line of treatment for diabetic nephropathy in a significant number of patients, the progression of kidney disease is not obtained. Considering that despite the treatments, diabetic nephropathy still develops, indicates that these treatments are insufficient and that other mechanisms are involved in the disease process! A large number of the world's population uses traditional medicine resources to control diabetes. The most important goal of treatment according to Traditional Persian Medicine (TPM) is to prevent the progression of diabetes related complications, so that patient does not end up with dialysis and kidney transplant, in which case the quality of life of patient is severely compromised. Considering that there are many traditional medicine compounds available in the market to prevent diabetic complications, most of which not only do not have a favorable effect, but also cause other serious complications, it is necessary to investigate the effect of simple yet effective remedy to solve this problem. The TPM herbal product that is used in this study, *Plantago major*, is easily available herb that has proved effective on proteinuria in couple of scientific studies and yet have no significant side effects. In order to propose a therapeutic protocol based on TPM, it is necessary to relate symptoms of chronic nephropathy and proteinuria to that of kidney diseases mentioned in TPM resources. In this study, the researcher explains DN from the viewpoint of TPM and proposes Plantain as a potential treatment for it, based on its relevant properties mentioned in TPM resources and recent in vitro studies.

**Keywords:** control, proteinuria, patients, diabetic nephropathy, traditional persian medicine, plantago seeds.

Vol. 12 (3): 15-22 (2022)

## VIEWPOINTS OF ISSUING LAW OF CONSUMER PROTECTION IN VIETNAM

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### ABSTRACT

By observations and qualitative analysis with synthesis and inductive methods, study results shows that the State encourages organizations and individuals in society to join the State in consumer protection. In addition, the law aims to use the power of the market to eliminate businesses that infringe on consumers' interests, thereby, in addition to protecting the interests of consumers, it also aims to protect genuine businesses. Beside, social organizations participating in the protection of consumer rights have made great efforts to deploy activities, gradually asserting their role as a bridge between consumers and state management agencies, as well as business community.

**Keywords:** protection of consumer, Law, consumer rights.

Vol. 12 (3): 23-32 (2022)

## ORGANIZATION OF TACTICAL OPERATIONS AS AN INDEPENDENT ELEMENT OF THE MECHANISM OF THEIR IMPLEMENTATION

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### ABSTRACT

The authors, based on the results of the analysis of scientific literature devoted to the organization of crime investigation, as well as forensic investigative practice, attempted to formulate general patterns of the organization of tactical operations, as well as organizational and tactical actions carried out for the above purposes.

**Keywords:** forensic science, organization of crime investigation, forensic tactics, tactical complexes, tactical operations.

Vol. 12 (3): 33-42 (2022)

## ENVIRONMENTAL EVALUATION OF WATER SALT EXCHANGE PROCESS IN SOIL DEGRADATION IN THE ARID ZONE

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### ABSTRACT

Arid lands in comparison with other farming areas are usually characterized by higher soil degradation rates. This is due to the fact that drylands have specific natural conditions such as salinization, which is aggravated by the effects of climate change and anthropogenic impact, along with thoughtless and irrational use of irrigation water. As for current investments, they remain too limited to stop and reverse the negative trends associated with soil degradation. Research conducted over the past thirty years provides ground for conclusion that in order to increase agricultural productivity it is essential, first of all, to determine the consequences that cause salinization. An objective assessment of the existing agroecosystem is impossible without a qualitative assessment of land resources in areas with arid climate. The purpose of this study is to identify ways and methods of restoring soil fertility and achieving sustainable agriculture, which is essential in solving the major issue - malnutrition in overpopulated regions primarily in Central Asia.

**Keywords:** arid zone, degradation, salinization, soils, groundwater.

Vol. 12 (3): 43-50 (2022)

## ACCUMULATION PECULIARITIES OF HEAVY METALS IN CEREAL CROPS GRAINS OF DIFFERENT VEGETATION PERIOD IN CONDITIONS OF THE FOREST STEPPE OF THE RIGHT BANK OF UKRAINE

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### ABSTRACT

Peculiarities of Cd, Zn and Cu accumulation in wheat and barley grain depending on their vegetation period have been studied. A certain influence of the vegetation period of cereals (winter, spring) in the natural and climatic conditions of the right-bank Forest-Steppe of Ukraine on the intensity of accumulation of heavy metals in grain has been established. In particular, it was found that in the grain of winter wheat and barley there is a lower concentration, accumulation coefficient, risk factor Cd, Zn and Cu compared to similar spring cereals. Some exceedances of the admissible norm of Cd according to GOST (National Standard of Ukraine) 26932 in grain of spring wheat and barley are revealed. The concentration of Zn and Cu in the grain of both winter and spring wheat and barley was lower than the norm compared to the maximum allowable norm (GOST 26932). The grain of winter cereals of wheat and barley was characterized by a lower coefficient of accumulation of heavy metals, and a relatively higher coefficient of accumulation of spring cereals. The risk factor Cd exceeded the normative limit of 1.0 only in grain of spring wheat and barley. Exceedances of the normative indicator (hazard coefficient 1.0) of Zn and Cu in wheat and barley grain of both winter and spring crops were not observed.

**Keywords:** winter wheat, winter barley, spring wheat, spring barley, heavy metals, concentration, accumulation factor, danger factor.

Vol. 12 (3): 51-58 (2022)

## SYNTHESIS OF THYMOL DERIVATIVES AND ITS FUEL CELL PERFORMANCE AS AN ANODE CATALYST

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### ABSTRACT

Direct glucose fuel cells, essentially produce electricity from glucose, offer several advantage and might be employed in a range of applications. Because of stability and non-volatile, Glucose have high-intensity density. When it is oxidized water and CO<sub>2</sub> are formed. In the current investigation, designed and synthesized new organic anode catalyst by using Thymol derivatives. Thymol based new hybrid molecules (G1,G2, and G3) were synthesized via Sonogashira cross coupling and condensation reactions. Then, electrochemical activities and charge transfer resistances (R<sub>ct</sub>) of all prepared thymol-based catalysts were studied via cyclic voltammetry (CV) and electrochemical impedance spectroscopy (EIS), respectively in 0.5 M glucose alkaline solution. Thymol based organic catalysts exhibited a good current density at around 0.1 mA.cm<sup>-2</sup> for the 2-isopropyl-5-methylphenyl 4-oxo-4-(5-(p-tolylolethynyl)thiophen-2-yl)butanoate (G3). As a result, A new generation of ecologically friendly and alternative metal catalyst for direct glucose fuel cells is thymol derivatives-based catalyst.

**Keywords:** Energy, natural products, anode catalyst, electrooxidation, thymol.

Vol. 12 (3): 59-66 (2022)

## ROAD TRAFFIC AND CANYON STREET EFFECT ON AIR POLLUTION IN TIARET CITY, ALGERIA

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### ABSTRACT

The purpose of the study is to infer the effect of road traffic and urban morphology, characterized by the Landsberg construction index, on the spatial distribution of fine particulate in the air taken through a two-stage impactor DEKATI. To do this, a methodological approach based on the implementation of a geographic information system was adopted. The canonical analysis of correlations reveals that mass concentrations of PM<sub>10</sub> are correlated with road traffic intensity and urban morphology. The mass concentrations of PM<sub>2.5</sub> present a strong correlation with the traffic congestion. Also, additional work is done to estimate the concentrations of lead (Pb) adsorbed to each fractions of PM. The results shows that the concentrations of lead do not exceed 0.5 and 0.6 µg/m<sup>3</sup> with average values of 0.25 ± 0.075 µg/m<sup>3</sup> and 0.23 ± 0.080 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub> respectively.

**Key words:** PM<sub>10</sub>, PM<sub>2.5</sub>, Pb, DEKATI impactor, Landsberg construction index, urban morphology, road traffic.



Vol. 12 (3): 67-74 (2022)

## ROLE OF VILLAGE ORGANIZATION IN THE SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES AND THEIR CONSTRAINTS IN VILLAGES (LILOWNAI, CHORBUT AND NOREPEZW) OF DISTRICT SHANGLA, KPK PAKISTAN

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### ABSTRACT

The paper is presented to study the village organisations in the three villages of Lilownai, Chorbut and Norepeza. These village organization (VO) are involved in hill side management, being their major Natural resource. Apart from hill side management, these VO are also working on village development as a whole. These VO will be under taken various developmental activities in their villages, through donor financial support on cost share basis as well as on self-help basis. These VO are implementing the "Nagha" system for the protection of their hill side, till now, even after the withdrawal of SRSP assistance since July/2006 and have employed Chowkidars on self-help basis. All the villages are diverse in land use and type having different categories of stakeholders for Natural resource. The study conducted to explore the role of these village organizations in conservation of natural resources in the study area. The main objectives of this study were to: Compare the role of Village Development Communities Lilownai (VDCs) in sustainable management of natural resources with the past tradition systems. The constraints explored of VDCs Lilownai in Natural Resource Management.

