

РОЗДІЛ IV

Регіональна економіка та економіка природокористування

УДК 33:628.477(477.82+477.81)

Olena Strishenez – Doctor of Economics, professor, head of department of Environmental Economics and economic theory of Lesya Ukrainka Eastern European National University;
Mikhailo Tesliuk – an undergraduate of 5 course of the specialty «Economy» of Lesya Ukrainka Eastern European National University

The Regional Dimension of the Waste Management in Volyn and Rivne Regions.

The article examines the state of the waste management in Volyn and Rivne regions. It is shown the presence of the major polluters in areas, analyzed degree of utilization and the share of waste as secondary raw materials. Also was taken into account the experience of Japan in the recycling resources and regional features of Volyn and Rivne regions. Proposed directions of intensification of providing secondary resources in these areas.

Key words: waste, secondary resources, landfills, utilization, recycling, mercury cleaning process.

Formulation of Scientific Problem and its Significance. Today, the issue of waste management is very acute in Ukraine. The reason for this is the steady increase in waste generation and its significant accumulation. Only in 2015 in Ukraine (excluding data Crimea and Sevastopol City) was formed about 48 million m³ of waste, or about 10 million tons, that are disposed on the 6 K dumps and landfills totaling more than 9 thousand ha [1].

There is no doubt the fact that waste should be reused because of this there are several reasons: first, the resources of many materials on Earth are limited and may not be completed in time, compared to the lifetime of human civilization. Secondly, once in the environment, materials are usually pollutants [2].

Analysis Research of this Problem. Development of theoretical and applied issues of attracting waste in resource cycle in Ukraine is quite active. It was devoted to the work of V. G. Bratchykova, G. P. Vyhovsky, T. P. Galushkina, B. A. Horlitsi, V. S. Mishchenko et al. In their works, including specific features of the organizational and economic mechanism of waste as secondary resources, technological aspects of recycling and disposal, the issue of incentives in this area, etc. [3].

The Purpose of the Article – analysis and prospects of development of the secondary use of resources Volyn and Rivne regions, determination of the basis of issues, introduction of relevant areas of improvement, taking into account international experience in the field of waste management.

The Main Material Research and Study of Scientific Results. According to the Law of Ukraine «On local government in Ukraine» (Article 30) issues of collection, transportation, recycling and disposal of waste is the responsibility of the executive bodies of village, town and city councils [4]. But very often local authorities do not hurry with the introduction of modern methods and technologies of waste. The reasons for this are unregulated in law provisions for setting tariffs and payment processing and disposal of waste [1].

So, for example, the government has once again demonstrated its indifference to environmental issues when refused financing only thing in the Volyn Oblast State Enterprise «Ukrvetsanzavod», which deals in processing and recycling of raw materials of animal origin and substandard food [5].

No less serious is the situation that is made up of solid waste (MSW) in a village Brysche near Lutsk City, which opened in 1992. In recent years here were taken up to 600 tons of garbage, and eventually, resource landfill became exhausted. Initially Lutsk's authorities solved problem by increasing the area of landfill. So in 2000 it was launched the second turn of landfill, and after eleven years – the third turn.

Only in 2015 in a landfill in Brysche have launched sorting line of debris. However, sorting line – is only postponing the date when the landfill will overflow again, because now on the city landfill in the village Brysche whole complex together with solid waste sorting line has intended around 15 years [6].

The situation in Volyn also complicated by the illegal export of hazardous waste to landfills. In September 2016 at the landfill of Brysche civic activists discovered a cargo of fluorescent lamps, which tried to wrap in the ground [7].

It should be noted that the removal of spent fluorescent lamps and other waste containing mercury from the territory of Lutsk dealing with two companies from outside Volyn. The first – «Eco-Help», registered in Rivne city. The second company, which is engaged in the export of spent fluorescent lamps from a Lutsk is a Lviv Scientific Technical Company «Halekoresurs».

Immediately garbage disposal, solid waste from Lutsk involved two companies: Lutsk special municipal motor transport enterprise «Lutskspetskomuntrans» and «M.ZH.K.».

Collecting PET bottles, broken glass, plastic and paper waste from the territory of Lutsk engaged LLC «Vtorma-Volyn».

Removal and disposal of waste batteries and waste ferrous metals from Lutsk since 2006 engaged LLC «Promsnab Luck».

Waste oils from the regional center of Volyn are interested for two companies: Ukrainian-Bulgarian joint venture of «Ukraine-ABC» and Lutsk enterprise PE «Ayslah» [8].

The main source of waste in the Volyn region are mining and extractive, engineering, construction, woodworking facilities.

In a regional report on the state of the environment in the Volyn region, published in 2014 indicated that the main creator of hazardous waste were JSC «SKF Ukraine» LLC «Kromberg End Shubert», JSC «Elektrotermometriya», JSC «Novovolynsk foundry», «Ltd. «Promlyt» [17]. The accumulation of waste in the region is mainly carried out in heaps, landfills and solid waste dumps [9].

