SCIENCE AND EDUCATION IN THE FUNCTION OF PROTECTION OF LIFE ENVIRONMENT

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Abstract: *In the formation of ecological culture of modern man has an important role of the ecological system of education. Environmental education represents the understanding of the problem of general greening of material and spiritual activities of the company. Subject of this paper is theoretical approach to motivation system of employers (proffesors) wich is one of the key preconditions for accomplishment sucsesfull motivation of students, as and a role of lider in process of motivation with reference to his k aracteristics. True the empirial part of the paper we will reasearche stands of professors and students with next questions: personal communication, curriculum, sadisfaction and succes in the work and studies. Motivation is very importante for the process of education because it can affect on the other factors wich are inevitable in the educational process.*

Keywords: *Science and education, ecology, eco-safety, communication competence, assessment of learning, sustainable development*

1. Introduction

Technological and technological development follows the basic goal of our civilization - Continuous growth of materials. The physical growth and development of industrial production are in correlation with: human desire for enrichment, acquisition of material goods, industrial production, countless different industrial products stimulate the desire for their own ownership. As this material stimulates the growth and development of large infrastructure support systems, they are the largest polluters of the environment.

Ecology as a science, a broad field of study, can be divided into several major and minor subdisciplines: the main subdisciplines are:
- ecology that studies the ecological and evolutionary basics of animal behavior and the role of animal behavior and adaptation to their ecological habitats;
- ecology (autoecology) that deal with population dynamics within species and their connection with environmental factors. - ecology (synecology) that studies relationships between species in the ecological community; landscape ecology that studies the less visible parts of the landscape;
- ecosystem ecology, which studies the exchange of energy and matter through the ecosystem, etc. The ecosystem consists of two parts, life (biocenosis) and an environment in which life exists (biotope). In the ecosystem, living species are linked and dependent on each other through the food chain, and the exchange of energy and matter between themselves and with their environment. Each ecosystem can consist of subjects of different sizes.

2. Evaluation of ecosystem capacity

Biocenosis is a community, group of animals or plants and microorganisms. Each population is a result and it makes reproduction in individuals of the same species and live together in a particular place at a given time. When in a given population there is not a sufficient number of individuals, then this population faces extinction, and species extinction can start at the moment when the number of biocenosis drops (community) consisting of representatives of particular species. In small populations, breeding between close relatives can lead to the reduction of genetic diversity that can weaken the very communities.

Biotic ecological factors also affect community resilience. These factors can work within a particular species and between several species. The main questions in the ecosystem study are: - How effective can the colonization of arid areas be? - They must also change the diversity of the ecosystem? - how do ecosystems behave on the local, regional and general levels? - Is the current situation stable? - What is the significance of the ecosystem? What benefit can a person have from the relationship between ecosystems, especially in the effort to provide safe water?

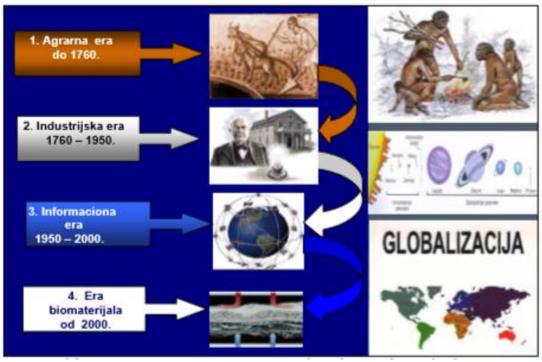

Figure 1. Monitoring of the state of the environment through centuries to date

Ecosystems are often classified as biotope for this study. In this way, the following ecosystems can be defined: - continental ecosystem (terrestrial), as well as forest ecosystem, meadow ecosystem (meadow, steppe, savannah) and agro-ecosystem (agricultural ecosystem); - Terrestrial aquatic ecosystems, such as lentic ecosystems (lakes, ponds) or lotus ecosystems (river, stream); - Oceanic ecosystem (in seas and oceans).

