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Ecological and economic challenges of modern society

The articles researches the topical issue of ecological and economic subject-matter, which quitted the global theoretical and practical issue in the early 70-s, when the world suffered the global oil crisis and the first signals were received about the catastrophic changes in the environment. The industrial community, having achieved the highest level of technological modernization is not able to regulate its relations with nature and approaches an inevitable degradation of natural and urbanized environment to the depletion of irrecoverable, first of all energy resources.

Keywords

Ecology, economics, society, world crisis, industrial community, technological modernization.

Екологічні і економічні виклики сучасної цивілізації

У статті досліджується актуальна проблема екологічної та економічної тематики, яка вийшла на рівень глобальної теоретичної і практичної проблеми на початку 70-х років, коли вибухнула світова нафтова криза і поступили перші сигнали про катастрофічні зміни, що відбуваються в довіклілі. Індустріальне суспільство, що досягло вершини технологічної модернізації, не здатне регулювати свої стосунки з природою і нестримно йде до деградації природного і урбанізованого середовища, до вичерпання непоновлюваних, передусім енергетичних, ресурсів.

Ключові слова

Екологія, економіка, цивілізація, світова криза, індустріальне суспільство, технологічна модернізація.

Problem definition. Ecological and economic issues quitted the global theoretical and practical issues in the early 70-s of XX century, when the world suffered the oil crisis and the first signals were received of the disastrous changes in the environment. The society started understanding that the industrial community, having achieved the highest level of technological modernization, is unable to regulate its relations with the nature and approaches an inevitable degradation of natural and urbanized environment to the depletion of irrecoverable, first of all energy resources. This understanding was mostly facilitated by the works of scholars of the Roman Club.

Overview of the scholarly researches and publications gives the grounds to state that global problems were growing, aggravating, and needed their solving. Almost all of them to certain extent were connected with the economic split of the world of capitalism, economic backwardness of the developing countries. In this sphere the works of the following foreign scholars are very fruitful: Z. Bzhezinski, L. Brown, F. Brodel, P. Gerst, R. Darrendorf, J. Derridah, S. Johnson, Sh. Dominic, M. Castells, U. Lazear, D. Medows, M. Mesarovich, D. Rodrik, J. Stiglitz, H. Thompson, S. Hoffman, and national scholars: O. Agarkov, E. Afonin, O. Belorus, V. Burdiak, R. Voitovich, S. Gavrish, I. Kresina, A. Kruglashov, Yu. Makar, Yu. Matseiko, Yu. Miroshnichenko, Yu. Pakhomov, V. Pevets, T. Perga, A. Plotnikov, I. Radzievsky, N. Rotar, V. Skuratovsky, Yu. Shemshuchenko.

The objective of article is the analysis of the content and essence of the deep controversial process of globalization, including the ecological and economic relations.

Basic material presentation. The well-known economist, antifascist A.A. Peccei, after the Second World War, for many years was living in Latin America, in 1957 he founded the Centre of Technical and Economic Consultations for the development of investment projects for 50 world states. In 1968 he united the group of scholars, economists and sociologists, at first only of the European continent

¹ Кандидат політичних наук, доцент кафедри політології та правознавства Луганського національного університету імені Тараса Шевченка, Україна, Email: l_novoskolceva@mail.ru

who called their group the Roman Club and set their objective to research the dangerous tendencies of the development of industrial civilization and warn the humanity of possible disasters threatening life on Earth. By the late 70-s the Roman Club united the scholars from already more than 40 world countries and consisted of 100 members having, according to Peccei, «the World view» and wishing to warn the humanity against complacency and tranquility into which the industrial civilization sank, having refused from many moral, ethical and spiritual values, and surrendered to the struggle for material welfare based on the unrestrained exploitation of natural resources. «At first we stated that something important in the human society goes wrong, that this situation has to be change. We wanted that based on the simple comparison between the world with the limited sizes and humanity which still struggles to grow quantitatively and also from the point of view of consumption and production the people understand the necessity of urgent changes. This comparison between the limited parameters of natural environments and the struggle to growth demonstrated by the human society was only the pretext, hopefully a good pretext, to make a «hole» in the human consciousness and then, with its help, fill it with more complex thoughts»².

