

SOME DIFFICULTIES IN RECYCLABLE MATERIALS PROCESSING

Turylo A.M., Dr.Sc., Prof., Kryvyi Rih National University

Andrushkiv B.M., Dr.Sc, Prof., Department of Management of Innovation Activity and Entrepreneurship

Spivak S.M., Ph.D., Assoc. Prof., Department of Accounting and Auditing

Sherstiuk R.P., Ph.D., Doctoral, Department of Management of Innovation Activity and Entrepreneurship

Pogaidak O.B., Dr., Senior Research Fellow

Ternopil Ivan Pul'uj National Technical University

Abstract: The article is devoted to one of the most urgent problems nowadays namely the problem of waste disposal in Ukraine and determination of the main directions to provide waste collection and processing in inhabited localities of our state according to the EU requirements and standards. Certain difficulties in this sphere of public activity have been revealed on the basis of literary sources and existing experience. The Ukrainian scientists have substantiated the difficulties in wastes collection, transportation, sorting and processing in towns and villages of our country. Nevertheless technique and methods in this sphere need some deep investigation, tasks setting and necessary measures taking to transform the industry into competitive innovative branch which is developing dynamically.

Some ways to increase the municipal services efficiency thanks to the above mentioned factor have been suggested. Environmental indices of production-economic activity are offered to be improved due to the national innovative-managerial factors, using facilities of production-technological processes updating. It was found that salvage is one of the methods to provide the enterprises stable running under administrative-territory reform conditions as for the efficient use of economic, power, labor, land and other resources according to the European requirements. As the experience showed the best stimulating factors for the investors intending to invest their money into incineration plants are available concessional lending and, as experts suggest, 3-5 years of tax holidays, clear and easy mechanism of permitting documents obtaining, create the legislative basis and apply economical approach both at country and local level.

The thesis has been substantiated that industrial and domestic wastes processing in Ukraine can be provided due to the above mentioned factors. Thus, the competitiveness of the state can be increased.

Key words: rubbish, recyclable materials, innovations, innovative policy, industrial enterprises, semiotics, stability, strategy, efficiency, finances, economic activity, transformational society, European Union (EU)

Urgency of the problem: At present the Ukrainian scientists have substantiated the difficulties in wastes collection, transportation, sorting and processing in towns and villages of our country. The problem was especially severe in Lviv in 2017. Meanwhile, we must agree that this is our national issue and it takes place practically in all regions but unfortunately cannot be solved due to different reasons. In one case there is no free location for dangerous wastes disposal, in another – there is no money to build a rubbish recycling plant or rubbish sorting points. Moreover, the existing law imperfection does not allow these processes to be regulated and intensified. There is a very popular idea that the problem of waste disposal has appeared because of the existing law as our national laws do not oblige to process it. The law of Ukraine stipulates for only one way of disposal – burial.

One of the reasons of the problem solving delay is that our administrative authorities have no good will and desire to discuss it. Due to

incompetence of state bodies which are responsible for this field we bury not only wastes but our money, recoverable materials, authority of the State and many other things as well. The state has not created necessary obligations and system concern in this problem solving. Majors of cities don't have enough resources to solve the problem and oligarchs are not interested in it.

Thus, due to all these circumstances many people express their concern on the Internet, ecological sites and blogs. While Lviv region and the whole Ukraine do not know what to do with billions of tons of wastes, Europe is widely using trash in various production fields making a lot of money.

All these and other facts make the above mentioned range of problems quite urgent and of current interest.

Analysis of articles and literature on the research subject-matter. At present a lot of scientific articles are devoted to the problem how to make waste processing environmental friendly.

Here, it is necessary to admit that very few national and foreign scientists- economists pay proper attention to the problem of industrial and domestic wastes collection, sorting and processing according to the EU requirements and standards.

Unfortunately, there is no practice of foreign experience and innovations in this sphere introduction into industrial enterprises of voluntary associations of territorial community type under adaptation and transformation conditions.

Problems of financial crisis and its impact on the industrial development of Ukraine are studied in the papers of Ukrainian scientists, among them Burlaka V.M., Honcharov Yu.V., Mechnikov H.I., Oleshko A.A., Yaremenko L. Such scientists as Balabanov I.T., Horfinkel V.Ya., Hrechan A.P., Denysenko M.P., Denisov Ye.F., Illyashenko S.M., Kuz'min O.Ye., Krasnokutska N.V., Oholeva L.N., Porohnya V.M., Skydan O.V., Zinchenko O.A., Tarasyuk H.M., Turylo A.M., Fathudinov R.A., Fedulova I.V., Cherkashchyna L.O., T. Szaky [6,14] were also involved in the investigation of innovations and their implementation under enterprises of public services conditions.

