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FACTORS OF SUSTAINABLE DEVELOPMENT OF THE AGRO-ECONOMIC SYSTEM

Reserves and factors which ensure stabilization and subsequent sustainable development of agro economic system are analyzed. The priority direction of sustainable development policy of agro-economic system, which is based on five interconnected components, based on the use of economic tools of nature-conservation activity of agricultural tenant farmer stimulation is emphasized.

Keywords: sustainable development, agro-economic system, environment, agricultural land, rural territories.

Sustainable development of the system in the conditions of formation of marketing relations is one of the basic requirements of successful reforming and functioning of multistructure economy. In most cases sustainable development means development when material and spiritual needs of present time are satisfied, and possibility of the future generations to satisfy the demands is not threatened. Thus "sustainable development strategy" is understood as a harmony achievement between individuals on the one hand, and between nature and society on the other hand. The survival and the subsequent sustainable development of the system essentially depends on the fact how territories can conduct an economy in a new way, saving up nature and owning resources as much as possible; to use savings and high technologies, to receive high economic results at the limited natural resources.

World social and economic practice shows that destabilization inevitably accompanies any community at a transitive stage. However, each community has reserves and factors providing stabilization and the subsequent sustainable development of the system, and their realization can be operated (fig. 1).

In many works of the Russian scientists the macroeconomic factors influencing destabilization of different territories are analyzed, problems of weak-developed, depressive and problem regions are researched; measures on alignment of distinctions in a condition of their sociolabor sphere are developed. Emphasis is made on the problems of stagnation and destabilization of rural areas. As a result studying of reserves and factors of a sustainable development of rural territories as the major element of the social and economic organization of Russian agrarian sphere often remains behind the frameworks of scientific research.

Absence of sustainable transition to new conditions of rural territories population's vital activity is expressed in the fact that the essential part of their inhabitants, possessing high social and economic qualities, does not show labour activity and mobility, and many of them are at a loss to find a worthy place for themselves in sharply changed multistructure agrarian economy on the stage of its reforming. It follows in reduction of labour potential sources of rural territories of different levels and progressing development of such socially-negative phenomena as chronic unemployment, poverty, birth rate decrease, increase of indicators of abnormal and illegal behaviour, suicides, social contradictions and conflicts. In turn, the specified socially-negative phenomena sharply reduce life quality in the village and the personal factor of agrarian manufacture, brake social and economic development of the main productive forces of rural territories, block formation of their sustainable development.

Presence of preconditions of a sustainable development of the agro economic system depends on developing conditions of rural industrial manufacture which promote to

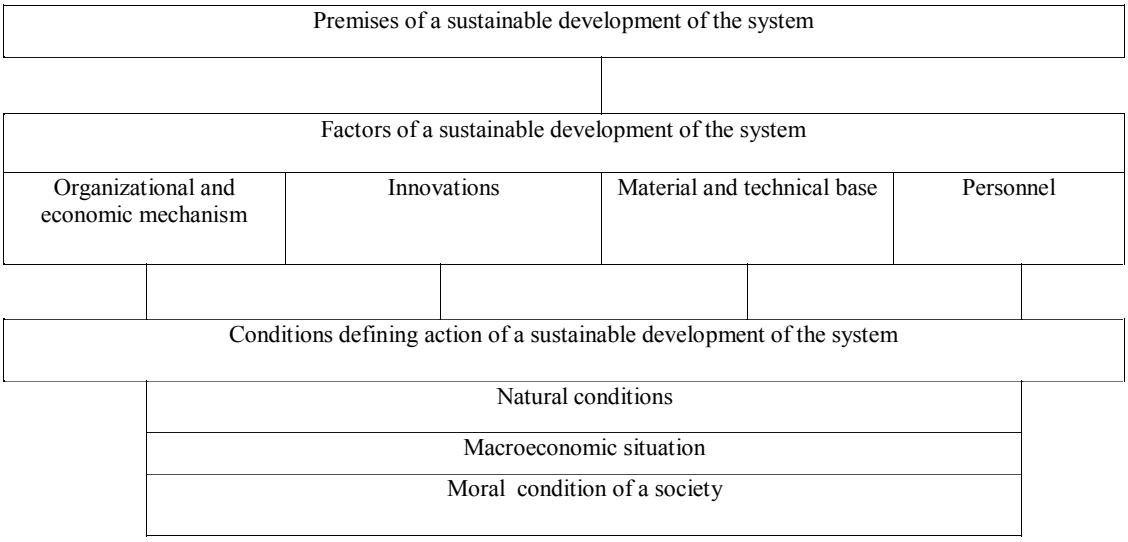

Fig. 1. Preconditions and factors of a sustainable development of the system

performance of its problems. These preconditions may be subdivided into three groups: those which are not depended upon mass regulation; those which are partially regulated by means of these or that factors; those which are completely dependent on accepted measures on agriculture development and the accomplished agrarian policy.