The shock of the community of different countries caused by the scholars' predictions was followed by some skepticism with regard to the possibility and necessity of industrial progress slowdown. The relation to the industrial progress, as to the so-called untouchable «holy cow» meant the fetishization of the said process and in the form opposed by the scholars, having outlined the main threat to the humanity and all living creatures. Stability of the consciousness stereotypes and the industrial progress inertness made the scholars of the club recourse to more vivid and convincing ways of demonstrating their conclusions with the help of unsimplified mathematical models which contained huge amount of factors impossible to perceive holistically using ordinary perception. A. Peccei stated: «Frankly speaking we did not receive much support. Many told us: yes, you are right, but what if you slowdown the development of modern world. But we really wanted to slowdown some directions and tendencies, as we considered that they will lead to the serious aggravations and difficulties, that they bear different dangers, probably even disasters»³. One of the reports of the Roman Club stated that energy risk may become almost as dangerous for humanity as the atomic war. Author of one report Thierry de Montbrial viewed the possibility of overcoming of the energy crisis on the ways of atomic energy development, most of scholars rejected such approach. In the report «Energy: the countdown» the use of atomic energy for smoothing the consequences of energy crisis was considered as necessary only for some limited period – the closest 10-15 years with the simultaneous expansion of investigations for shifting to the alternative energy resources. Otherwise, the world, having soaked the cheap oil and being disappointed in its illusions about the resources inexhaustibility, «risks fooling itself with the other, much dangerous drug»⁴. Despite the fact that in United States, Western Europe, Japan it is believed that modern society may become an «atomic» society, it is not ready to this – socially, politically, psychologically, organizationally. If by virtue of the vital necessity we will be forced to become the «atomic» society, which will use the nuclear power plants as the energy resources, we are obliged, first of all to change the existing society as such. Changes in the society after 70-80-s of XX century are mostly negative: the social layering aggravates, the gap between the rich and the poor countries becomes larger, the religious and national antagonisms grow, enriched by the terrorism during the globalization epoch, distribution of the weapon of mass destruction, aggravation of the regional conflicts. But actually the choice in favor of «atomic» solution and delay in the development of alternative energy resource solar, wind, heat, generating temperatures difference in the ocean, energy using the galvanization method, etc. – may have the most negative consequences in the «post-oil» epoch. The calculations made by the scholars show that at the beginning of the present century the energy received from the atomic power plants, covers 10-15 % of general energy consumption of Earth, while the solar energy, at the unchanging paces of developments in the sphere – about 5 %. The stage of cheap energy has ended irrevocably, and the world entered a new phase where the energy will be expensive and not enough.

Global character by its scale and consequences acquired the problem of human population in XX century. In the researches the fast growth of the population was directly connected with the depletion

² Przeżył ale w lepszym stylu «Politica», 1979, № 5, s. 2.

³ Ibidem, s. 8.