Nevertheless, due to transformational processes development and the economy of Ukraine adaptation to the EU requirements and standards technique and methods in this sphere need some deep investigation, tasks setting and necessary measures taking to transform the industry into competitive innovative branch which is developing dynamically. Here, some problems are still unsolved and, first of all, they deal with development of complex scientific-technical programs on waste processing, determination of the factors influencing the efficiency of measures on innovations introduction in this sphere, doing some work on technological and economic substantiation, planning, waste processing arrangement, financing of incineration plants building. The above-mentioned circumstances made us choose the subject and formulate the tasks list of the problem under investigation.

Main statements of the problem solution.

For the years of independence 30 billion wastes have been stored in our country.

Reference: *According to the Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine, there are more than 11-12 mln. tons of solid domestic waste (SDW) annually. However, according to the calculations of National Commission performing state regulation in*

the sphere of power and utilities of Ukraine (NKREKP), from 2010 to 2015 the rates of waste growth were 10-15% by volume and weight accordingly. In this way, Ukraine is assumed to produce 15 mln tons of SDW annually [12].

At present 97% of wastes in Ukraine is taken to landfill sites – 4.5 thousand of permitted ones and near 35 thousand of spontaneous ones. Now SDW cover 150 thousands of hectares – it is equal to two cities of Kyiv or seven cities of Odessa.

Only the tenth part of collected wastes is processed. At present there are 4 incineration plants in Ukraine: in Kyiv, Dnipro, Kharkiv and occupied Sevastopol but only Kyiv incineration plant "Energy" is running.

While Ukrainians are thinking where they can throw their garbage EU countries are facing another difficulty – where they can get it. As the incinerators are to run nonstop but they are pressed for garbage. As far as we know, processed wastes have been a valuable product of international trade for a long time. We must admit that international community has quite positive experience in solving such a problem.

Reference: *Sweden is one of the leaders in waste processing. They process 99% of all garbage in the country. Thanks to recyclable materials they heat their houses, provide them with electricity. The problem of waste lack in Sweden was solved by its importing from other countries. The similar situation is in Germany, Switzerland, Austria. In these countries waste landfill sites are closed due to the fact that 97% of rubbish is processed.*

In Germany there is a practice of "garbage police" who fines waste "law" breakers.

In Finland convenient waste-collecting points near residential areas, supermarkets and enterprises are built. They practice a system of included package cost, when they buy something, the bill includes package cost.

Poland decided to solve the waste problem radically. They adopted a special law which forbade illegal landfill sites, and people began to sort the garbage.

Italy, Bulgaria, Romania and Baltic countries are known for the lack of necessary incinerators and they are garbage suppliers to the leaders of wastes processing [13].

Waste management problem involves also some ecological issues. It is known that, plastics will decay for hundreds of years. If we start its sorting

and processing, vast territories of fertile soil will be saved. Moreover, a very complex problem deals with radioactive and chemical wastes disposal. In some regions under administrativeterritorial reform conditions when Condominium Associations (OSBB) have been founded this problem is getting more acute and specific.

For instance, modern associations of local communities have no schemes of sanitation and cleaning service, they do not have any waste bins for solid domestic waste collection and they cannot arrange wastes collection and transportation. Each European country has special waste bins for garbage sorting. As a rule, they divide wastes into several main categories: plastics, paper, glass, organic waste and metal. (Scientists of TNTU offered fully mechanized waste sorting by a processing line which consists of a grinder, water under pressure, air, magnets, pressing equipment for pallets pressing from inflammable wastes). Meanwhile, there are only one or two authorized landfill sites in our district centers and a certain sum of money is spent to transport rubbish to them. Not only every district but every residential place has a specific difficulty caused by various reasons and circumstances. According to Alla Voitsihovska, there is no such sphere as waste disposal management in Ukraine. (It is not worth mentioning the problem of radioactive waste disposal, where we have some negative experience in Chernobyl area).

However, similar situation is not only in above mentioned Lviv but in Ternopil, Black Sea Odessa, in the Carpathians, Polissya steppes, Kryvyi Rih area, other regions and cities of our beautiful, flourishing motherland as well. We emphasize "flourishing" as during spring and summer time numerous weeds hide in the wood lines by the roads sides everything that is thrown through the car's window by a careless traveler.

Taking into account the scale of the problem, the question is: Why state authorities are still keeping silence in this matter? But we cannot ignore the fact that this problem has been raised not once by Ukrainian scientists. Though, on certain reasons, their projects have not been requested yet.

Have any attempts been made to solve the problem without assistance? Certainly, they have been. For those who also want to take part we inform that on the Internet, besides technological lines of mechanized wastes sorting we have suggested, one can find many concrete suggestions to build an incineration plant or buy some equipment.