**Keywords:** village organization, sustainable management, natural resources, District Shangla, KPK Pakistan.

Vol. 12 (3): 75-84 (2022)

## WATER QUALITY STUDY OF THE LUMBARDHI RIVER IN THE PRIZREN AREA USING PHYSICO-CHEMICAL AND HEAVY METALS ANALYSIS

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### ABSTRACT

This research will provide a more accurate vision of the Lumbardhi River's water quality in the study region. Several physico-chemical parameters, such as; temperature, pH, EC, TDS, major ions ( $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{NH}_4^+$ ,  $\text{NO}_2^-$ ,  $\text{Cl}^-$ ,  $\text{NO}_3^-$ ) were determined. The acquired results have been compared to the Water Framework Directive (DKU-WFD, 2000/60) and found to meet the directive's standards. Heavy metals have been analyzed using inductively coupled plasma optical emission spectroscopy (ICP-AES). In the water sampling sites, the concentration of Fe as the most abundant element was: 0.897 to 0.485 mg/L, Zn varies from 0.513 to 0.392 mg/L, Ni from 0.174 to the highest of 0.235 mg/L, Mn 0.141-0.194 mg/L, Pb 0.142-0.254 mg/L, whereas As, Cd, Co, Al and Co, were under limit detection in all of the water samples. Also, in the sludge ones the highest concentration element is Fe, followed by Zn, Mn, Ni and Pb. The highest concentration of Fe is in sample M3. The concentration varies from 0.985 mg/kg to the lowest of 0.698 mg/kg, Zn from 0.913 to 0.565 mg/kg, Mn from the highest of 0.413 to the lowest of 0.186 mg/kg, Ni 0.212 to 0.185 mg/kg, Pb 0.187 mg/kg to 0.143 mg/kg, followed by Cu, Co and Al. Even in the soil samples, iron varies from; 0.652 mg/kg to the highest of 0.989 mg/kg, Zn starts from 0.589 to 0.798 mg/kg, Mn from 0.119 to 0.189 mg/kg, Ni 0.139 to 0.178 mg/kg and Pb 0.163 to 0.189. The concentration of Co was observed in three soil samples from 0.033 to 0.064 mg/kg, whereas, Al is presented from 0.045 to 0.054 mg/kg followed by Cu from 0.049 to 0.098 mg/kg. The study shows that we are dealing with moderate pollution with these elements in the river, but to have a firm conclusion, it is advisable to examine more the zone of study.

**Key words:** The Lumbardhi River, soil, sludge, water, pollution, ICP-AES technique.

Vol. 12 (3): 85-94 (2022)

## MACROECONOMIC IMPACTS ON BANK PERFORMANCE AND EVALUATING RELATIONSHIP BETWEEN BETA CAPM AND BANK COST OF EQUITY: A CASE OF ENHANCING RISK MANAGEMENT MECHANISM OF SACOMBANK IN VIETNAM

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### ABSTRACT

We will analyze a case of Sacombank to see how risk management policies can derive from measuring Macroeconomic Impacts on Bank Performance And Evaluating Relationship Between Beta CAPM and Bank Cost of Equity. The study will use a combination of statistics, calculation formulas and synthesis, analysis, and the study results show us that: Because Beta STB, IM, CPI, G have negative impact on cost of equity of STB (CPI and G have more impacts) we suggest reduction in CPI and beta and G will help to reduce cost of equity. Next, Because R, VNIndex, tax rate, Rf have positive impacts on cost of equity of the bank, we suggest that: reduction in lending rate, tax rate and RF will cause decline in cost of equity. The research limitation is that we need to generate more macro policies for risk prevention in future.

**Key words:** Vietnam banks, beta CAPM, inflation, cost of equity, Sacombank, JEL: M21, G30, G32, G38

Vol. 12 (3): 95-100 (2022)

## DEVELOPMENT OF WAYS TO CONTROL CODLING MOTH WITH THE HELP OF BIOLOGICAL PRODUCTS AND METHODS

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### ABSTRACT

Garden agrobiocenosis is one of the most complex biological systems and is characterized by the greatest stability and longevity of coenotic relationships. However, the systematic and long-term use of pesticides in fruit plantations leads to qualitative and quantitative changes in the phyto and zoophagous fauna. The consequence of the uncontrolled use of the chemical method is the formation of resistant pest populations. This study discusses the current trends in the biological control of the codling moth, which ensures high efficiency of crop protection with the combined use of pheromone disorientation, an entomopathogenic virus, and the parasitic hymenoptera *Habrobracon hebetor* Say. We've found that complementary methods of disrupting the sexual chemical communication of the pest, the use of the codling moth granulosis virus and the 2-3-times release of gabrobrakon allow you to keep the yield at the level of the chemical standard. The efficiency achieved is ensured by prolonged and uniform emission of pheromone and dispensers, high efficiency and selectivity of the baculovirus product Fermovirin CM and parasitic activity of the gabrobracon *H. hebetor* ectoparasite against middle and older ages caterpillars of the codling moth.

**Keywords:** pheromones, disorientation, granulosis virus, codling moth, gabrobracon, biological plant protection.

Vol. 12 (3): 101-108 (2022)

## MAINTAINING LEADERSHIP ROLES OF BANKS VIA DIGITAL MARKETING IN BANKING SECTOR - AND MARKETING EDUCATION FOR STUDENTS IN UNIVERSITIES

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### ABSTRACT

Online marketing and digital marketing via social media channels has motivated banking activities in emerging markets such as Vietnam in recent time and contribute to maintain leadership roles of banks in Vietnam market and contribute for economic development. Beside, during studying time in universities and colleges, students need to be educated with practical marketing lessons, not only with traditional marketing, marketing mix an 4P but also with, esp. Digital marketing. This study will analyze leadership roles of a big bank in Vietnam - BIDV bank (Bank for Investment and Development of Vietnam), for instance, via econometric model, we will find out effect of macro components on bank net profit and then suggest proper policies. Students also study lessons of marketing and contribution of digital banking.

**Keywords:** factors influence profit, banks, digital marketing and leadership, JEL: M21, N1

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Vol. 12 (3): 109-116 (2022)

## THE MECHANISM OF FORMING STATE GOVERNANCE OF TERRITORIES

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### ABSTRACT

The article focuses on one of the defining aspects of the existence of the territory as a regional formation. It is considered not as a factor, an inert environment, or a resource, but as an independent acting origin that creates an environment for the formation of region-forming ties and plays a huge role in the regional development processes. These circumstances, in particular, allow studying the development of the region from the standpoint of territorial interests, to define it as a (self-) managed territorial formation.

**Keywords:** economy of territories, management entity, population, territory.

Vol. 12 (3): 117-122 (2022)

## FORMING APPROACHES TO CONTROLLING STATE BUDGET DEFICIT

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### ABSTRACT

The article deals with the formation of approaches to regulating the state budget deficit. It is established that the budget deficit is an effective tool for controlling socio-economic processes, the formation and implementation of budgetary policy in terms of regulating the budget deficit. All this requires conceptual approaches to determining the optimal size, sources of financing the budget deficit, and the mechanism for its use, considering the debt sustainability margin, the cyclical nature of economic development, and the need to finance budget expenditures for the government to perform its functions. It is determined that it is feasible to use the budget deficit as a component of the budgetary control system during economic transformations and post-crisis economic recovery to stabilize the macroeconomic situation and promote economic growth. It is proved that the formation and implementation of budgetary policy to regulate the budget deficit requires a special approach to determining the optimal amount of financing the budget deficit, considering the country's debt safety.