In the area there is the problem of solid waste, which is in the region for the year accumulated about 1 million m³.

Today, in the region is operated 11 landfills with household waste. And moreover the Volyn region has more than 471 solid waste landfills with total area of about 350 hectares.

At the end of 2013 the region remained 1923,3 tonnes of dangerous waste [18].

A significant amount of of hazardous wastes, which was formed in 2013 in the region was given to companies whose activities are related to the collection, removal and disposal of waste.

So private enterprise «Ayslah» has collected and transferred to LLC «Oil Invest» in Kirovograd City 8382 kg of waste oil.

By the Enterprise «Ecocenter» was collected and sent to the LLC «Mykytrtut» more than 17,284 pieces of spent fluorescent and mercury arc lamps.

By the Enterprise Ltd. «Eco-HELP» was collected and sent to the LLC «Mykytrtut» more than 22206 units out fluorescent and mercury arc lamps.

In the Volyn region in 2013 was carried out production activities two companies that processed waste:

- Private small enterprise «Invid» have been collected and processed about 112 tons of various plastic waste;
- PJSC «Lutsk Cardboard and Paper Mill» processed 9844 tons of waste paper.

Dynamics of waste management for years 2010-2014 presented in Table 1 [9].

Table 1

Dynamics of Waste Management in the Volyn Region in 2010–2014

№	Indicator	2010	2011	2012	2013	2014
1	The volume of waste, tons	633 000	608 720	733 826	572 029,1	583 419,2
2	Volumes of waste management, tons	33 989,5	50 751	89 720	9956	11 441
3	The level of use, %	5,4	8,3	12,2	1,74	1,96

As see, level of use the waste products in Volyn region is fairly insignificant, that indicating the considerable number of wastes accumulates at landfill.

Especially acute problem of garbage in the Rivne region, because the city landfill of waste products is rapidly exhausting its resources. Established over 50 years ago, now it occupies 24,5 hectares between the villages Shpaniv and Barmaki approximately 2,5 kilometers from the boundary of Rivne City. Every day municipal company KATP-1728 and the private company «Sankoh Rivne» brought here at least 360 tons of garbage. Today here disposed about 4,8 million tons of waste, and it is by 100 thousand tons more than the planned capacity.

In 2009, officials stated that the landfill will be closed. However, despite the fact that lands around the city of Rivne were distributed and to find new territory for the landfill was impossible, it was issued a new technological passport for existing landfill with continuation of the term of its work until 2013 [11].

As told by spokesman of the State Service of Emergencies of Ukraine in the Rivne region Dmitry Melnik, Rivne landfill – is like a large multi-storey building with garbage, which often lights up [12].

In the Rivne region there are more than 1,000 enterprises and organizations with production activities that is associated with the formation of industrial and domestic waste. Thus, in 2015 on the territory of Rivne region was formed 843,303 tons of waste with I–IV classes of danger [13].

As stated in the regional report on the condition of natural environment in the Rivne region in 2015, was formed in conjunction with waste derived from other territories 1084,2 ths. tons of waste of the I–IV class of danger. The main indicators of waste management for the last 5 years in Rivne region are shown in Table 2 [13, 16].

Table 2

The Main Indicators of Waste Management in Rivne Region for the Period 2011–2015 Years (ths. tons)

№	Indicators	2011 year	2012 year	2013 year	2014 year	2015 year
1	Formed	3895,5	1281,4	1587,1*	1356,0*	843,3*
2	Disposed (revised)	294,5	168,3	57,1	97,4	94,0
3	Burned	30,3	100,8	78,4	77,1	81,0
4	Sent to organized storage (burial)	1945,1	326,6	212,7	839,7	147,3

Note. * – Taking into account volumes of waste generated in households.

The main polluters in the Rivne region are JSC «Rivneazot», «Energoatom», LLC «High-Voltage Union – RZVA».

The main method of disposal of solid waste in Rivne region today is their burial in landfills and dumps. Storage of wastes produced by the scheme: leveling, compaction, soil insulation. As at 01.01.2016 the total number of landfills and dumps of solid waste in cities and villages of the region is 26 units with a total area of 122,1 hectares.

Currently implemented separate collection of solid waste in the cities of Dubno (3 components: plastic, glass, paper), Ostrog (2 components: plastic, glass) and Kostopil (3 components: glass, paper, polymers).

Some landfills and dumps of solid waste operates in the mode of overload, almost none of them neutralized filtrate. To resolve this issue it was started construction of MSW landfill in the city of Dubno.