⁴ Thierry de Montbrial, Какова роль энергетики, <http://www.svor.ru>

of natural resources, growth of the environmental pollution, poverty, and growth of the gaps in the socio-economic development of both rich and poor states, i.e. demographic problems in 70-80-s were usually considered against the background of the other global tendencies and specific conditions of different groups of countries and regions. The calculations were confirmed by the high paces of population growth and increase of absolute and relative growth indexes. According to the calculations of English demographer K. Dier, by the beginning of Christian Era the Earth population amounted to 160 mln and for the following nine centuries it just doubled – to 320 mln. By 1700 the world population amounted to 600 mln.⁵ According to the calculations of American biologist and sociologist P. Ehrlich, starting from XIII millennium BC and up till 1650 the Earth population doubled each 1500 years. However, the following doubling took place already in 200 years, i.e. by 1850. Further the growing rates became galloping. In 1850 over 1 bill. people resided on Earth, in 75 years – 2 billion, and in other 50 years (in 1975 г.) – 4 billion people. Later each decade gave the growth of 1 billion. About 9/10 of the population growth was accounted for by the developing countries and regions and only a little less 1/10 – by the industrially developed states⁶. The attempts to extrapolate these rates in future showed that approximately in 100 years the Earth population will exceed 30 billion. «Like the kangaroo which went furious, K. Dier writes, the world population makes the uninterrupted leaps, shorter and shorter with the time, but more and more breathtaking by their height»⁷. The issue of the optimal amount of population is connected, first of all, with the Earth resources and the ability of its population to provide the humanity with the food and more or less acceptable conditions for the satisfaction of reasonable human needs, including food, clothes, medical servicing, availability of education, living conditions, employment, recreation conditions, etc.

D. Medows, P. Ehrlich, L. Day, J. Pages, R. Shinn, S. Johnson, this is a group of scholars called «catastrophers», who built their dreams on the maximum acceptable population growth up to 8 billion, beyond which the natural resources depletion was predicted (crude minerals and water depletion within 60-100 years) and the environmental pollution causing the economic imbalance. The success of sci-tech revolution was assessed only as an ability to somewhat postpone, but not settle the problem⁸. According to L. Day, the problem is to choose between the amount and quality: will the huge amount of population live on a low level having only the most necessary things, or if the population is smaller but will have the higher life quality. As complex step it was suggested to reduce the birth rate and restrict the material production. During 60-s – beginning of 70-s of the previous century the well-known works were published: «Population bomb» (P. Ehrlich), «World dynamics» (J. Forrester), «The limits of growth» (D. Medows) – the first report to the Roman Club, etc., describing the scenarios of upcoming disasters. However, already in the second and fifth reports to the Roman Club these scenarios were softened based on the complex consideration of a large amount of factors and more specific calculations, with regard to which they allowed for higher population, considered different options as to different regions, and analyzed different meanings of quantitative and qualitative growth limits. It was suggested to take into account the so-called “internal growth boundaries”, conditioned by the socio-political factors. Actually such an approach was aimed at changing of the economic policy tolerating the unlimited growth of production and receipt of immediate income at all cost. More optimistic scenarios of the population growth, which appeared in the second half of 70-s, already tolerated the growth of Earth population up to 10-12 billion on condition of taking such steps as improvement of agricultural production, protection of natural environment, protection of nature, raw materials reuse, discovery and production of the substitutes of certain materials.

There appeared a small group of scholars who believed that in the second half of XXI century about 30 billion people will be able live comfortably on Earth, which, however, was opposed by most of the researchers. The objections caused not only the necessity and possibility of the growth of the

⁵ Population and vital statistics report: data available as of 1 Apr. 1998, N.Y.: UN, 1998, p.1.

⁶ Ibidem, p.4.

⁷ Ibidem, p.8.

⁸ Day L. Our irresponsible birthrate: The American fertility cult // Anayomies of America (Ed. by Ehrensaft Ph., Etzioni A.L.). – 1979. The limits to growth: A report for the Club of Rome project on the predicament of mankind. / D.H.Meadows, D.L.Meadows, J.Randers, W.Behrens, L.: Earth Island, 1972. Pages J., Le controle des naissances en France et à l'étranges: Thèse, P., 1971. Johnson S. Apopulation policy for Britain. – L.: Conservative central off., 1972. Shinn R.L., Population and dignity of man // Dimensions of the environmental crisis, N.Y., 1971.