3. Pollutants in the air

From the moment the prehistoric man began to maintain fire and used it to meet his needs, to this day, mankind has progressed technologically in a threatening eco-system. To date, man has not understood the overall mechanism and risk of the combustion process. Public attention, especially professional, is focused on CO_2 gas, but not overall combustion products. Today, little is known about nanoparticles, they monitor CO_2 in the combustion process, and their properties affect human health and climate change.[72]

When increasing the share of biomass in the combustion process, CO_2 will be in

[72] The man breathed an average of 26,000 times during 24 hours and consumed 10m3 of air, or 13kg of air (at medium stress)

balance, as it will consume CO_2 for its growth, as it gets released in the combustion process, leaving the atmosphere polluting. Basic air pollutants are: aerosols (rough and fine-dispersing systems), CO_2, nitrogen oxides, sulfur oxides, hydrocarbons, halogen-containing gases (chlor-fluorine hydrocarbons, hydrofluoric acid, hydrochloric acid, vinyl chloride) and other substances (benzene, hydrogen sulfide, sulfur carbon, ammonia). Aerosols are 0.001 to 100 mm in size, made up of particles: silicon oxide, aluminum oxide, phosphate, iron oxide, potassium oxide, calcium, magnesium, sodium and sulfur compounds. The most important particle properties are size, concentration and chemical composition. Particle size is the most important factor in deposition rate. Deposition rates are influenced by the shape, particle density, charge and air flow.

Based on the rate of precipitation, the particles are divided into: - Substances that can be deposited d> 10 mm - Particles that are suspended continuously

Characteristics of aerosols: particle size, fractional composition of particles, particle concentration, chemical composition of particles, dimensional dimension and aerodynamic diameter. Of the pollutants that occur in the combustion process and which are little talked about are: NO x, nano particles, sulfur oxides, dioxins, etc.

Nitrogen oxides - NOx are responsible for activating secondary reactions of the present pollutants, tz. photocatalytic effect. NOx works harmful to humans, making it more difficult to breathe (increase resistance to respiratory tract) causing a fall in arterial blood pressure, acting as a mild anesthetic. The atmospheric life span is more than 100 years. The sources for combustion NOx are: high flame temperature, consumption and fuel type (chemically bound nitrogen), oxygen quantity in flue gas, combustion air temperature and furnace temperature. There are different structures burners that reduce the NOx content in flue gases: an ultrahigh NOx burner and a porous structure burner.

Nano particles due to their size during inhalation can not be excreted from the body. They can be: hydrophilic, hydrophobic, charged. They can attract various dangerous and polluting substances, viruses and bacteria on their surface ... In the structure of the clouds they behave like a mirror, preventing the passage of sunlight to the surface of the earth. Therefore, they may be equally threatened by the health of people and the climate.

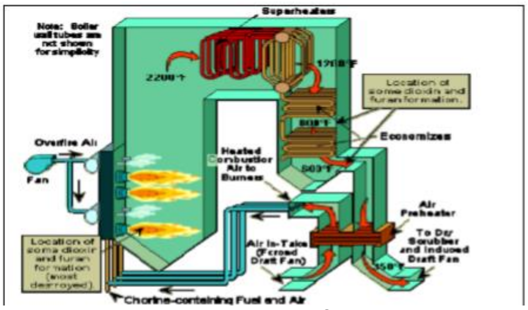

Figure 2. The pathways for the release of dioxins in the working and the environment

Sulfur oxides comprise sulfur dioxide (SO_2), sulfur trioxide (SO_3), and sulfuric acid (H_2SO_4). Sulfur dioxide is a colorless gas and is moderately soluble in water and other liquids, sulfur can be in the form of inorganic sulphides, organic sulphides and pyrites. S + 1 / 2O2SO3 at sufficiently high T, 0.5 to 2% of SO2 SO3 + H2OH2SO4 at temperatures below 300 ° C, very strong acid

They make up most of the volatile organic compounds that a person releases into the atmosphere from vehicles and industrial processes using solvents such as surface coatings, printing materials (ink) and petrochemical processes. Volatile organic compounds are organic compounds that can evaporate and participate in photo-chemical reactions when the gas current is released into the atmosphere. Almost all compounds used as solvents and chemical raw materials are in volatile organic compounds. All volatile organic compounds are not toxic. Let them inert when they enter the atmosphere. The main source of emissions of volatile organic compounds is the evaporation of organic compounds used in industrial processes. Vaporizable organic components are not created in industrial processes, they are lost in them.