The first group consists of the conditions developing under the influence of nature and climatic factors not subjected to the man's concern: land supply, quantity of precipitations, length of the vegetative period. Their influence at a modern level of science and technology development cannot be eliminated in more or less significant scales though it can be weakened in a certain measure. The second group includes conditions which are formed by simultaneous influence of natural and economic factors, but can be regulated to some extent: soil fertility, structure of plots, labor supply. The third group includes the conditions developing as a result of realization of certain measures on agriculture development: material and technical resources supply, solvency of manufacturers of the agricultural goods, personnel qualification, possibilities of innovative development, functioning of the food market.

According to the nature of each of these conditions groups, differentiated approach is necessary in consideration and use as preconditions of a sustainable development of the agro economic system. If conditions of the first group is a reality which is perceived as it is, then according to the conditions of the third and partially the second groups we can speak about creation of corresponding preconditions of maintenance of a sustainable development of the agro economic system. Preconditions become factors of a sustainable development of the agro economic system in such an extent as qualitative and quantitative change of initial conditions.

The actions providing use of factors and their activation form ways of a sustainable development of the agro economic system. The organizational and economic mechanism, innovations, material base as factors of development of the agro economic system would function more successfully the fuller peculiarities of natural features of rural industrial manufacture will be considered and reflected, namely: supply of preservation and increase of soil fertility, increase of drought resistance of agricultural crops, struggle against soil rehumidifying. Academician V. V. Miloserdov underlines, that "another mechanism of interaction of science, agriculture and government is essentially necessary. There is a necessity of organizational and methodical reorganization of the institutes and the Russian agricultural academy as a whole. Today scientists-economists should pass to a new stage of scientific research and introduction of the results in manufacture – on designing with all its attributes: project working out, its binding to nature and economic conditions, delivery "on a turn-key basis", "scientific support" [1].

Growth of productive forces of the agriculture, occurring on the basis of scientific and technical progress, includes increase of soil fertility, biological potential of efficiency of plants and animals; labour productivity, change of its character by manual skills replacement with the mechanized one; growth of material elements by expansion of scales of application and qualitative perfection of means of production (fig. 2).

It is considered historically that the land is one of the major elements of productive forces. Before recent time there was a unique approach to use the land for the agricultural purpose. It was based on the fact that "from the point of view of modern science achievements, receiving of production from a unit of the agricultural area is in several times more than the reached average indexes" [2]. Growth of fertility of soil and crop capacity as a result of scientific and technical progress included as the basic links optimum for each agricultural zone is the following: ways of soil processing, complex use of fertilizers, crop rotations, protection of plants, land reclamation. Along with this approach, studying of world experience shows, that agriculture entered a phase of transition from the period of constant growth of manufacture to the period of the ecological restrictions caused by necessity of preservation of sustainable rural economic systems. According to M. Minasov, "economic mechanism of a sustainable development of agrarian and industrial complex is the mechanism providing synchronism of interaction of participants of manufacture with nature, biosystem action, system of risks, including nature and meteorological. It is possible on this basis to make a conclusion that increase of stability of agriculture is one of the directions of growth efficiency of agricultural production and the branches of processing industry connected with it" [3]. In a variety of definitions of a concept "sustainable development" of agro economic system the position of the European Union which is supported in WTO is the most comprehensible for Russia. According to this position, agriculture sustainable development should be considered as the multifunction system which purposes are not only commodity output manufacture, but also the decision of ecological, economic and also social problems of each concrete region.

Strategic aims of the agro economic system development should promote to full use of farmlands. That means delivering as a property to the subjects of Federation unused shares and reserve funds of redistribution of the land, to realize the priority right of state acquisition of the areas subjected to sale, provided by the current legislation. Their inclusions in authorized capital that will allow increasing the sum of own means of the organization, can be a result of land receipt estimated in a monetary estimation, and it can be more attractive to investors. It is necessary to notice, that for the present stage of development of the agro economic system the main thing consists not in change of patterns of ownership, but in perfection of the organization of manufacture, creation of more favorable development conditions.