**Keywords:** control, deficit, state budget, economy, economic growth, stabilization, crisis.

Vol. 12 (3): 123-136 (2022)

## COMPARATIVE ANALYSIS OF PHYSICO-CHEMICAL PROPERTIES OF SOIL UNDER DIFFERENT AGROFORESTRY SYSTEMS OF DISTRICT CHARSAWA

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### ABSTRACT

Agroforestry is a system of land utilization that describes trees with different crops fused in a single area for farmers' net income. One or more agroforestry practices in one particular area usually have biological, environmental and economical interaction between the compounds. Whilst the main aim of the AFS is not only economic benefits but also modern studies show that AFS could be used as a prime source carbon pool. Up to 12-228-ton ha<sup>-1</sup>, with an average of 95 ton ha<sup>-1</sup>, can be stored via the AFS. Trees with crops can raise the carbon stocks to several folds compared to monocrop systems. In order to meet the CO<sub>2</sub> assimilation targets anticipated at Kyoto while simultaneously maintaining sustainable farm production and preventing further deforestation, integration of agricultural practices and systems in C Sequestration and C trade projects can be highly useful. Pakistan is a low middle income with an average annual rate of growth of 216.6 million people. Agroforestry has a very important role and is a key part of Pakistan's daily life, particularly rural people. In Khyber Pakhtunkhwa agroforestry is practiced in various models and shapes from the protection of naturally growing trees to the artificial cultivation of trees on agricultural lands. Agroforestry is an important timber and fuelwood source, with 70 percent of the urban and 97 percent of the rural domestic fuel wood being the main energy source in Khyber Pakhtunkhwa for centuries. Two different agroforestry systems i.e. Agri-silviculture system and Agri-horti-silviculture system were selected at District Charsadda Khyber Pakhtunkhwa, Pakistan. Moisture content was calculated by oven dry method. pH and EC was obtained from mettler Toledo meter. Organic matter was obtained by loss on ignition method in laboratory. To calculate soil organic carbon it was assumed that total organic matter contains 58% organic carbon contents or a relation i.e. organic carbon = SOM% multiply by 0.58. Statistical Analysis was conducted using. The jamovi project (2021) Version 1.6. The mean value of SOC for AHS system is 1.76% while that of AS system is 0.916%. The means of two systems are different from each other, the mean SOM value for AHS system was found to be 3.03% and for AS system it is 1.55%. Our results show that soil organic carbon had an inverse relationship with soil pH. High density of carbon in agricultural Lands including agroforestry is related to the high tree diversity that increases plant production hence increased biomass. Litter fall also contributes to C stock accumulation in Soil. It is the most important known pathway Connecting vegetation and soil and is a good indicator of aboveground productivity.

**Keywords:** Agroforestry, Carbon stock, organic matter ,soil and biomass, Agri-silviculture , Agri-horti-silviculture system.



Vol. 12 (3): 137-146 (2022)

## ECOLOGICAL REGULATION OF HYDROCHEMICAL PROCESSES OF GROUNDWATER LOCATED CLOSE TO THE SURFACE

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### ABSTRACT

Studies regarding the predictions of changes in water and salt balance, the movement of salts due to both natural and artificial influences are of great importance. As for the ecological state of the studied irrigation array, it largely depends on the hydrochemical regime of water sources and the system of agriculture and determined by the factors of optimal management of natural and anthropogenic processes. Regulation of meadow gray soils of chloride-sulfate salinization by controlling the processes of groundwater supply through channel filtration, defining the mechanism of salts movement in the soil using the technological scheme of flushing, determination of the permissible salt content and evaporation from the groundwater surface, will serve as the basis for rational nature management, due to the fact that it will ensure the environmental sustainability of geo-agrolandscapes and create favorable conditions for the long-term exploitation of natural resources without their depletion, degradation and pollution. Field studies created opportunities to develop a rational technological scheme of flushing, taking into account environmental assessment and regulation of the water and salt regime of meadow gray saline soils.

**Keywords:** soil, ecology, irrigation, groundwater, salt, soil fertility

Vol. 12 (3): 147-154 (2022)

## CONSUMER PROTECTION LAW AND CONTROL OF MODELED CONTRACTS AND GENERAL TRANSACTION CONDITIONS

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### ABSTRACT

In our study, we mention that the purpose of controlling model contracts is to ensure the interests of consumers when establishing transactions through this form, not only to protect the legitimate interests of consumers but also to protect the economic management order as well as to protect the legal rights of consumers. as the common good of society as a whole. Therefore, for a type of goods or services related to many consumers, it is necessary to control model contracts. The characteristics of these goods and services are that they have a very large number of consumers and meet the daily needs of consumers. The effective use of mechanisms, tools and policies to protect consumers' interests, mainly through law enforcement to protect consumers' interests, will have a reciprocal effect on management policies. other industries, making an important contribution in improving the operational efficiency of the economy, building a healthy business school, enhancing the prestige and attractiveness of the economy of the country on a regional and global scale. This is especially important in the context of the world economic situation is forecasted to have complicated developments, the emerging trend of protectionism in some countries in the world is hidden adverse impact on the domestic economy.

**Keywords:** control modeled contracts, general transaction conditions, consumer protection law, Vietnam, JEL: M21, N1

Vol. 12 (3): 155-158 (2022)

## VARIATION IN BLOOD PRESSURE, GLYCAEMIA, HAEMOGLOBIN AND HAEMATOCRIT LEVELS WITHIN AGE AND PREGNANCY NUMBER IN PREGNANT IN WOMAN LIVING IN THE TIARET REGION, ALGERIA

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### ABSTRACT

The aim of this work was to determine variation in blood pressure, glycaemia, haemoglobin (Hb) and haematocrits (Ht) levels according to the age of pregnancy in woman living in the Tiaret region. Our study concerned the collection of data recorded during follow-up consultations of pregnant women at the Tiaret maternity hospital, the data were recorded between September 2018 and January 2020 and were noted and analysed statistically. In total, data from more than 1045 pregnant women, aged 16 to 49, were used in our work. The highest haemoglobin concentration was 15.54 (g/dl), while the lowest was 6.30 g/dl with an average of 11.54 g/dl. The haematocrit percentage varied between a minimum value of 10% and a maximum value of 49.10% with an average of 32.29%. In this work, the age of pregnant women varied between 16 and 49 years with an average of 30.56. While the number of pregnancies per woman varied between 1 and 12. The maximum blood pressure was 11.19 (mmHg) and the minimum blood pressure was 7.03 (mmHg). For glycaemia the maximum value was 1.9 g/l against a minimum value of 0.15 g/l with an average of 0.84 g/l., the highest blood pressure reported was 12 mmHg in women aged 40 and older, while the lowest values were recorded in women aged 16 with 10mmHg. The minimum blood pressure the highest value was 7.62 mmHg in 41-year-old women, while the minimum value was recorded in 47-year-old women with 6mmHg. We concluded that maternal age and pregnancy number are correlated with variations in blood pressure, blood sugar, haemoglobin and haematocrit's levels.

**Keywords:** Blood pressure, Haemoglobin, haematocrit, pregnancy.

Vol. 12 (3): 159-164 (2022)

## ESTIMATION OF HEAVY METALS ACCUMULATION BY VEGETABLES IN AGROECOSYSTEMS AS ONE OF THE MAIN ASPECTS IN FOOD SECURITY

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### ABSTRACT

The article is devoted to the study of the intensity accumulation of heavy metals (Pb, Cd, Zn, Cu) by vegetables in agricultural lands. Vegetable products play important role in human nutrition and requirements for quality and safety are very strict. The study was conducted on dark gray podzolic soils in the Tyvriv district of the Vinnytsia region. The fruits of the cucumber variety Dzherelo, the zucchini variety Chaklun, and the pea variety Geneva were used for the research. It is noted that the main indicators of climatic conditions during the study period were favorable for growing vegetables. It was determined that among vegetables (food peas, zucchini, cucumber) the highest content of heavy metals was observed in pea fruits. At the same time, it was found that the Cd content in pea fruits exceeded the PL (permissible level) by 1.61 times at a concentration of heavy metals in the soil below the TVL. Among heavy metals (Pb, Cd) higher migration and translocation were observed in the studied vegetables according to Cd, and among heavy metals-trace elements (Zn and Cu) - according to Cu. It was found that pea fruits were characterized by the highest coefficient of accumulation of heavy metals (Pb, Cd, Zn, Cu). The risk factor for heavy metals in the studied vegetables was lower than the threshold level of 0.1, except for Cd in peas, where this figure was 1.61 times higher.

**Keywords:** heavy metals, Pb, Cd, Zn, Cu, soil, pea, zucchini, cucumber, accumulation, agroecosystem, security.

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Vol. 12 (3): 165-168 (2022)

## THE LEGAL PRINCIPLE OF RATIONAL NATURE MANAGEMENT: MODERN CONTEXT

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### ABSTRACT

The authors of the article consider modern scientific and practical legal views on the principle of rational nature management. The summary of the article includes the conclusion that any use of natural resources should be rational, which implies the use of fewer natural resources while meeting the needs of the same level, provided there is no or minimal residual environmental harm.

**Keywords:** rational nature management, the principle of nature management, nature management, economic use of natural resources, exploitation of natural resources.

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Vol. 12 (3): 169-174 (2022)

## LEGAL REGULATION OF RATIONAL NATURE MANAGEMENT IN THE ENERGY SECTOR

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### ABSTRACT

The authors make a point that the legal regulation of the rational use of natural resources is one of the most important directions of the state's activities to ensure energy security, the role of the energy sector in shaping the economic, political and social course of the country is noted. On the basis of a comparative legal analysis, the authors undertake a search for the most optimal methods, methods and means of state regulation of rational environmental management. It is obvious that without proper theoretical understanding, comparative legal analysis, it is impossible to predict ways to optimize state regulation of the commodity market, ensuring its sustainable development.

