

забруднювачів у річку та визначені основні елементи-забрудники. Загальною особливістю річки є те, що її стік формується під значним впливом фільтратів полігону ТПВ та хвостосховищ кислих гудронів, що зумовлює зміну кислотно-лужного балансу поверхневих вод і розчинності важких металів. Найвищі концентрації мікроелементів спостерігаються на витоках Малехівки і безіменного потічка, що є її правою притокою. Основним джерелом забруднення річки Цинком, Нікелем, Ферумом і Манганом є фільтрати полігону ТПВ, а головним джерелом забруднення безіменного потічка Цинком є гудронові озера. За рахунок процесів розведення, фізичної, хімічної та біологічної сорбції концентрації забруднювачів вниз по течії зменшуються. Наднормативний вміст Цинку і Мангану вкінці с. Муроване спричинене вторинним техногенним забрудненням.

Ключові слова: важкі метали, полігони твердих побутових відходів, фільтрат, гудрони.

UDC 504:338.45

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THE INTRODUCTION OF ENVIRONMENTALLY – SOUND TECHNOLOGIES AT WOODWORKING ENTERPRISES OF UKRAINE

An analysis of environmental impact caused by industrial enterprise economic activity has been made. It has been found that the anthropogenic pressure on the environment tends to decrease over the last few years. Yet its level remains fairly high. Measures to be taken for improvement nature conservation activity have been proposed.

Keywords: enterprise, innovations, environmental impact, environmentally sound approach, analysis.

The harmonization of relationships between the economic development and the Environment is currently a top-priority task to be carried out both by the government and the public. The close and proper attention focused on the existing environment is a pre-condition for ensuring adequate living conditions for future generations.

The character of interrelationships between the national economy (production sector) and the Environment assume specific features during the period of transition to the market economy. The acute resource and ecological crisis, the necessity for a substantial improvement of the Environment, the costs for elimination of ecological catastrophe consequences, misuse of natural resources in all sectors of production – all these have an impact on the economic development rate, the populations living conditions as well as the volume of financial funds accumulation necessary for solving the existing and other arising socio-economic and environmental problems. All these issues need urgent consideration in the context of transition to the model of sustainable development and rehabilitation of the Environment. The last few years have seen the trend towards a decrease in the level of technogenic burden on the Environment, yet it remains fairly high. Per 1 km² of the country's area, about 7.5 ton of harmful substances is emitted into the atmosphere [1, 3, 5-13] by point sources of pollution, the amount of hazardous industrial waste makes up about 3.8 ton [1, 4] while the amount of return polluted water in the open waters is 4.5 thousand m³ [1, 4-13], which amounts to 0.16 ton, 0.08 ton, and 0.10 thousand m³ per one person, respectively. For comparison purpose, Russia's industrial sector discharges 19.5 mln ton of pollutants per year, which amounts to 342 kg per capita.

The analysis made for determining the extent of industrial enterprises impact on the Environment, allows for making the following statement:

An enterprise is the key link in the process of the environmentally-sound development of the country. The control of the environmental component of safe economic activity at the level of the industrial enterprises production system, creates the necessary basis for environmentally sound functioning of the whole economic system of Ukraine.

The introduction of environmentally clean technologies at woodworking and wood products manufacturing enterprises in Ukraine is taking place in the context of the general

trend for environmentally sound approach in the industrial sector. The processes that occurred at separate enterprises reflected the general tendencies for the development of some branches of the industry and economic activity as a whole. As compared with other sectors of industrial activity, woodworking and wood products manufacturing enterprises pollute the atmosphere to a lesser extent (Fig. 1). The share of pollution for these enterprises is 0.1 % of all industrial waste amount. It should be noted that the industrial emissions of harmful pollutants into the atmosphere amount to over 90% of the total amount of waste discharge in Ukraine. The biggest polluters are the following production sectors: production of electric power and distribution of gas and water; mining industry; iron and steel works; nonmetallic mineral products manufacturing; coke production; oil manufacturing industry; chemical industry [1, 4].

The differences in the amount of waste emissions into the atmosphere by various industrial sectors are accounted for by specific structural features of each type of activity as well as their output volumes.