Direct economic regulators in the given area are rent payments (the ground tax and a rent), grants for manufacture ecologically clean production, compensatory payments on compensation of ecological expenses, penalties for infringement of the ecological legislation, insurance of ecological risks, grants, capital investments. There are also indirect economic regulators created by the market, such as increase of normative (and, as consequence, market) prices of the ground area at the expense of a favorable ecological component, or an additional profit received for the account of increase of the prices for ecologically clean agricultural products, from the sale of collateral production (for example,

wood, berries, mushrooms extracted in afforestations on farmlands) or increase of efficiency of farmlands owing to stabilizing influence of especially protected natural territories, for example.

For the 1st of January, 2008, the area of the land of agricultural purpose was 39,865.9 thousand hectares in Krasnoyarsk region. The area of this category in comparison with the previous year increased by 31,254.1 thousand hectares at the expense of association of Krasnoyarsk region with northern territories.

Comparative distribution of the land of agricultural purpose involved in an agricultural turn, for the period of 2006–2007, and also changes for 2007 are given in table 1. The areas of the plots in the structure of the lands for agricultural purpose occupy 4,924.6 thousand hectares or 12.4 %. Only part of agricultural lands – 4,556.1 thousand hectares or 11.4 % from a total area of the occupied land for agricultural purpose is involved in an agricultural turn, 368,5 thousand hectares are in redistribution fund and are not used at present. In the structure of agricultural lands the arable land occupies 60.1 % (in 2006 – 57.8 %), deposits – 2.5 % (in 2006 – 2.6 %), long-term plantings – 0.5 % (in 2006 – 0.7 %), haymakings – 13.6 % (in 2006 – 14.4 %), the area of pastures – 23.3 % (in 2006 – 24.5 %).

The area of non-agricultural lands in the structure of the lands for agricultural purpose is 34,941.3 thousand hectares. These are lands under buildings, constructions, farm boundary roads, woods which are not in the wood fund, closed water reservoirs, and also areas intended for service of an agricultural production. In 2007 tundra vegetation areas, not included into other areas in the territories of Tajmyrsky Dolgano-Nenets and Evenki municipal areas appeared in the given category. They are used by the small natives of the North for rearing of deer, hunting and fishing.

The areas of agricultural lands in 2007 increased by 55.0 thousand hectares. During 2007 increase of the total area of fund of redistribution on 25,131.7 thousand hectares occurred as a result of the region unification (24,451.1 thousand hectares), transfer of the lands of agricultural enterprises and citizens' refusal from using and renting of the ground areas (680.6 thousand hectares), that as a whole on redistribution fund makes 25,682.2 thousand hectares or 64.4 % from a total area of the lands for agricultural purpose.

For the 1st of January, 2008, in Krasnoyarsk region, the disturbed lands, basically among the industry ones, in number of 16,540 hectares have 249 managing subjects (the enterprises, the organizations, private businessmen) on the territory of 39 areas and 7 cities of the region. In 6 areas of the region there are 245 hectares of the disturbed lands. In Tajmyrsky Dolgano-Nenets municipal area there are 183 hectares of the earlier disturbed lands which belonging is not established documentary. In the branches of economic