Dioxins and furans are dangerous compounds formed primarily by burning waste, cement production, combustion of fossil fuels and forest fires. These very toxic and cancerogenic substances arise in the process of improper combustion, combustion of waste, biomass, plastic primarily PVC, lead gasoline ... Some dioxins and furans are formed and destroyed (ie oxidized) in a flame on a burner in a combustion chamber . Most of the chlorine compounds from which dioxins and furans are formed, existing in fuel and waste, evaporate and move together with the gas stream until they reach the part where temperatures suitable for their formation are controlled. A small amount of dioxins and furans are generated in boilers where heat exchangers and economists are located. Since it is
most dioxins and furans are generated in control devices, a gas stream that leaves the combustion process.

In combustion of any kind of fuel, the combustion products are: CO2, NOx, particles which, depending on size, rapidly precipitate and permanently air (PM-10 and nano-particles P No). In urban areas, pollutants include hydrocarbons (CmHn), and traffic is the main emitter. The most widespread are aromatic and polycyclic aromatic hydrocarbons.

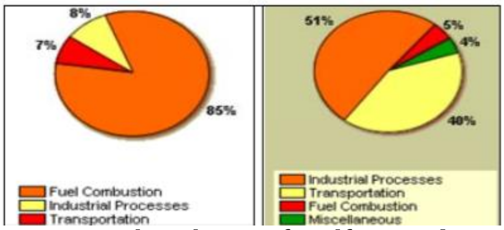

Figure 3. The share of sulfur oxides and hydrocarbons in the urban environment

Carbon monoxide (CO) is one of the highly toxic compounds, a gas without color, odor and taste that is difficult to identify. It is lighter than air, it belongs to a group of chemical "quenchers" and causes general hypoxia (reduced oxygen concentration in blood) due to binding to hemoglobin (Hb) and other respiratory agents containing the hem (component of the hemoglobin) prosthetic group. Toxic effects (after contamination) CO occur very quickly at low concentrations. The toxic effect of CO on the human organism depends on exposure time, concentration, and potentiating factors: breathing time, muscular work, organism resistance, CO concentration, and degree of previous hypokrisia in tissues. After contamination (MDK - 50 ppm), a clinical picture is developed, which is atypical. Due to the inability of low carboxy hemoglobin concentrations to provide a rich symptomatology, and that COHb concentrations are asymptomatic over 40%, the diagnosis is difficult to diagnose, and therefore treatment as well.

Table 1. Percentage of bound hemoglobin for CO in everyday life

N0	Concentration CO	Related Blood COHb (%)
1.	Clean air	1
2.	Smokers after 20 cigarettes	6
3.	Workers in the garage after 8 o'clock	3-15
4.	Inhaling air (50 ppm) after 30 min	3

The concentration of COHb depends on the intensity of hypoxia, and the clinical picture of the poison depends on the intensity. In principle, the concentration of COHb in the blood of 10 to 20% causes nausea, headache and fatigue, 30% dizziness, disorientation, fatigue and muscular impotence, 40 to 50%, impaired cardiac and respiratory function, decerebration and death. In 18% of poisonous, there are disorders of other organ systems, and in 40% of cases, permanent neurological outbreaks, characteristic of diffuse spongiotic demyelinization of the brain, have been reported.

Table 2. Clinical picture of poisoning with CO depending on COHb concentration

N0	COHb (%)	Clinical picture
1.	4	Reduced visibility and ability to target
2.	10-20	Nausea, headache, fatigue and decreased visual abilities
3.	30	Dizziness, disorientation, malady, helplessness
4.	40-50	Coma, disturbed heart and breathing, decay and death

Halogens are compounds of chlorine and fluorine. They arise in processes in the chemical industry, the production of acids, electronic components, ore mining and combustion of fuels with fluorine and chlorine. HCl and HF are produced. They are both strong irritants that are soluble in water. HCl is strong while HF is a weak acid. The fluorine occurs particularly in the production of aluminum, enamel, glass. H2F2 and SiF4 cause plant damage to leaves, and in humans and animals bone damage.

Hydrogen sulfide (H2S) is a compound formed in the production of coke, distillation of tar and in the pulp industry. It is also found in urban wastewater and in all cases where there is rottenness. It is poisonous as cyano-hydrogen and paralyzes the human respiratory center.