**Key words:** law, legal support, nature management, natural resources, environment, energy security.

Vol. 12 (3): 175-184 (2022)

## MEGATRENDS FOR E-COMMERCE ONLINE DISPUTE RESOLUTION IN VIETNAM

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### ABSTRACT

The E-commerce industry in Vietnam has been on rapid growth with market records of \$5billion in 2019 and a forecast of \$33 billion in 2025. This rapid growth is due to increased purchases of popular products such as garments and shoes, electronics and home appliances, and as well as personal hygiene items from e-commerce giants Tiki, Lazada, Shopee, and Sendo. However, with rapid growth come rapid problems as the E-commerce industry in Vietnam faces a considerable number of disputes in the industry with incredible acceleration, as it reflects the overall struggle and aspects that the country faces in dealing with online dispute resolution. This report aims to identify and understand the megatrends in the e-commerce online dispute resolution in Vietnam while shedding light on some of the root causes for the disputes as well as existing and potential approaches for e-commerce dispute resolution. The main aim of this paper is to focus on the different existing approaches to resolving e-commerce disputes as well as provide smart contract solutions for e-commerce disputes in Vietnam. The methodology considered to achieve the aim of the study includes a juridical normative way to analyze the application of law and regulations relevant to e-commerce dispute regulations. The analysis depicts that the e-commerce development in Vietnam is bringing various benefits however, all such benefits are impossible without the optimal functionality of an e-commerce system. The Vietnam Government has created solutions to address this problem however; there is an optimal need to initiate practical solutions to contest the ever-changing industry of E-commerce.

**Key words:** Vietnam; Smart Contracts; E-commerce; Blockchain; Online Dispute Resolution; Legal Framework

Vol. 12 (3): 185-190 (2022)

## COMMUNITY PNEUMONIA IN HOSPITALIZED CHILDREN

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### ABSTRACT

*Background:* Community acquired pneumonia (CAP) is defined as symptoms of an acute infection of pulmonary parenchyma in an individual which is infected in community and is distinguished from hospitalized pneumonia. *Aim:* To evaluate the epidemiological and clinical characteristics of hospitalized children with community-acquired pneumonia. *Results:* The average age of children was 5.9 ( $\pm 5.3$ ) years old that varies from six months to 13 years old. 57% of the children were males and 42.5% females. Clinical presentation of pneumonia was easy stage in 33.3% of cases, average in 48.3% and heavy in 18.4% of them. In relation with clinical symptoms according to age group it was found a statistical significance for diarrhea ( $p=0.03$ ) and dyspnea ( $p=0.02$ ) which prevail under 2 years old in 53.8% and 61.5% respectively. *Conclusions:* The diagnosis of pneumonia should take into account infants and children with respiratory symptoms, especially cough, tachypnea, emphasis and abnormal pulmonary examination. The diagnosis should be decided in base of the clinic of the children with fever, and evidence of an infective process with respiratory distress.

**Key words:** pneumonia, community, children.



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Vol. 12 (3): 191-198 (2022)

## EXPORT OF THE ALBANIAN SMALL FARM CERTIFIED PRODUCTS

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### ABSTRACT

Albania is heavily dependent on its agricultural sector, which accounts for 20.3 percent of GDP, 49 percent of employment and 8.5 percent of total exports. 24 percent of soil is used for agricultural reasons. South-east of Albania is considered as one of the earliest lands in Europe used for agriculture. However, Albanian producers face many constraints in meeting the rigid and complex demands of the EU market. These constraints can be overcome if there are local actors involved in supporting the whole chain of production of fresh fruits and vegetables and if the important tools such as “product” certification are introduced. To achieve the objective of presenting certified products in the European market is crucial the cooperation with European traders which can guarantee the purchase of the vegetables produced in Albanian. In this process, both standards are well accepted from European traders. To have a smooth cooperation and exporting process an Albanian small size farmer cannot succeed, as such group certification can be a very good opportunity. This paper presented research to determine the potential success of the vegetables in European market. As result were identified internal and external environment condition and detail PEST analyze was done to contribute to the success of the project. Market channels and marketing segmentation were identified as result it seen quite possible the success of certified fruits and vegetables in European market.

**Key words:** Albania, small farms, GLOBAL G.A.P certification.

Vol. 12 (3): 199-208 (2022)

## THE SUITABILITY OF WASTEWATER FOR IRRIGATION TO IMPROVE THE ECOLOGY OF NATURAL RIVER BASINS

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### ABSTRACT

Nowadays, water scarcity caused by drought, soil degradation and desertification has already affected 1.5 billion people worldwide and is directly linked to poverty, food insecurity and malnutrition [1]. This problem largely affects Asian countries, where the majority of the world's population lives, experiencing acute water shortages. The planet, which is already limited in resources, is burdened by the need to meet the various needs of people, especially those who are already deprived of access to clean water [2]. At the present stage of the world community development in the context of the 21st century challenge on water safety, the most important task is to develop and accelerate the implementation of scientifically based measures to protect water sources from contamination. The focus on artificial water purification does not solve the main issue, only pushes back the terms of depletion of water resources. In comparison with the 20th century, there is already an acute shortage of drinking water, along with water used for technological purposes. In such circumstances, the management of water resources in river basins should be much more efficient in order to ensure uninterrupted water supply and environmental sustainability to meet current and future needs. This is probably the most challenging task for water resources professionals [3]. Indeed, a lot of effort has gone into compiling a set of indicators and developing policies to meet human needs for water, but even more hard work remains to find the required solutions that will improve water management. In addition, the scope of water supply problems extends from the local level to the global scale, while the adequacy of regulation remains one of the main factors that cannot be determined [4]. The degree of water purification using artificial structures does not exceed 80-90%, since the most persistent and slow-oxidizing organic pollutants, as well as mineral salts and biogenic substances remain in the discharged wastewater and enter reservoirs with them. Neutralizing them by 8-10 times dilution with clean water does not solve the problem and is considered impractical in the economic aspect. The conducted research allowed to determine the possibility of agricultural use of household wastewater as an effective measure to prevent pollution of reservoirs.

**Keywords:** ecologization of water use, water safety, protection of water resources, wastewater, water purification and post-treatment, assessment of irrigation water.

Vol. 12 (3): 209-218 (2022)

## HEAVY METAL POLLUTION OF WATER AND SLUDGE IN RIVER OF LLAP, THE PODUJEVA TERRITORY

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### ABSTRACT

Deposition of wastes into water and sludge is a significant problem confronting developing nations including Kosovo. This study assessed heavy metal concentrations in sludge and surface water of River Llap. The observation of the chemical analyses of water and sediments is essential to determine the extent of trace elements in these ecosystems. Level of contamination of water and sludge has used to determine the Health Risk Index (HRI) for the exposed population. Heavy metals were determined in water and sludge, using Atomic Absorption Spectrometry. Samples were collected in March, 2022 at three different sample points. The concentration (maximum value) of Cr (0.046 mg/l), Zn (0.039 mg/l), Mn (0.097 mg/l) and Cu (0.029 mg/l) in all sample points (M1, M2 and M3) was found to be under USEPA and WHO recommended norms. But the concentration (maximum value) of Cd (0.029 mg/l), Pb (0.086 mg/l), Fe (0.594 mg/l) and Ni (0.158 mg/l) in all sample points were found to be above USEPA and WHO recommended norms originated from urban and industrial sources, in this area. The statistical analysis has been found a highly significant positive relationship of Cd with Ni, Fe and Pb originated mainly of sulphide ores in this area.

**Keywords:** Llap River, pollution, heavy metals, urban and industrial discharges.

Vol. 12 (3): 219-226 (2022)

## PRACTICAL ANALYSIS OF BUILDING INDUSTRIAL CLUSTERS INFRASTRUCTURE IN HANOI VIETNAM

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### ABSTRACT

According to the concept of Vietnam: "Industrial cluster" (CCN) is an area of concentration of centers of enterprises, industrial - handicraft export services for industrial production - handicrafts; have definite geographical boundaries fixed, not inhabited; invested and built mainly to move, about to arrange and attract production, SMEs, individuals and households locally to invest in production and business; decided by the People's Committees of the provinces and cities establishment" first . Thus, industrial cluster is a form of industrial production organization by territory, it meets the requirements of moving, rearranging, strengthening infrastructure to maintain, to expand and reduce environmental pollution for public production and business - cottage industry in rural areas. The study has raised solutions to promote the speed and quality of industrial infrastructure construction, which are: Improve the quality of the industrial cluster development planning and the detailed planning for constructing the industrial park infrastructure; views and overall measures to solve environmental problems in the process of industrial development.