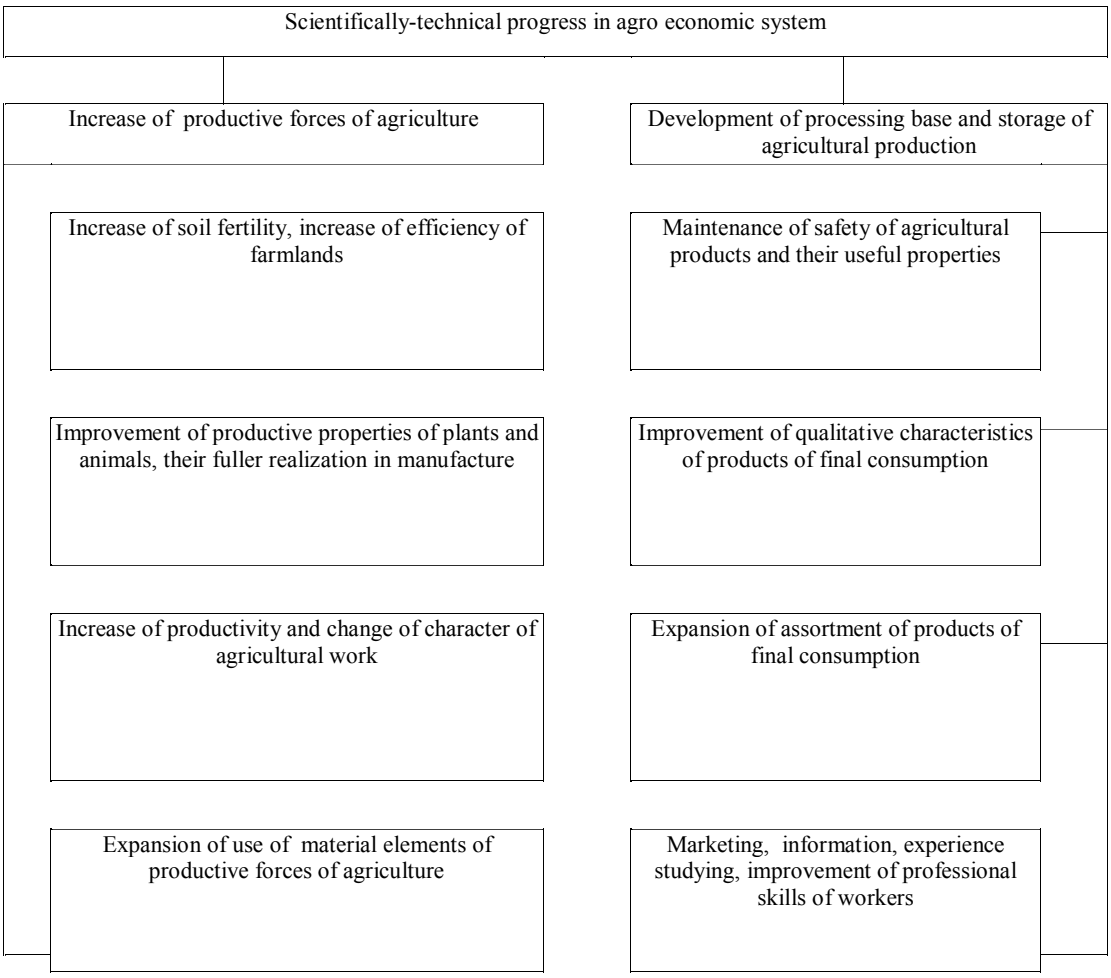

Fig. 2. Directions of scientific and technical progress in agro economic system

activities the greatest areas of the disturbed lands are 12,546 hectares or 75.6 % from their total quantity in the region "fall" to the enterprises of gold mining (6,073 hectares), coal industry (4,710 hectares), black and nonferrous metallurgy (1,763 hectares).

During 1991–2007 as a result of economic activities 23,469 hectares of the lands were disturbed. During the same period 21,717 hectares of the disturbed lands are fulfilled, recultivation of the area of 20,465 hectares was made (tab. 2) among which 1,409 hectares or 6.9 % of arable lands from total of the restored lands, other agricultural grounds – 2,034 hectares (9.9 %), wood plantings of 15,730 hectares (76,9 %), water reservoirs and on other purposes of 1,292 hectares (6.3 %).

In 2007 works with infringement of a soil cover of 260 hectares were done on the territory of the region. At the expense of specifications the area of the distributed lands increased by 1,169 hectares. Among them: nonferrous metallurgy – 285 hectares, coal industry – 44 hectares, gas industry – 59 hectares, geological prospecting – 576 hectares, buildings of highways – 2 hectares, other branches – 20 hectares, and also at the expense of the areas with unknown ownership – 183 hectares. At the expense of specifications the area of the distributed lands on electric power industry branches (75 hectares) and agriculture (56 hectares) decreased on 131 hectares.

In 2007 the enterprises recultivated 255 hectares of the disturbed lands from which an arable land is 11 hectares that makes 4.3 % of total recultivated lands, pastures and hay makings – 44 hectares (17.3 %), wood plantings – 176 hectares (69.0 %), industrial building, reservoirs and other purposes – 24 hectares (9.4 %). It was removed and stored 421,000 m^3 of fertile soil layer.

As a whole over the region in 2007 the area of the distributed lands increased by 1,298 hectares from which 1,137 hectares (676 hectares and 461 hectares accordingly) were on a share of Tajmyrsky Dolgano-Nenets and Evenki municipal areas.