Lead belongs to heavy metal, which significantly pollutes the air in the form of metal particles. Most commonly when combustion of gasoline containing antidetonators. Fuels that do not produce pollutants and particles are: wind energy (VE), hydro and nuclear power plants (HE, NE) and photovoltaic panels (FN). Combustion of gas in cogeneration plants, significantly reduces NOx, and particles insignificant, less than 10%.

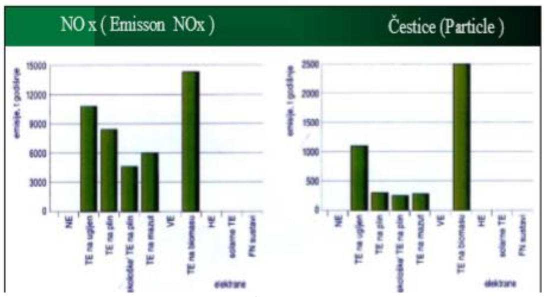

Figure 4. Emission of NOx and particles during combustion of solid fuel

Radon is in nature and can hardly avoid its exposure.[73] The natural concentration of

[73] Radon is a hem. element, whose symbol is Rn and atomic number 86. Colorless, chemically important, inert, but radon gas, whose ionisation energy is 1037 kJ / mol, and one of the heaviest gases at room temperature. At a standard temp. and the radon pressure is a colorless gas, but if you gamble below

radon in the atmosphere is low, because water rich with radon in contact with the atmosphere loses radon by evaporation. Groundwater has a higher concentration. 222Rn than surface water, as radon continuously produces decay. 226Ra is present in rocks. Because of the soaked soil zone with water, they often have more radon concentrations than unsolved, because radon is lost by diffusion in the atmosphere. On average, there is one atom Rn in 1 x 1021 molecules of air. It is emitted from the earth's crust all over the world, and especially in the regions that contain soil granite or clay and silt soil (but not all of them). Radon from the earth accumulates in the air if there is meteo-inversion and weak wind. The atmospheric emission depends on the type of soil and the surface content of U, so that the outer radon concentrations are of limited character for a particular radon concentration and can only be used by good experts - metrologists, physicists or physicochemicals.

There are 20 known isotopes of radon. The most stable isotope is the 222Rn isotope, which is a descendant (daughter) of 226Ra, which has a half-life of 3.83 days, and emits alpha particles. 220Rn is a natural product of thorium decay (Tr) and is called "Toron", whose half-life lasts 55.6 seconds, and emits alpha particles. 219Running from Actinium (Ac) and called "Aktinon", time of half-life 3.96 seconds, and also emits alpha particles.

The series - the 238U breakdown chain, with natural RN being 238U (4.5x109g), 234Th (24.1 days), 234Pa (1.18min), 234U (250,000g), 230Th (75,000g), 226Ra (1.600g), 222Rn (3.82 days), 218Po (3.1min), 214Pb (26.8min), 214Bi (19.7min), 214Po (164Ms), 210Pb (22.3G), 210Bi (5.01 days), 210Po (138 days) 206Pb (stable form).

Radon gas and its solid product are a carcinogen. The greatest risk of performance. exposure to solid radon emanation breathes.

Polonium-218P and 214P are solid offspring Rn, which is present. Significant health hazard, because once they breathe in the lungs, they continue to have a longer radioactivity. decomposition, releasing powerful energy in the form of alpha particles, which can cause DNA breaks, or create free radicals. Radon is in nature and can hardly be avoided. exposure from our houses, but it is considered that if the concentration Rn decreases, or the level of "action guideline level" of 148 Bqm3 (4 pCiL-1), or below the level when Rn is "no effect", the disease can be reduced by one-third. After separation of the effects of smoking, there is very strong evidence of the emergence of lung cancer caused by the endpoint of 148 Bq / m3 (4 pCi / l) and the lower 74 Bq / m3 (2 pCi / l) in the home atmosphere. in the home environment, it covers about half of the non-medical exposure to ionizing radiation, and this is in fact radiation, where the public is most exposed.[74]

its freezing point (202 K; -71 ° C; -96 ° F) it becomes very fluorescent, and the color turns yellow in as the temperature is lower, and eventually becomes almost red, at a temperature of air (below 93 K; -180 C) when it becomes liquid.