**Key words:** industrial cluster, infrastructure, development, Hanoi, Vietnam.

Vol. 12 (3): 227-240 (2022)

## HOW MONETARY AND MACROPRUDENTIAL POLICIES INCREASE FINANCIAL STABILITY IN EAGLES? NEW EVIDENCE FROM A MONTE CARLO SIMULATION STUDY

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### ABSTRACT

Authors mention EAGLEs (or Emerging & growth-leading economies), where the financial system plays an increasingly crucial role for economic growth, are a driving force of global growth. But there are not many researches on macro responses (effects) on financial stability. The current study is conducted to evaluate monetary policy, macro-prudential policy impacts on financial stability in 15 EAGLEs. By employing a (MCMC) simulation algorithm within the Bayesian approach, the results show that within the macroprudential policy framework, capital surcharges, limits on foreign currency lending considerably improve financial stability, while expanded credit tends to hurt financial stability, but the effects of FX and/or countercyclical reserve requirements and limits on interbank exposures are very weak, even ambiguous. Surprisingly, loan-to-value (LTV) and policy rate adversely affect financial stability. Regarding monetary policy tools, money supply is positively related to financial stability. Crucial conclusions are that macro-prudential, monetary policy interactions might be effective in supporting the stability of a financial system in case their responses move in the same direction in the business cycle recover stage and in a bank-based financial system, high interest rates adversely influence financial stability.

**Key words:** macro-prudential, policy, stability

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## ISOLATION AND PHENOTYPIC CHARACTERIZATION OF MULTIDRUG RESISTANCE NON-*E. COLI* ENTEROBACTERIACEAE FROM POULTRY IN WESTERN ALGERIA: RESISTANCE TO MANY FIRST-LINE ANTIMICROBIAL AGENTS

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### ABSTRACT

This study aimed to evaluate the antimicrobial resistance to the commonly used antibiotics with particular attention to the first-line antimicrobial agents and to investigate the multidrug resistance levels of non-*E. coli* Enterobacteriaceae from poultry in Western Algeria. Enterobacteriaceae culture was done on MacConkey agar and their identification was determined by AP20E kit, *Salmonella*-positive isolates serotyping were performed according to Kauffmann-White-Le Minor's scheme. For susceptibility testing, the Kirby-Bauer disk diffusion method to a panel of 14 antibiotics was used according to Clinical and Laboratory Standards Institute (CLSI) guidelines. A total of 141 non-*E. coli* Enterobacteriaceae isolates (53 *Proteus spp.*, 42 *Enterobacter spp.*, 11 *Citrobacter spp.*, 10 *Klebsiella spp.*, 8 *Serratia spp.*, 6 *Salmonella spp.*, 4 *Yersinia spp.*, 4 *Edwardsiella spp.*, 2 *Hafnia spp.* and one *Providencia spp.*) were isolated in this study. Four different serotypes of *Salmonella* strains were identified in this work. The predominant isolates exhibited high levels of resistance to various first-line antibiotic classes, notably betalactams, quinolones. Only the serotype *Salmonella Kentucky* was resistant to ciprofloxacin. All the strains isolated in this study were resistant to at least one antibiotic. Overall, 130 out of 141 isolates (92,19 %) demonstrated multidrug resistance (MDR). The dramatic increase in the rates of resistance to various first-line antimicrobial agents and the rapid spread of MDR in non-*E.coli* Enterobacteriaceae isolates of poultry origin can have major implications for public and animal health that should be approached urgently and pro-actively.

**Keywords:** multidrug resistance, non-*E. coli* enterobacteriaceae, first-line antimicrobial agents, poultry, Algeria.

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## PROBLEM OF A CIVILIZATIONAL MODEL OF HUMAN DEVELOPMENT AND ITS ROLE IN POLITICAL FORECASTING

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### ABSTRACT

The novelty of this article lies in the study of the history and development of productive approaches to the strategy of world politics. There are currently no long-term cultural and civilizational plans, considered in the light of the theory of apocatastasis, which has two meanings. The first (antique) meaning implies horizontal movement in time – the endless cyclical return of everything to the way things were before. The second (Christian) one implies vertical movement as a permanent life restoration, but also a possible fall into evil mistaken for good. The choice of value indicators in politics is of key importance. The first (dead-end) approach justifies the superiority of some people and countries over others. The second (promising) one asserts equal rights for all and is a condition for the survival of mankind.

**Key words:** civilizational cycles, historiosophy, apocatastasis, postmodernism.

Vol. 12 (3): 257-262 (2022)

## COMPARISON OF GREENHOUSE GAS EMISSIONS FROM CATTLE INTESTINAL FERMENTATION AND CATTLE MANURE (REVIEW)

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### ABSTRACT

It is estimated that beef feedlots account for 26% of greenhouse gas (GHG) emissions from US agriculture, and future climate change policies may be focused on reducing these emissions. A life cycle assessment (LCA) of greenhouse gas emissions from grain-fed beef cattle in the United States was carried out by using industry statistics and previous research to identify the main sources of uncertainty in these estimates. Uncertainty related to greenhouse gas emissions from indirect land use change to emissions from grazing land (e.g. carbon sequestration in soil), to enteric fermentation of cattle on grazing land and to methane emissions from manure in feedlots, respectively, contribute the most to greenhouse gas emissions throughout the life cycle of beef production. Feeding with ethanol by-products was estimated to have reduced life-cycle emissions by 1.7%, but it can increase emissions by 0.6–2.0% at higher feeding rates. Simulations according to Monte Carlo methods have found a range of life cycle emissions from 2.52 to 9.58 kg CO<sub>2</sub> per 1 kg of live weight, with an estimated average of 8.14, which is between recent estimates. It has been found that current methods used by the United States Environmental Protection Agency (EPA) associated with feedlot beef production account for only 3–20% of greenhouse gas emissions during their life cycle.

**Key words:** cattle, beef, greenhouse gas emissions, manure, intestinal fermentation.



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## THE ROLE OF INTANGIBLES IN FORMING THE VALUE OF ONLINE RETAILERS IN RUSSIAN REGIONS

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### ABSTRACT

In the context of digitalization and against the background of changing consumer behavior during the COVID-19 pandemic, on the one hand, the importance of intangible resources increases, and on the other hand, online retail spreads widely. The article aims to assess the importance and development level of individual intangibles in regional online retail in Russia from the perspective of owners and managers of online stores. In this regard, a field study was conducted in the form of four focus groups and four in-depth interviews with owners and managers of online stores in four federal districts of Russia, namely, the Central, North-Western, Volga, and North Caucasus. As a result, the intangibles that affect the value of online retailers were systematized, the value and development level of individual intangibles in the regional online retail of Russia were assessed. The main features of the intangibles of the regional online retail in Russia related to private labels and technologies were revealed. The authors justify the necessity of further elaboration of the model of forming the value of an online retailer based on the values of its stakeholders, including employees, consumers, and partners. Such a model should be based on the identification of the stakeholders' values, followed by the identification of tools for influencing the intangible factors of their formation. The results obtained can be useful for scientists when developing further methodological approaches to managing the intangibles of online retailers, including taking into account the peculiarities of regional online retail in Russia, as well as can be used in the practical activities of online retailers in the context of managing intangibles and determining promising areas for increasing the value of organizations.

**Keywords:** intangibles, online retail, online trade, online store, regional trade, regions of Russia.

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## TRENDS IN THE DEVELOPMENT OF THE PRINCIPLE OF FREEDOM OF CONTRACT

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### ABSTRACT

The present study is aimed at highlighting the main substantive aspects of the principle of freedom of contract in Russia and some foreign countries to compare the modern directions of its development. Methods: general (philosophical), general scientific, private scientific (including special-legal) methods of cognition: dialectical, logical, concrete-historical, comparative-legal, and formal-legal. The authors show that the principle of freedom of contract has received fragmentary consolidation in foreign countries, in comparison with the Civil Code of the Russian Federation. Therewith, all legal systems are characterized by the recognition of the value of this principle for the development of private law. The article substantiates that the effective implementation of the principle of freedom of contract in Russia can be carried out through an expansive interpretation of the content side of the elements of the principle under study and ensuring balanced and economically determined boundaries of contractual autonomy of the parties to contractual relations. The necessity to include in the freedom of choice of the counterparty, including the algorithm of the selection procedure, has been justified. Attention has been drawn to the functional purpose of unnamed contracts. It has been concluded that excessive legalization of contractual structures does not contribute to the development of contractual autonomy.