Soil as the environment factor, can be a source of secondary pollution of underground waters, atmospheric air, agricultural production. Pollution and the subsequent destruction of soils are caused either a local influence of a source on soil, or atmospheric carrying of toxin in an aerosol phase. Chemical pollution is accumulated in soil, as well as pathogenic micro flora and helmints' eggs that creates danger for people's health.

Soil pollution on the territory of Krasnoyarsk region in comparison with indicators across the Russian Federation remains stably high. The results of laboratory researches spent by establishments of Gossanepidnadzor during 2000–2007 testify to stably high chemical pollution of soil in the of industrial buildings and road junctions (tab. 3).

The situation with pollution of soil of inhabited territories of the occupied places of Krasnoyarsk region is characterized as unsuccessful. According to microbiological indicators there is a decrease in a share of unsatisfactory tests from 25.5 % in 2004 to 9.8 % in 2007. Epidemiological situation on parasitic pollution of soil of inhabited territories is characterized as stably satisfactory; the share of positive findings during 2004–2007 did not exceed 2.8 %.

Selective researches of soil tests done on the territory of Krasnoyarsk region testify to presence of the centres of chemical pollution (tab. 4). On the separate territories of Krasnoyarsk region specific gravity of soil tests of inhabited territories not meeting sanitary norms in 2007 was: in Minusinsk area – 71.4 % (in 2006 – 40.0 %), in Krasnoyarsk – 61.5 % (in 2006 – 65.0 %), Norilsk – 12.3 % (in 2006 – 83.0 %), Lesosibirsk – 5.0 % (in 2006– 31 %).

The basic contribution (to 99.0 %) in total pollution of soil in Krasnoyarsk bring arsenic and benzapiren, excess of fluorine is emphasized. In Norilsk the raised concentrationof nickel, cobalt, lead and copper in soil is marked. In Achinsk – maximum concentration exceed nickel, arsenic, copper.

During the last years a level of microbic pollution of soils in Krasnoyarsk region is high. The reasons is absence of the general regional and territorial programs directed on reduction of production wastes and consumption, maintenance of the rational organization of systems of gathering, recycling and destruction of firm and liquid household waste, absence of the centralized system of the water drain in a number of residential areas of cities and rural settlements, presence of

Table 1

Distribution of the land of agricultural purpose in 2006–2007

The name of land (thousand hectares)	Years		Divergence
	2006	2007	
Total area, including:	8,611.8	39,865.9	+31,254.1
Agricultural lands, among them:	4,910,1	4,924,6	14,5
Arable land	2,958.3	2,958.2	–0.1
Deposit	125.3	125.0	–0.3
Long-term plantings	26,1	26.1	0
Haymakings	664.2	669.6	+5.4
Pastures	1,136.2	1,145.7	+9.5
Wood lands	2,797.4	3,656.0	+858.6
Wood and shrub vegetation	177.7	2,741.3	+2,563.6
Under water	37.6	2,985.6	+2,948.0
Building areas	23.3	24.1	0.8
Under roads	40.5	40,5	0
Bogs	130.0	7,031.6	+6,901.6
Disturbed lands	0.7	0.9	0.2
Other lands	494.3	18,461.3	+17,966.8

not authorized dumps of production wastes and consumption.

Hence, the priority direction of a policy of a sustainable development of agroeconomic system should be based on five interconnected components:

– economic regulation – use of economic tools (taxes, grants, indemnifications) stimulations of nature protection activity of agricultural land users;

– ecological education – development of ecological values among population and involving of countrymen in decision-making process;

– technique and technological policy – working out of ecological specifications and technologies, technical maintenance of nature protection activity of agricultural commodity producers;

– ecological monitoring – control over a condition of all natural components, including ground resources;

– legal and organizational state maintenance of ecological activity of the subjects of agricultural relations.

The combination of measures of state regulation and wildlife management market mechanisms in the agro economic systems should follow the principle: "disturbance of nature protection requirements conducts to reduction of profit of land users". Provision of economic incentives of nature protection actions in agrarian sphere provides two ways at present: either budgetary funds are directly allocated for it (as a rule, through federal and regional target programs) which source are payments for using the land and penalties for infringement of the ground legislation; or at the expense of the budget, losses are fully or partially compensated to proprietors of the lands caused by decrease of their incomes by transferring the lands under the state and municipal afforestations or other nature protection objects, and also expenses for use and protection of the lands are compensated.