Among the enterprises engaged in waste management should be highlighted:

- Zdolbuniv plastic products factory «Iskra», specializing in the processing of raw materials and waste from polyethylene, polystyrene, polypropylene. Waste of tape, lack of product after crushing and granulation used in manufacturing as secondary raw material that is used to make plastic pipes. In 2015 processed 19 tons of such waste.

- Kostopil branch of the state enterprise «Ukrvetsanzavod» that specializes in the production of bone meal for agriculture, which the raw material for it are waste from diking carcasses and bones of animals. By 2015 was processed 3579 tons of wastes [13].

Processing of the secondary (paper) materials and the release of its paper production in the region engaged LLC «Mokvyn paper factory». In 2015, it was processed 1361 tons of waste paper.

In the region operates a private plant “Commercial and industrial company «Politor» on utilization, recycling and production of plastic products. During 2015 an enterprise processed 47 tons of lack of technological plastic products.

LLC «Eco-HELP» that collects worn-out fluorescent lamps, by 2015 has collected from companies in the region and transferred to specialized businesses 46 672 pieces of out fluorescent lamps.

Therefore, as we can see, in the Rivne region, there are the same problems as in the Volyn, namely: the constant increase in the number of polygons instead of building plants for processing of rubbish and still insufficient level of waste recycling.

Significantly reduce the depletion of the landfills resource can by using the waste recycling. Evidence of this is the experience of Japan.

Promoting recycling of waste and recycling materials declared a priority of state regulation in Japan, where two-thirds of garbage are burned. The share of processing wastes gradually increases (17 %), and those that are buried reduced [14].

It should be noted that the structure of the waste management system in Western Europe, USA, Japan and other countries similar to the structure adopted in Ukraine. However, the implementation processes and cycles that are common in the management of waste are different. Thus, in EU processed about 60 % of industrial and about 95 % of agricultural wastes, and recycled in Japan about 45 % of industrial waste.

In Ukraine, the waste recycling system will work well if the public mentality changes. According to the specialist of waste utilization technologies, head of logistics company «AVE-Lviv» Andrew Slonsky, in Ukraine the company processed only three groups of waste: PET bottles, glass and paper. Many cities have long implemented system of separate collection of these types of waste. However, if in plastic containers people willing to throw bottles, in the branch for paper and glass adjudged everything [19].

To introduce a system of distribution of garbage among the population need to be encouraged also by the everyday gain. The most successful example is in Beijing, where the subway station Jinsong installed special machines that pressed PET bottles. These bottles then sent for processing, allowing to save 18 mln. tons of oil, and for every handed bottle passenger gets 0,1 yuan (1,6 US cents) [20].

Conclusions and Recommendations for Further Research. Solving the problem of domestic and industrial wastes in our opinion should be viewed as a combination of environmental and resource constituent of management policies of the local authorities that should regulate the problem of disposal and recycling. At the same time improvement of the environmental component should include primarily conducting a detailed monitoring and classification of waste areas, determine the degree of toxicity and environmental impact and measurement of damages [21].

Therefore we consider that it would be expedient to make such directions:

- to implement additional environmental tax for major polluters Volyn and Rivne regions;
- to give an opportunity using of waste as intermediate products (raw materials) for processing at the enterprises and for secondary use;
- to create a database about efficiency of low-waste and ecologically clean technologies by industries technologies of recycling and disposal of waste, implementation of information system of accounting and use;
- to improve control and regulatory framework treatment and waste management.

Sources and Literature

1. Information portal «Improvement Info» : State of the sphere of waste management in Ukraine by 2015 [Electronic resource]. – Mode of access : <http://blagoustriy.info/statistics/35/show/>
2. Strishenez O. Sorting waste as basis of secondary use of the resources / O. Strishenez, B. Makarchuk, V. Kupchak // Actual problems of economy of Ukraine: Materials of International videoconferencing of Young researchers, graduate students and applicants (Nov. 11. 2015) / ed. L. Lypych. – Lutsk : Vezha-Druk, 2015. – P. 36–37
3. Makovetska U. The current state of the secondary use of resources in Ukraine / U. Makovetska [Electronic resource]. – Mode of access : <http://economics-of-nature.net/uploads/arhiv/2011/Makovetska.pdf>
4. The Law of Ukraine «About local government in Ukraine» // Information of Supreme Soviet of Ukraine/ – 1997 – № 24. – P. 170 [Electronic resource]. – Mode of access : <http://zakon3.rada.gov.ua/laws/show/280/97-%D0%B2%D1%80>