**Keywords:** freedom of contract; private law; law and order; society; market relations.

## DISCUSSING CUSTOMER SERVICE BASED-SOLUTIONS FOR BETTER LECTURE HALL SERVICE AT COLLEGES/UNIVERSITIES AND EXPERIENCES FROM OTHER COUNTRIES

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### ABSTRACT

In recent years, teachers and students pay a lot of attention to improving quality of lecture hall service at schools/colleges/universities. Gronroos *in 1984* also suggested two components of service quality, namely (1) technical quality, which is what the customer receives, and (2) functional quality, which interprets the service provided. how level. Meanwhile, Parasuraman *and coworkers in 1988* defines service quality as "the degree of difference between consumers' expectations of a service and their perception of the service's outcome". The topic focuses on studying the service quality of the lecture hall, which is assessed through the lecture service department itself and the direct beneficiaries of the service including lecturers and students in training system. Study findings show that design of lecture hall such as theaters or in different sizes with creativity may encourage interactive learning environment (better). Lst but not least, we need to pay attention to evaluation criteria by teachers and students for reliability, assurance, and tangibles. According to findings, We see from a case of NEU Hanoi Vietnam that: About assessing the importance of each criterion to evaluate the service quality of the lecture department. Lecturers have arranged the criteria in the order of Reliability - Assurance - Responsiveness - Empathy - Tangibility, while staff, teachers and students are interested in the criterion of Reliability. Responsiveness - Empathy - Reliability - Assurance - Tangibility.

**Keywords:** quality, lecture hall service, staff, colleges/universities.

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## LEGAL REGIME OF THE GENOME AS AN OBJECT OF CIVIL RIGHTS FOR CONDUCTING GENOMIC STUDIES

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### ABSTRACT

This article considers the genome and genes as objects of civil rights, their ability to serve as an object of property turnover, and the establishment of a certain legal regime in relation to such objects. It reveals the concept of a gene and genome, as well as their correlation with other objects in the field of civil law. The article also analyzes the procedure for granting consent to the transfer of rights to use the human genome in scientific and medical activities. At the present stage of development of biomedical technologies, the regulation of relations on the use of the genome for medical care or basic research should respond as effectively and timely as possible to emerging social relations in this area, as well as new litigation practice to form the concept of such use with due regard to the interests of all the parties involved, society and state.

**Keywords:** genome, biological material, right of ownership, object of civil rights, scientific research, medicine, legal regime.

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## ECOLOGICAL ASSESSMENT OF POTATO VARIETIES GROWN AFTER DIFFERENT FORECROPS IN THE NORTHERN FOREST-STEPPE OF THE TYUMEN REGION

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### ABSTRACT

Variety testing sites, due to heavy workload, do not have the opportunity to test varieties against different forecrops, mineral nutrition backgrounds, planting dates and standards, etc. In this regard, the time has come to change approaches to testing potato varieties in the state standards of variety testing. Considering the current situation, the purpose of this study is to evaluate the registered varieties planted after green fallow and potatoes, to establish their stability in yield and quality of tubers in the northern forest-steppe of the Tyumen region (Russia). The results of testing potato varieties after green fallow and potatoes in the northern forest-steppe of the Tyumen region are presented. It was found that the registered Valentina variety exceeded the standard Zhukovsky ranniy variety after both forecrops in yield and quality of tubers by 2.1-2.2 t/ha and starch by 2.7-2.9%. The yield of the standard variety after green fallow was 32.7 t/ha, after potatoes, it was 17.6 t/ha, and starch content equaled 12.5 and 12.9%, respectively. An average negative relationship has been established between the yield of tubers and the starch content in them ( $r=-0.36\pm 0.05-0.42\pm 0.09$ ), with a close positive relationship between the content of dry matter and starch ( $r=0.79\pm 0.12-0.86\pm 0.09$ ). The variety had a strong influence on the content of dry matter and starch, while the share of its contribution was 59%, while the influence the year amounted to 24% and that of the forecrop to 17%. The Valentina variety ranks first among the studied varieties in terms of yield and starch content, the standard Zhukovsky ranniy variety ranks second in terms of yield, and the Alyona variety occupies the second position in terms of starch content. For the Valentina and Alyona varieties, it is necessary to accelerate the reproduction of healthy planting material and expand the planting area in the private sector and agricultural enterprises.

**Keywords:** Leached chernozem, Starch content, Environmental conditions.

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## ESTIMATING WEIGHTED BANK BETA INDEX UNDER MACRO EFFECTS IN VIETNAM IN INDUSTRY 4.0 AND ROLES OF DIGITAL TRANSFORMATION FOR BETTER RISK MANAGEMENT INFORMATION SYSTEM

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### ABSTRACT

The applications of mathematics in finance have been developed widely in recent years. In our study, authors aim to propose weighted beta index formula in banking industry and then, factors that affect bank sustainable development, as well as risk management policies and strategies for commercial banks in Vietnam financial market. This study mainly use combination of quantitative methods (statistics, calculation formulas) and qualitative methods including synthesis, inductive and explanatory methods. Our study results show that first, because mean value of weighted beta in period 2011-2020 higher than beta in 2011-2016 time, we need to pay attention to risk management solution in bank system. Second, as CPI has negative impact while G, IM and R has positive impact on weighted beta: and Risk free rate have higher effects on market risks of banks, Ministry of Finance, State bank of Vietnam and relevant agencies need to control GDP growth as well as rates of Treasury bonds and lending rate (not increase so much) toward benefits for managing risk. And do not need to reduce CPI too much. Then we also mention the roles of digital data and transformation to help us to build better risk model and management information system at banks.

**Key words:** weighted beta index formula, Vietnam banks, beta CAPM, inflation, economic development, Vietnam  
**JEL:** M21, G30, G32, G38.

Vol. 12 (3): 315-324 (2022)

## INFLUENCE OF THE FORECROP ON THE YIELD AND SEED QUALITY OF WHEAT VARIETIES IN THE NORTHERN FOREST-STEPPE OF THE TYUMEN REGION

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### ABSTRACT

In recent decades, plant breeders of Siberia and the Urals have created a series of spring wheat varieties that combine high yields with good grain quality, early ripening, resistance to lodging, germination of grain in the ear, and other economic characteristics. Considering the current situation in the production of seeds of varieties of valuable and strong wheat, the purpose of this study is to evaluate the influence of different forecrops on the yield and quality of seeds of spring wheat varieties in the northern forest-steppe of the Tyumen region (Russia). The paper presents the results of the forecrops' influence on the yield and seed quality of wheat varieties Omskaya 36, Tyumenskaya Yubileynaya, Novosibirskaya 31, and Iren in the northern forest-steppe of the Tyumen region. It has been established that the best forecrops are annual grasses and corn. In the fields with the aforementioned forecrops, a seed yield of 2.5-3.0 t/ha with a protein content of 14-16%, germination energy of 68.8-69.3%, laboratory germination of 92.8-94.7%, profitability of 124-176% has been obtained. The third position in importance as a forecrop is occupied by rapeseed. In exceptional cases, it can also be used as a forecrop to seed crops. After spring wheat, the studied varieties had sharply reduced yields and seed quality indicators, especially for varieties Omskaya 36 and Novosibirskaya 31. The Iren and Tyumenskaya Yubileynaya varieties tolerate the grain forecrop better, but at the same time, the seeds obtained have low protein content, germination energy, and laboratory germination. The Omskaya 36 variety was inferior to all the studied forecrops in terms of yield and seed quality, so there is every reason to reduce the area of sowing of this variety and possibly replace it with a new variety adapted to local conditions.

**Keywords:** spring wheat, variety, forecrop, seeds, yield, quality.

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## MILK QUALITY AND ITS TECHNOLOGICAL PROPERTIES WITH INTENSIVE PRODUCTION TECHNOLOGY

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### ABSTRACT

Innovative technologies are currently widely used in dairy cattle breeding, which make it possible to get more milk from cows, and most importantly – high-quality milk. The purpose of the research is to study milk productivity, milk quality, and its technological properties when used with different methods of preparing cows for milking. The research was conducted based on the Russkaya Niva LLC in the Sarapulsky district (Russia) in the period from 2019 to 2021. The object of research is the first-calf cows of a black-and-white breed. The control group included cows where traditional technologies were used in preparation for milking, a scrubber was used in the experimental group. Milk yield for 305 days of lactation in cows of the experimental group was 6853 kg, which is higher than in the control group by 386 kg or 6.0% ( $P \leq 0.95$ ). The first-calf cows of the experimental group have a high fat and protein content in milk by 0.12% ( $P \leq 0.95$ ) and 0.02%, respectively. Evaluation of the morphological and functional properties of the udder showed that modern methods of preparation had a positive impact. The udder depth in the experimental group was 33 cm, which is 5% more than in the cows of the control group. When using a scrubber, the milking time of one cow is on average 5.8 minutes, which is 1.3 minutes or 22.4% less than in the control group ( $P \leq 0.999$ ). The coefficient of lactation constancy in the experimental group was 88.5%, which is 2% higher than in the first-calf cows of the control group. According to the content of somatic cells, milk obtained using a scrubber is better, because their level was 176.6 thousand/cm<sup>3</sup>, and 289.4 thousand/cm<sup>3</sup> in the control group. Milk of both groups is suitable for the production of fermented milk products, but in the experimental group, yogurt retains moisture better during storage and is thicker. Milk consumption per 1 kg of cottage cheese in the control group is 73.2 liters, which is 2.1 liters higher than milk consumption in the experimental group. Milk consumption was 71.1% in the experimental group.