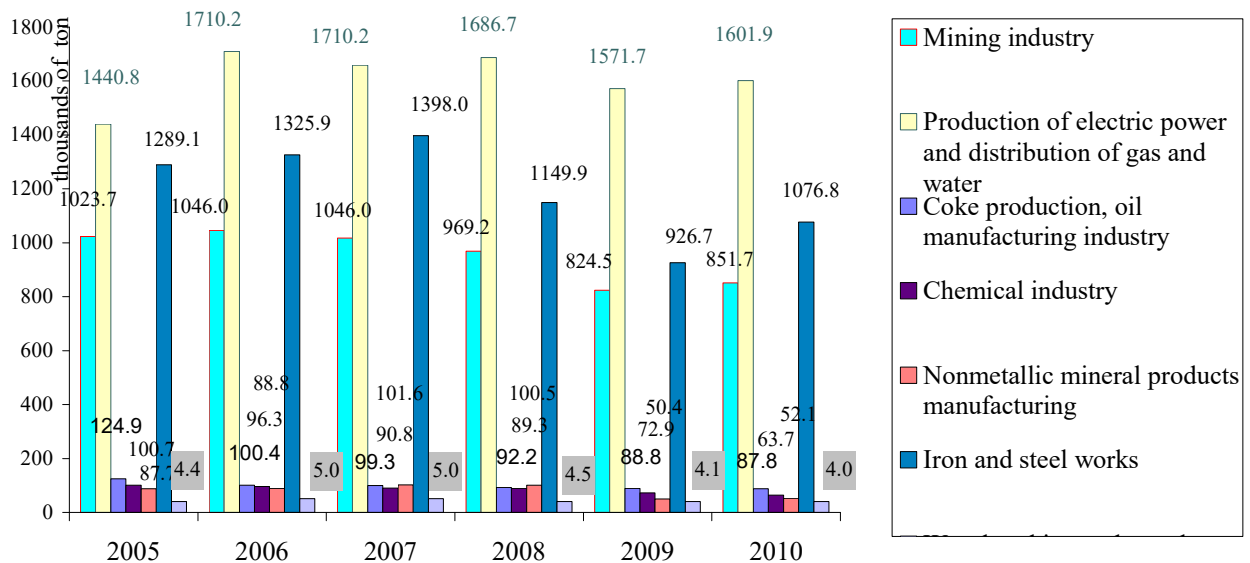


Fig. 1. Harmful waste emissions into the air according to industrial sectors activity

It is worth noting that the environmental footprint of woodworking and manufacturing of wood products has a tendency for a decrease in harmful emission into the atmosphere from point sources. At the same time, one can observe a reduction in the amount of atmospheric emissions for each individual enterprise.

Although the level of waste discharge from woodworking enterprises is of minor amounts as compared with other industrial sectors, their total effect is fairly perceptible.

It should be pointed out that all pollutant emissions are classified into emissions of various-type chemicals in the form of fumes, gaseous mixtures and solid particles in the form of dust. The most part of waste treatment plants at our enterprises are designed for trapping solid particles while the compounds such as acetone, xylene, styrene, toluene and others are discharged without any treatment. The main source of the air pollution by woodworking enterprises are workshops for finishing, veneer laying, laying-up, drying, wood machining, wood particle boards and fiberboards manufacturing, wood flour as well as boiler rooms, maintenance shops and various vehicles. The important factors that can have determining effect on the environmental parameters of economic activity, are innovations and technological improvement of the production processes. It is the innovative component that will be able to optimize the production processes and natural resources use, to mitigate environmental impacts from economic production activity with a minimum of negative outcome for manufacturing enterprises.

Fig. 2-5 represent the innovative factors influencing the environmental parameters of woodworking enterprises on the backgrounds of industrial enterprises [2, 4].