[74] Tests in nine European countries have shown that the hazard arising from high concentrations of Rn coming from the home atmosphere, especially for smokers as well as ex-smokers, is responsible for about 9% of total mortality from lung cancer and about 2% of mortality cancer in Europe.

In relation to the inhaled dose Rn there is a linear correlation, and that it is evident that the upper limb is. of 148 Bqm-3 (4 pCi / l) was not safe because it appeared in the home atmosphere at lower levels of Rn (74 Bq / m3 (2 pCi / l).

What about our country? Is there a study to assess the impact of Rn on the health of our population? Who will measure and who will control Rn and the consequences of Rn on health of the population in the future in our country? This is particularly emphasized as a result of the consequences for the health of hives by the use of depleted uranium for military purposes, or if "depleted uranium" is used as a "silent killer". Where's the exit? In a faster growth of knowledge and faster development of basic research. To all of the above questions, the answers must be given by a multidisciplinary etiology. This work was at least touched by the tip of the iceberg, where health problems arising from Rn, most often with fatal outcome, have been rolled back.

4. Treatment of contaminated air

In order to purify contaminated air from aerosols of high-toxic substances, the filtering agent contains fibrous aerosol filters (PA filters) and adsorption charge (activated carbon, silica gel, aluminogel, zeolites). Aerosol and particulate filters can have the following classes: low-efficiency, medium-efficient and highly efficient filters. Aerosol and gas filters can have the following classes: Low filters, medium filters and high capacity filters. Filtering protective agents include: - Respirators against particles: particle filter + faces; filtering particulate matter - Respirators against vapors and gases: filter against gases + faces; filtering faces against steam and gases. - Respirators against steam and gaseous particles: a combination of filter + faces; filtering faces against steam and gases.

Human respiratory protection filters provide: - high adsorption of highly toxic compounds, - low breathing resistance (which makes it easier to work), - performance of industrial and agricultural works, where toxic substances appear, - solid filter construction and earthquake resistance, - favorable conditions for storing and maintaining filters.

Of the above mentioned filter types (A, AH, B, E, K, CO, Hg, NO, P) properly selected, they fulfill favorable conditions of protection under conditions: when the composition of toxic compounds is known, when the concentration of O2 in KonA is greater than 16% , and the concentration of toxic compounds at most 0.5% vol, the content of particles in KonA up to 200 MDK.

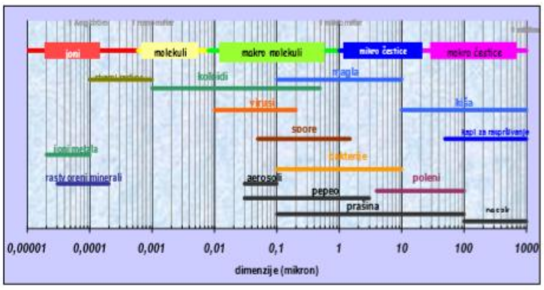

Figure 5. Types and dimensions of pollutants

The amount of toxic compounds that can be introduced into the body through respiratory organs with the use of a protective filter depends on: the amount of inhaled air (0.5 to 1.5 dm3 / breath), air humidity, temperature, concentration of the toxic compound, and the like. The aerosol filtering process consists of two stages (approaching the surface of the fiber and bonding to the fiber), where the role of adhesion caused by the dispersion effect of the interaction of molecular forces plays a significant role. The approaching of fiber particles can be due to diffusion (Braun's motion), direct particle adhesion to the fiber, inertia, precipitation, electrostatic action, and attraction of fiber particles by the action of Van DerVals forces. In practice it is difficult to notice the difference between certain types of aerosols (especially between dust and smoke), and the reason for this is the formation of airborne systems consisting of particles that are educated in different ways (dispersion, condensation). In addition, due to the direct interaction between the system particles themselves, the agglomeration process and the demolition of the agglomerated agglomerates, the size is constantly changing. Dust can be defined as a dispersed system consisting of fine and coarse solid particles with a diameter of 1 nm to 100 nm. The aerodynamic system is composed of solid particles, the size of which ranges from 0.1 to 5 µm. The magla is an aerodynamic particle system liquids floating in the gaseous phase, which were formed as a result of the condensation of over-saturated steam. Their size is less than 10 µm.