**Keywords:** milk productivity, milk composition, technological properties, preparation of cows for milking, scrubber.



Vol. 12 (3): 333-338 (2022)

## DEVELOPMENT OF GOBLET INTESTINAL CELLS OF BROILERS IN CASE OF INTRODUCING *BACILLUS SUBTILIS* SPORES INTO THE DIET

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### ABSTRACT

The purpose of this work was to identify the features of the location and distribution of GCs with neutral and acidic secretions in the duodenum, jejunum, and proximal part of the caecum. The paper presents the results of a study of the development of goblet intestinal cells and the influence of *Bacillus subtilis* spores on this process. The study was carried out at the educational and experimental poultry house of the Russian State Agrarian University, Moscow Agricultural Academy named after K.A. Timiryazev. Broilers of the Konkurent cross were used, from which two groups of 50 heads were formed by the method of pairs of analogs in live weight. In the first three days of life, chickens of the experimental group apart from the basic diet received the Vetom-1.1 probiotic containing *Bacillus subtilis* spores (0.006%). From the age of four days, all chickens received the basic diet. The duration of the experiment was 42 days. The density of the location of goblet cells with acid secret decreases in all parts of the intestine, except for the crypts of the caecum in broilers of the experimental group. In the broilers of the experimental group, immediately after feeding the preparation, there was a significant increase in the density of goblet cells with a neutral secret in the villi of the duodenum by 22.2% ( $P < 0.01$ ), the crypts of the jejunum by 30.8% ( $P < 0.001$ ) and a decrease in the villi of the jejunum by 13.8% ( $P < 0.01$ ). By the end of the experiment, the density of GCs in the villi of the duodenum had increased slightly, and in the crypts of the jejunum and caecum, the number of cells with acid secret had increased.

**Keywords:** poultry farming, probiotics, Vetom, mucous membrane, villi, crypts

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Vol. 12 (3): 339-346 (2022)

## POSITION OF THE RUSSIAN LANGUAGE IN THE LINGUISTICALLY DIVERSE SITUATION IN THE USA

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### ABSTRACT

The main aim of this article is to demonstrate the existence of the Russian language in the USA within complicated linguistic circumstances. The problem of promoting the rate of the Russian language usage in the USA stands within the importance of this discussion. The study examines the features of the language situation in the USA. The article presents the diversity of languages spoken in the USA. The article has an interdisciplinary approach, written at the intersection of linguistics and history and can be in demand among students of history and philology departments. The authors analyze the data about the most widely-spread languages in the USA. To understand the reasons for the popularity of the languages, attention has been drawn to historical facts of Spanish, Asian, French, German, Arabic, and Russian emigration processes. This method can interpret linguistic assimilation of the emigrant language with the dominant English language. The authors point out, that the national Russian language is developing its branch on the territory of the USA as a hybrid language - "RunGLISH". The incentives of using "RunGLISH" are discussed in this paper.

**Keywords:** Language diversity; Language situation; Language contact; Emigration; RunGLISH; US widely-spread languages.

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## CULTIVATION OF REPLACEMENT GILTS WITH AN ASSESSMENT OF THEIR REPRODUCTIVE QUALITIES BY THE FIRST FARROW

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### ABSTRACT

In this paper, the issues of intensive cultivation of two-breed replacement gilts of Yorkshire x Landrace breeds and purebred pigs of the Yorkshire breed are considered. 4 groups of replacement gilts were selected for the study: two groups of two-breed replacement gilts and two groups of purebred pigs of the Yorkshire breed. The study was conducted at a large industrial pig breeding complex of Verdazernoprodukt LLC at the Ryazan region, the Russian Federation in the period between 2017 and 2020. The average daily gain was calculated from the moment the pigs entered the growth room from 2.5 to 7.5 months of age. The authors justify the importance of preparing replacement livestock for reproduction by the cycling method using trailer boars. The reproductive capacity of replacement gilts was evaluated by the first farrowing. As a result of the conducted study, it was determined that during the growing period it was necessary to strictly control the live weight gain of replacement gilts, to prevent sharp fluctuations in average daily gain. After 4 months of age, it is recommended to control the average daily gain in replacement gilts at the level of 500-600 g. It is also necessary to stimulate sexual heat in replacement gilts, starting from the age of 160 days, which contributes to the formation and readiness of replacement gilts for reproduction, with 3 to 4 full-fledged heat periods. A well-organized system of breeding and preparation of replacement gilts for reproduction contributes to obtaining high production indicators.

**Keywords:** replacement gilts, cultivation, reproductive qualities, cycling, farrowing, intensive production, trailer boar.

## THE POWER MACHINE IN THE INDUSTRIAL REVOLUTION ERA: HISTORICAL AND LEGAL SURVEY

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### ABSTRACT

The authors of the article aim at comprehending the power machine in the context of state-legal processes, whose dynamics are to a certain extent determined by industrial revolutions. Transformations gave rise to technological and digital forms of political communication. Currently, the nature of traditional political institutions and forms is changing during the third and approaching fourth industrial revolutions. Humankind is not fully aware of innovative trends in the field of power relations, institutional and functional features of the power machine, prospects for the development of management, and the mechanism of domination and subordination. The information society and digital forms of power solve some issues but become problems themselves. Thomas Aquinas believed that a person should take care of three types of relationships: with reason, God, and other people. Our contemporaries are more involved in communication with gadgets. Information, including legal information, is consumed as a finished product: the power machine decides each time what opinion is true or false. Of course, the "digit" seriously changes state and law in general: there is an electronic democracy, an electronic constitution, or an electronic justice. The global expansion of technologies and techniques can no longer guarantee security, state loses its leadership in the system of power relations in a post-industrial society.

**Keywords:** industrial revolution, politics, power, management, state, society, law, technique, technic, machine, power machine.

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## INCIDENCE OF COVID-19 AND ASSOCIATED RISK FACTORS IN ALGERIA

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### ABSTRACT

The SARS-CoV-2 disease was officially declared as a pandemic by the WHO in January 2020, representing a real international health challenge. This coronavirus has caused the largest pandemic since the Spanish flu of 1918. The present study aims to specify the impact of some factors: sex, age and chronic diseases in an Algerian population (region of chlef) of 1100 confirmed covid-19 positive patients. The results obtained showed a significant effect of patients' age ( $p = 0.02$ ) and male gender ( $p < 0.001$ ) on the virus contamination and on the death rate. High blood pressure, diabetes, and cardiovascular diseases represented the most significant types of comorbidities ( $p < 0.001$ ) in SARS-Cov-2 infection. However, a non-significant effect ( $p > 0.05$ ) of other associated comorbidities such as: kidney disease, cancer, chronic inflammatory bowel disease, liver disease and respiratory disease was revealed. It would be interesting later to conduct this study on a larger sample, while being interested in following the evolution of the different comorbidities after the infection by the virus, which will allow health professionals to acquire better knowledge on the evolution of post-Covid chronic pathologies that could make patients more vulnerable to the development of more severe forms of their comorbidities, and in the purpose to optimize their future management.

**Keywords:** SARS-Cov-2, age, sex, comorbidities, death, Chlef, Algeria

## FORESTRY OF UKRAINE: PROBLEMS AND WAY OF SOLUTIONS

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### ABSTRACT

The study aimed to outline the ecological and economic priority areas of forestry production in Ukraine in the postwar period. Theoretical and informational basis of the study were reports of the State Forest Resources Agency of Ukraine, laws and regulations of Ukraine and the European Union, the Global Forest Watch platform, studies of domestic and foreign scientists in the field of environmental protection, environmental economics and forestry management. Economic and statistical (statistical data processing in assessing the numerical relationship of various phenomena and the forest production); correlation-regression (study of the impact of forestry activities); abstract-logical (theoretical generalizations and concluding) research methods have been used. According to the analyzed research, the main problems that will slow the development of new directions of forestry production and forest industry in general in the postwar period are the tenuous relationship between forestry and wood processing industry; low technological level; poor innovation activity; low efficiency of forest resources use; insufficient implementation of the postulates of European environmental policy statements. Criteria for the effectiveness of forestry production environmentalization, taking into account current and retrospective indicators, the current legislative requirements, confirmed theoretical and mathematical models, information on current efficiency, the results of the internal check, etc. have been proposed. Based on statistical data the analysis which allows characterizing prospects of creation and development of new forestry clusters has been carried out. The main characteristics of the cluster in the timber industry for the full functioning of the line and its modernization and ecologization in the postwar period have been outlined.