Fig. 2. The number of innovative-active enterprises

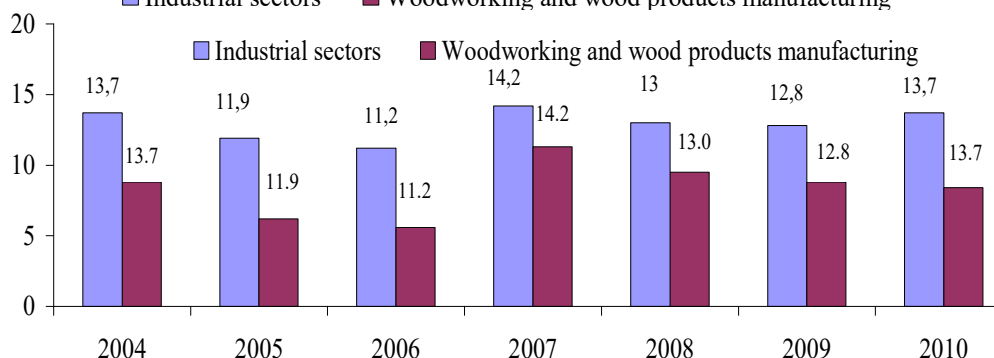


Fig. 3. Dynamics of innovative-active enterprises share, in % of the total number of enterprises



Fig. 4. The number of enterprises that introduced innovations

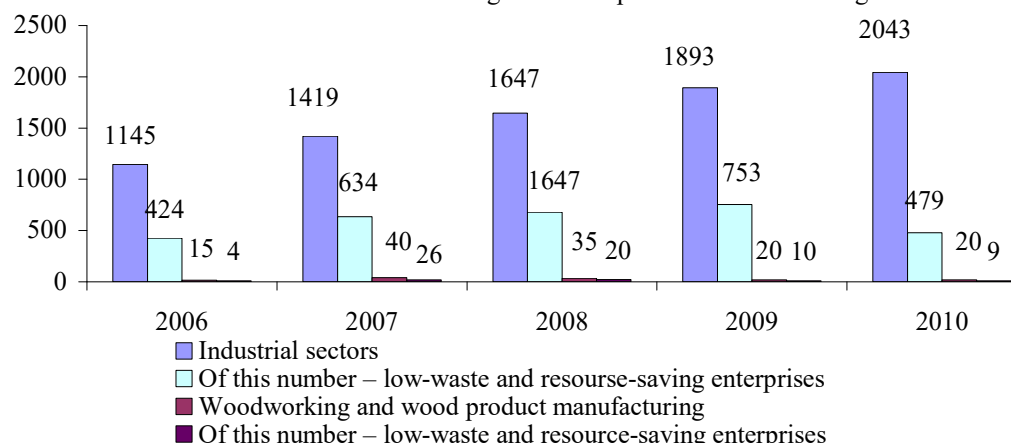


Fig. 5. The number of new technological processes

The share of innovative-active enterprises in the world's developed countries amounts to 60-70 %. The data (Fig. 2-5) point to the increasing number of woodworking and wood products manufacturing enterprises that have introduced innovative technologies for the last few years. It should be stressed that the woodworking enterprises introduced 35 innovative kinds of product in 2008, one of them being quite new for the market, in 2009 – 9, in 2010 – 14 kinds [2]. Also, there was some animation as to introducing new technological processes, including low-waste and resource-saving ones, both at industrial enterprises as a whole and woodworking enterprises in particular. However, a negative tendency is being observed today: while the total output is increasing one can observe the general tendency for a decrease in the share of innovative-active enterprises in the industrial sector as a whole and in its branch – woodworking industry in particular. Besides, a considerable gap is seen between the rate of change in the industrial output and the dynamics of the share of enterprises that are introducing new technologies; this is a negative fact because the gap is becoming wider against the back-

grounds of the general fall of the rate of industrial output growth. Thus, the availability of innovative potential as such is not enough for sustained development in the innovative activity to occur at the country's scale. The most favourable way of financing enterprise development is the attraction of foreign investments. However, foreign investors are not willing to invest their capital in Ukrainian woodworking and wood products manufacturing enterprises as this sector does not seem to be of primary importance to them.

The share of direct foreign investments into woodworking and wood products manufacturing enterprises amounts to 3 % of the total volume of direct foreign investments made into the industrial sector, and only 0.7 % of the general state index.

The dynamics of direct foreign investments into woodworking and wood products manufacturing enterprises (mln \$ US as of the beginning of a corresponding year, is shown in Fig. 6) [1, 3].