5. Striletska U. Volyn region on the brink of ecological disaster / U. Striletska [Electronic resource]. – Mode of access : <http://vidomosti-ua.com/news/118394>
6. Vataschuk M. Recycling in Lutsk / M. Vataschuk [Electronic resource]. – Mode of access : : http://zik.ua/news/2016/06/13/smittlepererobka_v_lutsku_investory_buly_ta_zaguly_707691
7. Tsyuryn S. On the landfill in Brysche detected dangerous goods [Electronic resource]. – Mode of access : <http://volga.lutsk.ua/view/11657/2/>
8. Horbach U. Whoearnson Lutsk's debris / U. Horbach [Electronic resource]. – Mode of access : <http://nashigroshi.org/2016/09/07/hto-zaroblyaje-na-lutskomu-smitti/>
9. A regional report on the state of the environment in the Volyn region for 2012 [Electronic resource]. – Mode of access : <http://www.menr.gov.ua/docs/activity-dopovidi/regionalni/rehionalni-dopovidi-u-2012-rotsi/volynska%202012.pdf>
10. Department of Statistics in the Volyn region [Electronic resource]. – Mode of access : http://www.lutsk.ukrstat.gov.ua/22_5.htm
11. Ivanova K. What will happen with Rivne's waste? / K. Ivanova, T. Zakordonets, A. Torbich, V. Torbich [Electronic resource]. – Mode of access : <http://waste.bei.org.ua/2010/11/turtle-news-waste.html>
12. Rychko V. How dangerous Rivne's garbage dump? / V. Rychko [Electronic resource]. – Mode of access : <http://rivne1.tv/Info/?id=66732>
13. Report on the State of the Environment in the Rivne region in 2015 [Electronic resource]. – Mode of access : http://www.ecorivne.gov.ua/tmp/dopovid_2015.pdf
14. Volyn region and garbage: the battle is lost? [Electronic resource]. – Mode of access : <http://www.volynpost.com/news/70504-volyn-i-smittia-bytva-prograna-foto>
15. Manage and Waste Management. – Part 2 : Municipal solid waste. Tutorial / V. H. Petruk, I. Vasylykivsky, S. Kvaterniuk [et al.]. – Vinnytsya : VNTU, 2015. – 100 p. [Electronic resource]. – Mode of access : http://www.eco.com.ua/sites/eco.com.ua/files/lib1/navch_mat/vidhody/vidh_ch2/r2_tpv_2.pdf
16. Report on the State of the Environment in the Rivne region in 2013 [Electronic resource]. – Mode of access : http://www.ecorivne.gov.ua/tmp/dopovid_2013.pdf
17. A regional report on the state of the environment in the Volyn region in 2014 [Electronic resource]. – Mode of access : http://www.menr.gov.ua/docs/activity-dopovidi/regionalni/rehionalni-dopovidi-u-2014-rotsi/Volinska_2014.pdf
18. A regional report on the state of the environment in the Volyn region in 2013 [Electronic resource]. – Mode of access : http://www.menr.gov.ua/docs/activity-dopovidi/regionalni/rehionalni-dopovidi-u-2013-rotsi/Volinska_2013.pdf
19. Recycling of waste in Ukraine: Myth or Reality? [Electronic resource]. – Mode of access : <http://for-ua.com/analytics/2013/07/18/101737.html>
20. Stadnik V. Municipal solid waste in Ukraine: to store or burn? / V. Stadnik, T. Tikhomirova // Ecology and Nature Management in the system of optimization relationship of nature and society: materials of II International Scientific and Practical Internet Conference March 19–20, 2015. – Ternopil : Krok, 2015. – 342 p.
21. Strishenez O. Ecological and resource aspects of solving the waste problem in Volyn region / O. Strishenez, V. Kozlov // Ecology and Nature Management in the system of optimization relationship of nature and society : materials of II International Scientific and Practical Internet Conference March 19–20, 2015 – Ternopil : Krok, 2015. – P. 327–328.

Елена Стришенец, Михаил Теслюк. Региональный аспект обращения с отходами в Волынской и Ровенской областях. В статье анализируется состояние обращения с отходами в Волынской и Ровенской областях. Обсуждается наличие основных предприятий-загрязнителей в областях, акцентируется степень утилизации и доля использования отходов как вторичного сырья. Учитывается опыт вторичной переработки ресурсов Японии и региональных особенностей Волынской и Ровенской областей. Предлагаются направления интенсификации вторичного обеспечения ресурсов этих территорий.

Ключевые слова: отходы, вторичные ресурсы, полигоны, утилизация, рециклинг, демеркуризация.

Олена Стрішенець, Михайло Теслюк. Регіональний аспект поводження з відходами у Волинській та Рівненській областях. У статті розглянуто стан поводження з відходами у Волинській та Рівненській областях. З'ясовано наявність тут основних підприємств-забруднювачів, проаналізовано ступінь утилізаційності й частку ресурсовикористання відходів як вторинної сировини. Ураховано досвід вторинної переробки ресурсів Японії та регіональних особливостей Волинської й Рівненської областей. Запропоновано напрями інтенсифікації вторинного забезпечення ресурсів на зазначених територіях.

Ключові слова: відходи, вторинні ресурси, полігоны, утилізація, рециклінг, демеркуризація.