necessary food, but by the inevitable change of the Earth landscape (correlation of forests, agricultural lands and pastures, destruction of many types of wild animals), impossibility of housing the population even on condition of exploration of the hard-to-reach spaces, increase of the load on the education systems, health protection, social security and political systems, which will hardly cope with the task to operate under the conditions of adequate constant dynamic changes to prevent the risks of social disruptions. Even the attitude to the population quantity as to the resource determining the economic development has changed. What is important is not the amount of population, but the population growth is not the pretext of economic growth and prosperity of nation, but its quality, level of educational and professional training. The population quantity played the role in the past, when the muscular human force was the most important resource of energy, when the consumption per capita was low, when the growth of the amount of residents on the low-populated territory facilitated the labor distribution and expansion of national markets. By the beginning of XXI century the population growth exceeds not as much the production, as the unemployment, increases the expenses on the social needs, facilitates the growth of criminality, violence, aggressiveness. «Stabilization of the population amount was underlined by American demographer L. Taylor, - this is a vivid condition of further existence of civilized society. With regard to this the reduction of childbirth did not cause much concern in the developed countries»⁹.

Real problems were constituted by the growth of the amount of migrants into the developed countries and increase of the childbirth in this population environment. In Germany this was considered as a threat to the German nation, and in Great Britain – as the increase of country's dependence upon the import of raw materials and food, aggravation of the natural resources issue, the complication of the social problems. The USA was close to the motto of the «zero population growth» inside the country. The childbirth exceeded all the West-European countries, and the death index was lower than in the overwhelming majority of the West-European countries. Large investigations of census and the selective investigations in a number of states took the socio-economic structure as the childbirth determinants as well as the level of the population life, and more specifically – the level of industrialization, urbanization, the level of women's economic activity, development of the system of education, health protection and other social institutes. Despite the discovered dependence of population upon these indexes, there appeared the necessity to consider the problem against the wider socio-economic background and with regard to the religious, historical and ethnographic peculiarities of each country. However, there was a big temptation to reduce all diversity of reasons to one or several factors explaining the dynamics of population growth and growth of the childbirth in particular. This is how there appeared a theory of “demographic shifting” and its essence was as follows. All countries, despite their social system, undergo certain stages of demographic development. The proponents of this theory outline three, the other – four main stages. Four stages of demographic development correspond to agrarian, early industrial, industrial and developed industrial societies. With the three-stage approach according to Frejka¹⁰, the first stages, comprising approximately 650-1700, when the levels of childbirth and death were both high, i.e. their well-known balance. The population growth at this stage is quite slow and amounts to about 0,002 % per annum – thousand times less than modern rates of growth. On the second stage the death rate is reduced due to the successes of medicine, development of agriculture and improvement of the food situation. The childbirth rates are still high, which leads to the fast natural growth. The third stage corresponds to the developed industrial society, and is characterized by the progress in science and technology, growth of the level of life and essential reduction of childbirth, as well as further reduction of death rates. As a result certain correspondence between the childbirth and death rates is established. And the population growth rates essentially reduce or approach zero. In the developed countries which passed all stages of demographic evolution, the duration of the last cycle depends upon the period necessary for leveling of the childbirth and mortality indexes by the low level.

The problem of population ageing quitted the limits of demographic shifts in the developed countries. There are several reasons to this. Among them the achievements of medical science in the sphere of both invention of efficient medicines and development of medical equipment, and giving the emer-

⁹ Globalcommunity: newssystemofcoordinates, SP(b): Aleteya, 2000, p.88.

¹⁰ T.Frejka, “The role of contemporary child bearing postponement and recuperation in shaping period fertility trends.” Comparative Population Studies – Zeitschrift für Bevölkerungswissenschaft, 2012.

