

Ecological Modernization of Manufacture as Development Instrument of Investment Attractiveness of Enterprises and Regions

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Abstract: The problem of high deterioration rate of capital assets is identified; necessity of their ecology-oriented renovation in the context of regional infrastructure development and decreasing of technogenic risks for nature and people is founded. Social-economic effects of manufacture colorization on the micro-and meza-level. Ecological modernization of manufacture is presented as an instrument, providing development of investment attractiveness of manufacturing enterprises and regions.

Key words: Development, ecological renovation • Capital assets • Manufacture • Regions • Enterprises • Investments • Colorization • Preferences • Facilities

INTRODUCTION

Nowadays investment processes are characterized by a range of negative tendencies in Russia in whole, in many regions decreasing of investment growth rate exists, sectoral and technological structure of investments become worse, deterioration rate of capital assets rises.

Production capacities in the basic sectors of economy are essentially worn out and need rapid replacement and modernization [1].

Analysis of the data of wear, replacement and retirement of capital assets (Table 1) show that in spite of advanced growth rate of renovation coefficient over capital assets retirement coefficient, their wear increases and remains rather high-about 50%. The most significant growth is shown by the wear of machines, equipment and means of transport and the specific weight of investment for their renovation decreases (in 2012 in compare with 2005 it has dropped 4, 8%) (Table 2) [2].

High deterioration rate of capital assets not only restrains manufacturing growth and negatively reflects competitiveness of the domestic enterprises and economy in whole, but also is a factor of technogenic risks for ecosystems and people.

In this regard, the process of technological renovation of manufacturing enterprises demands a benchmark for colorization.

Colorization of manufacture, as process, aimed at increasing of technogenic threats for nature and people, is based on integration of technical, technological and economic decisions, in result of realization of which positive ecological, economic, social effects are achieved both within an industrial enterprise alone and in the scale of a region, on the territory of which it is allocated (Table 3).

Most significant ecological-economic effects are achieved by using waste less technologies, what is expressed, first of all, in reduction of consuming (extracting) of resources and necessity of the further manufacture wastes treatment (utilization).

Manufacture colorization demands investments of significant finance resources, what not every industrial enterprise can do and that is why the process of ecological modernization should be based on uniting of state and corporate resources, creation of economic stimuli, what will allow providing efficiency of this process realization on every of its stages (Table 4).

From the point of view of regional development, ecological modernization is catalyzing process of the economic development, expanding infrastructure by creation of process complexes, establishing new modern enterprises for producing (technical service) of ecological equipment and ecological products, encouraging development of ecological entrepreneurship: ecological audit, treatment of the industrial and domestic wastes, etc. (Fig. 1).

Table 1: Wear, retirement and renovation of capital assets in Russia*

Indicators	2005	2006	2007	2008	2009	2010	2011	2012
Wear-out coefficient (at the end of the year: in %%)	45,2	46,3	46,2	45,3	48,8	47,1	47,9	48,6
Renovation coefficient (putting of capital assets into operation in % of total cost of capital assets at the end of the year)	3,0	3,3	4,0	4,4	4,1	3,7	4,6	3,9
Retirement coefficient	1,1	1,0	1,0	1,0	1,0	0,8	0,8	0,7

*) The table is based on the data of annual statistic report by Ross tat 'Russia in figures 2013'/National Wealth

Table 2: Structure of investment into capital assets (in % to the total)*

Investment into capital assets	2005	2006	2007	2008	2009	2010	2011	2012
Total	100	100	100	100	100	100	100	100
Incl. according the types of capital assets:								
Lodgment	12,0	11,8	13,0	13,6	15,3	12,2	12,7	15,2
Buildings (except habitable) and installations	40,4	40,9	41,7	42,6	45,5	43,3	43,3	42,6
Machines, equipment and transport facilities	41,1	40,5	38,9	37,7	33,1	37,9	37,9	36,3
Others	6,5	6,8	6,4	6,1	6,1	6,6	6,1	5,9

*) The table is based on the data of annual statistic report by Ross tat 'Russia in figures 2013'/National Wealth.

Table 3: Effects of manufacture colorization

Contents and indicators		
Type of the effect	Ontheenterprise level	On the regional level
Ecological	Increasing of negative influence on the health of the staff, used for manufacturing Indicators of noise level, electromagnetic radiation, illumination, vibration, etc.	Reproduction of natural resources, decrease of ruinous influence of the manufacture on the environment and risks of technogenic catastrophes: indicators of extent of harmful influence on biosphere (poisonous waste emission volume).
Economic	Indicators consider in value terms all types of results and cost of manufacture, stipulated by ecological modernization of manufacture. Formation of positive imageas a competitiveness factor.	Expanding of economic infrastructure of the region on the basis of process industry development, allied industries development, market of ecological products and services, etc.
Social	Improving of labor conditions and providing of its security	Decrease of rate of ecological etiology disease, increase of life longitude of industrial zones population, birth rate growth.