**Keywords:** forest ecosystems, forestry production, reforestation, sustainable management.

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## MAPPING AND STUDY OF FLORISTIC BIODIVERSITY IN THE REGION OF MOSTAGANEM, NORTH-WEST, ALGERIA

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### ABSTRACT

A mapping and inventory of the natural plant cover and its diversity was carried out on the plant groups of the mostaganem region. The floristic diversity of this study area revealed the existence of 78 taxa belonging to 42 families. The most important families are *Asteraceae* (46%), *Amaranthaceae* (29%), *Poaceae* (23%), *Brassicaceae* (14%) and *Fabaceae* (12%). The category of rare taxa represents 11% of the flora studied (9 taxa). In this study area, we counted 9 regional endemic species, of which some species are endemic to Algeria and Morocco, and some species are strictly endemic, among which *Bituminaria tunetana* is reported for the first time in Algeria. Among the taxa analysed, are listed on the IUCN red list, and are on the Algerian list of protected non-cultivated plant species.

**Key words:** Mapping, endemic, rare, *Bituminaria tunetana*, Mostaganem, Algeria

Vol. 12 (3): 385-390 (2022)

## APPROACHES TO DETERMINING THE CONTENT AND STRUCTURE OF TAX ADMINISTRATION

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### ABSTRACT

An inextricable element in the management and development of the tax system is tax administration, a process that brings together the interests of the state, society, and business. The tax administration system is currently experiencing a rapid invasion of the tax system into all aspects of society, which transforms it into a single mechanism for addressing the socio-economic interests of all participants in tax relations. The purpose of the study is to disclose and interpret the substantive characteristics of tax administration, taking into account modern socio-economic realities. The study utilizes general scientific research methods, generalization and justification, and the axiomatic method. It is concluded that at the present stage, tax administration is an effective tool to achieve a balance between the interests of the state and taxpayers.

**Keywords:** tax system, tax payer, state tax policy.



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## PHILOSOPHICAL-METHODOLOGICAL RECONSTRUCTION OF PASSIONARITY IN DYNAMICS OF PROTO-TOWN CULTURE

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### ABSTRACT

The research is devoted to the development of the culture-philosophical bases and methodological reference points of a passionarity conceptualization in dynamics of culture, where the passionarity is a genetic basis of dynamics of culture. The model of the passionarity includes a unity of natural origins, the cultural prerequisites and the individual-personality beginning, where natural energy content is combined with a cultural-object form of activity. Conceptualization of the passionarity in the dynamics of culture is made within Nevelev's object-energy approach in dialectics of energy (a thesis - nature - L.N. Gumilev) and object (an antithesis - culture - K. Jaspers). A synthesis of these approaches is author's object-energy concept of passionarity as a maximum restoration of a creative role of natural ability to have energy on the basis of hierarchy of cultural forms. Philosophical and methodological reconstruction of passionarity in the dynamics of culture is presented within the theory of development in the form of interaction of natural and cultural prerequisites of new culture and conditions, its beginning and reproduction (G. Hegel) through the object-energy interpretation on four levels of being (a thing, an activity, a thought, a limit universal category) on an example of formation of elementary cultural form of organization of proto-town society. The dynamics of formation and development of proto-town culture is a process of strengthening of determining influence of prerequisites (trends) and transformation of general prerequisites into special and direct prerequisites.

**Keywords:** Dynamic of culture, Energinity, Passionarity, Philosophical-methodological reconstruction, Proto-town.

Vol. 12 (3): 395-400 (2022)

## INFLUENCE OF AGROTECHNICAL TECHNIQUES ON THE QUALITY INDICATORS OF GRAIN, MALT, AND BEER WORT

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### ABSTRACT

About half of all barley areas are concentrated in the North Caucasus, where grain production has historically specialized in its use for fodder purposes. However, for brewing, it is not so much the quantity but rather the quality of barley grain as a raw material that is important. This work is devoted to comparing the parameters of the density of sowing seeds with different levels of mineral nutrition, depending on their size, taking into account their influence on the brewing qualities of barley grain, malt, and beer wort in the foothill zone of the Kabardino-Balkarian Republic (Russia). The conducted studies allowed establishing that both in winter and spring varieties, an increase in the density of sowing from 450 to 550 seeds/m<sup>2</sup> was accompanied by a slight decrease in grain size. The extractivity was noticeably higher against the nitrogen, phosphorus, and potassium background in both forms of barley. It was determined that as the density of sowing increased, the solubility of malt protein decreased. It negatively correlated with the protein content in malt, i.e. as the density of sowing increased, malt contained more protein, but the degree of protein transition to wort decreased. It has been established that the best quality of malting barley and wort grains are noted at a stem density of 500 seeds/m<sup>2</sup> against the nitrogen, phosphorus, and potassium background.

**Keywords:** sowing density, barley, varieties, malt, quality, beer wort.

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## APPRAISAL ZONING OF THE CITY OF TOTMA, VOLOGDA REGION, TO DETERMINE ADJUSTMENTS FOR THE LOCATION OF REAL ESTATE

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### ABSTRACT

The study addresses the problem of appraisal zoning and determining adjustments for the value of the real estate in residential areas with an underdeveloped real estate market using statistical methods. Calculation of adjustments using the method of cadastral value comparison is demonstrated based on the example of the city of Totma, Vologda region, Russia. Raw data are obtained from the online portal of the Federal Service for State Registration of Cadastre and Cartography (Rosreestr). Based on the ratio of specific indices of the cadastral value, coefficients are obtained for five groups of objects: private household plots; individual residential buildings; land plots for industrial facilities; stores and administrative buildings; apartment buildings. Following the clusterization of the objects by the cadastral blocks they are located in and calculation of the weighted average and adjusted coefficients of change in the value depending on location, zoning of the city's territory is performed. With consideration of the existing cadastral map and documentation on territorial zoning, Totma is divided into five zones with coefficients of change in value depending on location amounting to 1.00, 0.85, 0.70, 0.55, and 0.40. As part of testing the results obtained, the coefficient of change in value is calculated for two real estate objects with known bid prices per m<sup>2</sup>. The resulting coefficient falls into the interval corresponding to the zone where the object is located.

**Keywords:** settlement lands, cadastral value, location, real estate property appraisal, territory development planning, Rosreestr, appraisal zoning.

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## CARBON UNIT MARKET: INTERNATIONAL EXPERIENCE AND APPROACHES TO FORMING THE RUSSIAN MODEL

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### ABSTRACT

The trading system for greenhouse gas emissions permits is one of the most promising mechanisms for influencing climate issues today. The article deals with the analysis of international experience in the creation and functioning of carbon markets and the emerging Russian model for the sale and purchase of the results of implemented climate-related projects (carbon units). The authors highlight the features of the formation of carbon markets in several foreign countries as an economic tool for regulating greenhouse gas emissions; identify several measures that could be borrowed and adapted by the Russian Federation with its current problems in the implementation of climate policy, which will increase the possibility for creating an efficient Russian system of emissions trading. The result of the study is the identification of the prerequisites for the construction and development of the Russian model of carbon unit trading, taking into account the specific factors inherent in the Russian economy. The results of the study may be of interest both to representatives of the corporate sector, which is committed to achieving zero emissions, and to government authorities in the implementation of climate policy.

**Keywords:** greenhouse gases, carbon market, emissions trading, carbon tax, carbon pricing.

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## CONSTITUTIONAL FOUNDATIONS OF THE JUDICIAL POWER IN RUSSIA AND THE WORLD

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### ABSTRACT

The paper aims to explore the legal nature and essence of the constitutional foundations of the judicial branch of power in the Russian Federation and the world with consideration of the historical experience and modern approaches to the structure and system of operation of constitutional justice found in the law and legislation. The primary research method is the deductive method, which provides for the study of the legal nature of the constitutional court and its place in the system of separation of powers in Russia. The study also employs the inductive method, systemic scientific analysis, and comparative legal and historical methods. The article proves the absence of a theoretical solution to the problem of legal nature and the primary purpose of constitutional control, which, the authors argue, lies in the fact that the principal condition for the establishment of strong judicial power is its high independence. The concept of “judicial law” is in a certain way related to the development of state-monopolistic capitalism, strengthening the position of the state and its apparatus. The idea of “judicial law” is proposed by some authors as a kind of counterweight to state power and bureaucracy. Resorting to the principle of “separation of powers”, these scholars largely overestimate the relative independence of justice from the legislative and executive spheres of functional activity within a single mechanism of state power. The limits of judicial discretion tend to be more narrow, and the scope of judicial discretion is considerably restricted. The application of a legal rule at the discretion of the administration does not always entail the obligation to give reasons. Conversely, the application of a legal rule at the discretion of a court or judge must be motivated by a court order.

**Keywords:** constitution, judicial power, constitutional justice, constitutional court, human rights, state control, separation of powers.