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Table 2

Dynamics of the distributed and recultivated lands in 1992–2007

Year	Distributed, hectares	Fulfilled, hectares	Recultivated, hectares
1992	2,928 1112	1,112	1,138
1993	1,621	614	1,896
1994	1,364	1,570	1,671
1995	1,796	1,853	1,856
1996	1,493	988	1,041
1997	1,047	1,963	1,197
1998	679	950	967
1999	471	463	682
2000	621	2 538	2,305
2001	830	1,011	701
2002	1,184	1,390	1,118
2003	1,226	1,098	1,782
2004	1,226	1,241	724
2005	1,195	887	824
2006	2,484	1,031	1,072
2007	1,298	907	255
Total	23,469	21,717	20,465

Table 3

Results of researches of soil in the zone of influence of industrial enterprises and road junctions in Krasnoyarsk region in 2000–2007

Indicator	Share of the tests which are not meeting sanitary requirements, on years, %							
	2000	2001	2002	2003	2004	2005	2006	2007
Sanitary-chemical	42.9	19.4	79.5	53.3	50.0	75.0	38.0	23.8

Table 4

Results of soil research of inhabited territories of Krasnoyarsk region

Name	Share of soil tests which are not meeting hygienic specifications, %			
	2004	2005	2006	2007
Krasnoyarsk Region				
Sanitary-chemical	45.5	51.5	35	16.9
Microbal	25.5	22.9	13	9.8
Parasitic	2.8	2.3	0,8	2.6
The Russian Federation				
Sanitary-chemical	11.4	10.4	8.6	n/d
Microbal	16.3	15	14.2	n/d
Parasitic	2.6	2.4	2.1	n/d

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EVALUATION METHODS OF THE EFFECTIVENESS OF HUMAN CAPITAL USE IN THE ORGANIZATION

The use efficiency of organizational human capital is considered as a background of organizational added value implementation. The most known methods of the use effectiveness of human capital are discussed and analyzed.

Keywords: human capital, intellectual workers, use efficiency, evaluation methods.

Functioning of the modern organizations takes place in the conditions of global financial and economic crisis and is characterized, as a rule, by negative results. However, the modern business environment represents not only the crisis moment, but also a real possibility for organizations to reach the next stage of development. For this purpose, it is necessary to concider the financial crisis as a chance to reconstruct the control system and to create the effective mechanism, capable to make complicated administrative decisions in any conditions. A basis of the organization development is the company personnel, or the human capital. Investments into the human capital, capable to develop new technologies, methods of work and to transform them into an attractive commercial product, are admitted by leading world corporations and scientists to be the most favorable ones to increase the enterprise competitiveness. The market success more and more depend on business orientation for the client, the unique commercial offer, but in particular on the efficiency of the organization personnel use that demands adequate methods of human capital evaluation that is poor studied. The present article is dedicated to the problem consideration.

Nowadays the human capital is understood as a body of knowledge, practical skills and creative abilities of the company employees, directed to perform current tasks. The other components are moral values of the company, workmanship and general approach to business. Today the human capital value is defined by the fact that technical, technological and financial possibilities of the enterprises and the countries cannot be a competitive advantage any more. There are not any serious restrictions in purchasing the technologies or capital formation. The main restriction of any business now is a human resource; therefore, it requires constant development, control and creating conditions for effective use. The role of the human factor increases because of the increasing share of branches and scope of action based on a high skilled labor: the fast-growing high technology sector of the industry, the service sphere, which share growth became an appreciable branch shift in the modern economy, including the domestic one. Besides, the increase of interest to the human capital is connected with the transition of many countries to the new type of economy – the economy based on knowledge.

In the conditions of economy of knowledge, traditional management methods do not always show the efficiency. There is a necessity to consider the new manufacture factor – the intellectual capital embodied in the organization personnel or in intellectual employees. The value of intellectual employees in a modern organization is defined by:

– they are a considerable share of the personnel;

– they create competitiveness of the organization;

– they are a key source of development.

Inapplicability of traditional management methods and the necessity of their updating is connected with the intellectual employee's characteristics:

– handling the information and knowledge in work and the ability of their processing into finished products, new knowledge;

– independence of professional activity from the means and conditions of production;

– personal identification more with the profession than with the particular organization or workplace;

– poor working control because of selling the results of the intellectual activity to the employer whereas the achievement process is hidden;

– in many aspects differs by uncertainty and simultaneously supposes various variants of problem solving;

– considerable social mobility;