Table 4: Stages of realization of ecological modernization of manufacture

Stages of ecological modernization of manufacture	Ontheenterprise level	On the regional level
1. Monitoring of working and surrounding environment.	Monitoring of problem zones in order to detect especially harmful manufacturing objects	Detecting of most harmful manufacturing processes
2. Working out programs (projects) on colorization of manufacture.	Working out regional program on stimulating of ecological modernization of industrial enterprises, forming of process manufactures, complexes.	Working out measures on introduction of waste less technologies of manufacture, new manufacturing cycles on the basis of waste processing.
3. Choice of project financing sources	Budgetary funds, investments of industrial enterprises, funds of institutional investors.	Own funds of enterprises, credits, funds of exterior investors, state support (tax preferences).
4. Realization of ecology-oriented programs (projects).	Legislative consolidation of tax, administrative and other preferences; provision of actual information about opportunities of manufacture ecologization; parcellation for building of process manufactures, etc.	Realization of measures on introduction of waste less technologies of manufacture, new manufacturing cycles on the basis of waste processing.
5. Monitoring of project realization efficiency	Analysis and evaluation of ecological, economic and social effects on the regional level.	Analysis and evaluation of ecological, economic and social effects at the enterprise level
6. Adjustment of realizing ecology-oriented programs of manufacture modernization upon the results of their efficiency monitoring.		

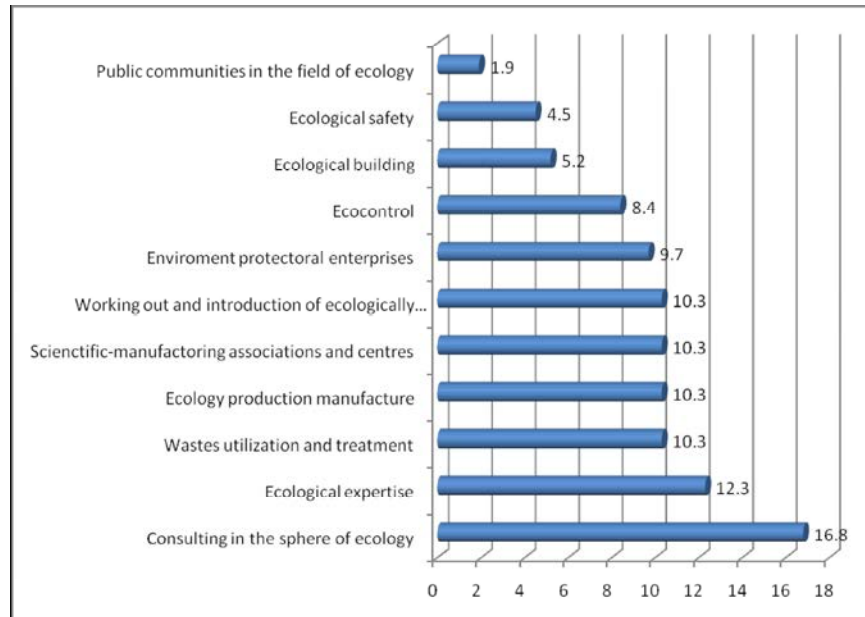


Fig. 1: Directions of ecological organizations' activity (St Petersburg)

Under the conditions of intensification of stress on the environment and in order to stimulate the ecological renovation of manufacture, the legislation has created certain tax remissions for enterprises, realizing programs of ecological modernization of manufacture; however, expanding of such preferences (incl. property tax) seems to be rational just with simultaneous input of ecological excise taxes on ecologically harmful production:

- Production and substances, which are contained in it and cause global atmosphere pollution and to be exact: carbon acid, which is segregated during the process of burning fuel (CO_2) and substances, destroying the ozone layer.
- Production, which causes environment pollution.

It is necessary that ecological taxes are paid both by the enterprises, producing such production and people, consuming it. At the same time, as object of taxation should be regarded production, producing of which, storing, transporting and consuming have a harmful impact on health of the population or are connected with ecological risk [3].

Dealing with the questions of motivation of capital assets ecological renovation, it is worth mentioning that enterprises have wider opportunities for attracting and retaining staff (labor conditions), formation of image and

increasing of clients' liability (eco-production), optimization of costs on the basis of using of ecological tax preferences and state investments into ecology-oriented manufactures.

Obviously, all listed advantages make ecology-oriented enterprises most competitive and investment-attractive also for the foreign investors as well. However, imperfection of the corporative ecological accounting, providing with comprehensive information about the nature-preserving costs, their efficiency and ecological obligations of the enterprise, decrease the trust of the potential investors and leads to increase of cost of investing capital because of the risk factor. Thereby, ecologically valuable information should become an inseparable part of the reports of an enterprise.

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