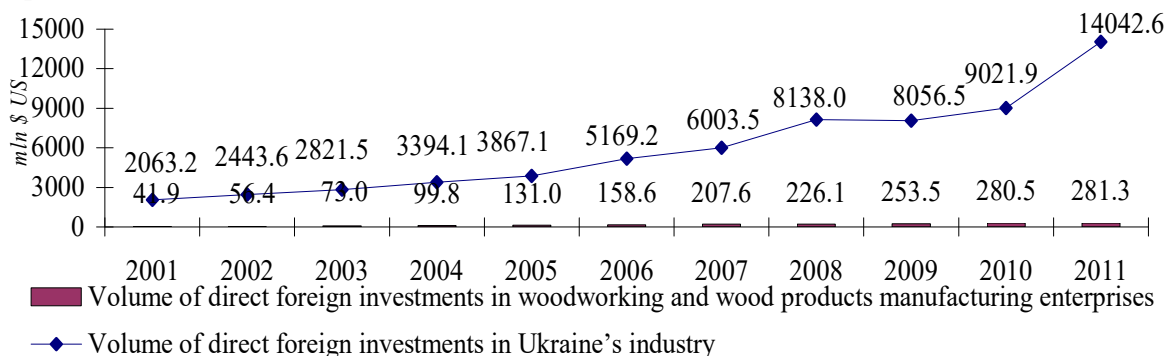


Fig. 6. Dynamics of foreign investments into woodworking and wood products manufacturing enterprises as of the beginning of a corresponding year

With the participation of foreign capital, the following production sectors have been set going in Ukraine: sawing and planing industry; production of rotary-cut veneer; glued plywood; laminated and woodparticle boards; manufacturing of various kinds of millwork and carpentry (beams, roof, trusses, window and buck frames, molded pieces etc.).

Conclusions. The analysis we have given, shows that in spite of the fact that there exists a tendency for general decrease in anthropogenic burden on the Environment, nonetheless the level of this load remains fairly high. The total industrial output is continually growing, the population numbers are decreasing, and disease incidence is going up. Thus, the current state of the Environment in Ukraine needs improving and calls for solving the environmental and economic problems of domestic enterprises in all sectors of economic activity.

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УДК 504:338.45

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Екологізація деревообробних підприємств України

Проведено аналіз екологодеструктивного впливу економічної діяльності промислових підприємств на довкілля. Встановлено, що упродовж останніх років спостерігається тенденція до зменшення антропогенного навантаження на навколишнє природне середовище, проте рівень цього навантаження є досить високим. Загальний обсяг промислового виробництва постійно зростає, кількість населення скорочується, зростає захворюваність. Рівень впливу на довкілля підприємств з оброблення деревини та виробництва виробів з деревини порівняно з іншими видами діяльності промислових підприємств є значно нижчим, хоча у загальному посилює негативні наслідки впливу господарської діяльності на довкілля. Екологізація деревообробних підприємств в Україні проходить на тлі загальної екологізації промисловості. Процеси, що відбувалися на окремих підприємствах, визначили загальні тенденції розвитку окремих видів промислової діяльності та видів економічної діяльності загалом. Для зменшення негативного впливу господарської діяльності підприємств на довкілля потрібно активізувати інноваційну діяльність; збільшити інвестиції, зокрема іноземні, на природоохоронні заходи; посилити моніторинг техногенного впливу підприємств на навколишнє природне середовище.

Ключові слова: підприємство, екологічність, екологізація, аналіз.

UDC 504:45

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ENVIRONMENTAL ASSESSMENT OF PUBLIC TRANSPORT SITUATION IN THE CITY OF LVIV: FACTS AND PROSPECTS

Urban electric transport is part of a city's public utilities. The degree of transport network development and the quality of its function are responsible for transportation service level and, consequently, proper operation of the city's enterprises and organizations. The issues of public transportation in big cities have always been of importance. This is especially true today because a transportation service is viewed as one of the most socially meaningful component of national economy.

Keywords: urban transport, reforming, environment, public utilities.

Urban passenger transport is an important component of national economy. A modern city is simply impossible to exist without proper functioning of city's transportation network. Urban electric transport in many cities of Ukraine plays an important role amongst various kinds of service rendered to the population. Its share makes up 42 % to 56 % of all public transportation. The share of passenger transportation by urban electric transport in the city of Lviv made up 24,3 % of all the city's passenger transport-