5. Sorption characteristics of protective filters

A large number of substances are extraordinarily contaminated on activated carbon. The most common way to use a filter for purifying contaminated air is in the form of a cylinder. A mixed method for the formation of sorption layers is proposed here in order to increase the utilization of filling. Active coal can be used to purify air that is contaminated with toxic vapors and gases. Purification is based on the principle of sorption. The term sorption includes adsorption and absorption as a whole. Materials that have developed porosity are used as good sorbents. One of the best sorbents is active coal. Active coal is filled with filters that need to perform the sorption of toxic substances from the air. The carbon atoms interact with covalent bonds, arranged in the plane in the form of hexagonal rings. The distance between the levels is higher than for graphite. The higher number of levels set one above the other forms the crystallite. Crystals of activated carbon differ in size from one another, they are not properly arranged to one another, and therefore a great heterogeneity of the surface occurs. Spaces between layers of activated carbon form depressions-pores of various sizes. The most severe classification of pores is on micro, transient and macropores. The micropores are the smallest and the diameter is below 15-16 · 10-10 m. A large number of microporous coals have micropore diameters in the interval 48 · 10-10 m. The size of these pores coincides with the size of the sorbing molecules. The surface of these breeds is 1000-2000 m2 per gram. The transverse pores are larger than micropores and have diameters up to 1000-2000 · 10-10 m. The area per gram is in the interval of 20-70 m2. Macro pores are the largest, and their surface is in the range of 0.5-2m2 per gram. Depending on whether pores and gases are sorbed by physical or chemical sorption (not), impregnation of activated carbon is carried out. We distinguish physical, hemorrhaging and catalytic sorption. Vapors and gases with air currents pass through the sorbent and are sorbed in a relatively thick layer. The layer in which the concentration of steam and gases decreases from the initial to the minimum value is the working layer. In order not to break the active charge, the height of the layer must be greater than the height of the working layer. After forming the working layer its value becomes constant and gradually moves equally rapidly to the last limit of active charge. When the working layer reaches the last limit, the concentration of steam and gases begins to grow.

Figure 6. Selection of personal respiratory protection devices

Sorption layers can provide a more homogeneous concentration front for each part separately, thanks to the mutual gas / vapor space, which significantly increases the degree of utilization of the available sorption layer. When replacing the used layer with a fresh layer (with the same amount of activated carbon), there is a significant increase in the utilization of the sorption capacity relative to the same height of the compact layer. Replacement of individual layers leads to considerable savings on activated carbon by achieving the same sorption capacity relative to the compact layer of activated carbon. A filter composed of compact layers provides much greater sorption capacity than conventional filters.

6. Conclusion

Starting from the fact that the area of environmental protection, from the position of modern understanding of this phenomenon, is one of the basic postulates of the national interest of the country, suggests that the only fundamental change in human relations towards the environment provides further progress of human society. In that sense, environmental education and education has a crucial role to play. The Environmental Education and Education Strategy should provide: the understanding that environmental education education lasts a lifetime, creates a sense of responsibility for the state of the environment, ranging from local self-government to the very top, to take appropriate legal measures, ensure all accurate and complete information, sustainable development, develops partnership of all relevant stakeholders and uses all available resources and explores the most optimal methods in education and environmental protection and applies them. The strategy of the national defense of security, as a comprehensive and lasting program in contemporary conditions, should provide the unique bases for engaging the intellectual, spiritual and material potentials of the state, with the cooperation and successful functioning of foreign and internal politics and security from all forms of armed and unarmed forms of threat. Reducing air pollution impossible is increasing the trend of energy consumption. It is not necessary to increase the share of energy that does not significantly affect the eco-system in the combustion process.

7. Literature

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GLOBAL INSTITUTIONAL ASPECTS OF CORPORATE SECURITY

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Abstract: *The paper discusses some aspects of corporate security, which are related to the effects of globalization and institutions. It proves that corporate security is permanently located in the field of action by two groups of significant factors: global, representing a multiplier of various risks and threats in all human activities, and institutional, which should represent a generator of a stable corporate environment. The focus is on the possibility of forming the negative effects of alternative institutions. The conclusion is that the dominant corporate security depends on the degree of its institutional foundation.*

Keywords: *Corporate security, corporate governance, globalization, institutions, business strategy*