gency medical care, improvement of the social security of pensioners and other factors connected to the living conditions improvement. The childbirth reduction during those years also led to the reduction of children's relative importance and increase of relative importance of the elderly people born during the years of the higher levels of childbirth. Along with the reduction of childbirth and population ageing in the developed countries of Europe and North America during the last third of XX century the third tendency appeared – the instability of family and marriage relations and modification of marriage institution towards the forms diversification. Ch. Shaffer noted that the marriage institution suffers the period of changes and no one knows what this will lead to. The reasons for the marriage crisis are relative economic independence of women, liberalization of views of inter-gender relation forms. All these reasons are based on the prosperity of the cults of individualism and anti-institutionalism reflected also in the refuse from marriage legalization. The interpretation of family and marriage as an outdated social institute which is in its run-down widely penetrated the consciousness through movies, television, literature. Professor U. Lazear showed that the increase of the amount of singles and divorced is quite favorable for business as for the private entrepreneurship more perspective and wider market is created; the needs for the development of the universal shops network, workshops, production of semi-finished goods, weekend stores grow. It should be acknowledged that the crisis of family as a primary cell of the social organization is of course a serious challenge to the society, based on the morale of individualism and consumerism¹¹.

Since the early 80-s of XX century the food crisis started developing rapidly which resulted in the reduction of food reserves, growth of prices, aggravation of competition between the states for the food stock resources, as well as reduction of aid to the developing countries. Food and Agriculture Organization of the United Nations (FAO) published the information that in the mid 70-s 400-550 million people suffered from the lack of food, out of which 95 % were the developing countries, hundreds millions of people did not have enough food. The predictions of FAO stated the increase of starving to 800-900 million in 1985 and by 2010 – to 1.5 billion of the Earth population. In order to prevent this and to provide the growing population with food, the growth of the agricultural products should amount to 3.6 % per annum, and the population growth should not exceed 2.1 % per annum. This would require additional introduction of 20 % more from the ones used in the developing countries and additionally irrigating 25 % more of the irrigated. FAO had to admit that this is impossible to achieve¹².

Pestel and Mesarovic who headed the preparation of the second report of the Roman Club, chose one from five options suggested, which, to their point of view, was the most acceptable and real¹³. It considered a number of steps to extend the food problem, among which – conducting of the «energetic demographic policy», necessity of investments into the agriculture of the third world countries on the part of industrially developed countries, development of the export branches from the developing countries. Among the suggestions of the other authors – re-distribution of capital investments inside the developing countries in favor of agriculture, overcoming of the “narrowly-nationalistic approach” in the trading of food of the industrially developed countries, reconsideration of the world prices to the food. Understanding the difficulties in realization of such suggestions, O. Natske, former director of OAF World Commodity Funds, stated that the developing countries are in a virtuous circle: the population's purchasing capacity is low due to unemployment, but the working positions are created in the process of economic growth, and the latter is impossible under the conditions of absence of funds.¹⁴

Conclusions and perspectives of further researches. To solve the industrial problem there appeared a necessity of a wide complex of steps on the international and national levels. The skepticism towards the possibility of redistribution mechanisms operation is more and more manifested as well as their limited impact under the condition of growing gaps in the rates of economic development between the rich and poor countries, and, correspondingly, the possibility of reconsideration of the world price policy, determined by the market dynamics of demand and supply. The most important global

¹¹ Population Newsletter. U.N. Secretariat. Population Division, N.Y., December, 1996, № 62, p.3.

¹² UN International Development Strategy *passed by the resolution 35/56 of the General Assembly dated 5.12.1980* z. http://www.un.org/ru/documents/decl_conv/conventions/dev_strategy_ch1.shtml

¹³ M. Mesarovic, E. Pestel, *Mankind at the Turning Point: The Second Report to the Club of Rome*, New-York: E. P. Dutton and Co. Inc., 1974.

¹⁴ The state of food and agriculture, 1977: World review // Rome, 1978 (FAO agriculture rer.). Food and agriculture organization of the UN; № 8.

problems came to include the necessity of common overcome of the developing countries' backwardness, closely connected to the problem of population growth and provision with food. Despite the fact that falling behind the developed countries of colonies and dependant states existed long ago, its global aspect is obvious after the relative importance of the developing states in the world economy and in the world capitalist economy somewhat increased in the key indexes, the difference between the key indexes of developed and developing countries continues growing.

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