We must say that some attempts were made in this case only because there is no way out.

We will describe some of them.

Some time ago in Ternopil region the city council reached an agreement with an Austrian company on an incineration plant building at the premises of former combine-building plant which was unable to be modernized according to current requirements and came to an end as it focused its high technologies on primitive agricultural equipment production. Unfortunately, the agreement was not fulfilled then due to opportunism of local authorities. Because of the same reason the project of an incineration plant building by Swedish specialists was not put into action. They also did not take advantage of investments of Italian company "Bibox" for said purpose. As the experience showed the best stimulating factors for the investors intending to invest their money into incineration plants are available concessional lending and, as experts suggest, 3-5 years of tax holidays, clear and easy mechanism of permitting documents obtaining. It is necessary to create favorable conditions and encourage business to invest into modern technologies on wastes processing and disposal at the country level.

There are other ways to solve the problem now. Among them the most east one is to sell wastes. Foreign businessmen in this field can buy it from us and they would have some profits. It is not a problem to find some investors who could invest into incineration plants building at the local level (convenience, transportation costs saving). Present technologies provide high sanitary level. For example, in Austria an incineration plant is successfully running in the very center of Wien. Nobody is aware about it.

Meanwhile, we must admit that "waste science" evolution is a very fast process. Its classification is getting more and more diverse and detailed. The list of industrial and domestic wastes is increasing. Plastics, batteries, charges, toxic chemicals are among the newest kinds of waste. At present, waste 'has penetrated" into seas and oceans, and even into space and it is an environmental, technical, economical and even political factor of our long-suffering society development.

It is notorious that trumpery wood, helm can be used in alternative organic fuel production – pallets for houses heating. Recycled plastic materials are of great demand in chemical industry.

Many household items, domestic appliances, tubes, toys are made from recycled bottles. Millions of tons of fermented sludge are not used on filtration fields and waste treatment facilities of water-sewer system as an ecologically clean organic fertilizer in agriculture.

According to Alla Voitsihovska, at the national level there is no strategy of waste handling and considering wastes as material or power resources.

Speaking about rubbish potential, it can be not only sorted, processed, composted, burned but methane, derived from the garbage stored on landfills, can be used as well.

Reference: *As an example, only on Lviv landfill site more than 10 mln. cubic meters of methane is stored annually, wastepaper is recycled into newspaper and toilet paper, textile material, roofing paper, cardboard. Due to specific processing waste tires are used for floor mats, shoes soles, tennis courts surface, road building making. Leaves of trees, which are often burned or removed to landfill sites in Ukraine, is a perfect soil fertilizer. Recycled glass can be sold to specialized production of bricks, tile, water filters, ceramics etc. Waste metal, especially non-ferrous one, is very profitable in waste business. Remelted metal can be processed several times and its properties will be the same.*

To solve this acute problem we need the national system of waste handling, which would start from waste prevention, would provide waste sorting, removal and processing into resources. Current management system needs completely new model of these relations regulating, namely distribution of responsibility for the wastes stored, financing model of unprofitable stage of waste disposal (e. g. transportation), encouraging people to be environmentally conscious as for their attitude towards wastes.

Ukrainians have always had their own traditions of waste handling. Firstly, they tried to use it in all possible forms to keep their gardens and farms. Some of it was used as a fertilizer on the fields, another (harmless) was thrown into steeps and ravines, yet another was used to make roads smoother. In fact, every village had its own animal burial site where they could bury cattle due to mortality.

Currently we are facing quite different situation when our authorities do not possess mature statesmanship ideology, when their own business and politics prevent them from plans and scientific-technical programs working-out on

national economy development. Regional state administrations, local self-government authorities do not work on the problem solving explanation dealing with alternative wastes handling apart from their removal to landfill sites. Meanwhile, we must say that even at primitive level big landfill sites are source of profit for homeless and other people. Every "metal hunter" has quite a good profit a day. Ecological control on waste handling is not efficient, environmental awareness of people is still low. Rural dwellers keep removing the wastes to the woods, rivers not far from their houses.

Conclusions and suggestions on the problem solving. We believe that to achieve the cultural level of European countries in the field of waste collection and processing, to develop business in this sphere it is necessary:

1. To create the legislative basis and apply economical approach both at country and local level. Thus, first the Supreme Soviet must adopt necessary changes in law. (They say the related draft law has already been registered in the Parliament)

2. To close down the landfill sites which pollute the environment, underground water, soil and simultaneously build incineration plants, waste sorting lines, build landfills for the disposal of waste failing to meet the ecological requirements and which can't be processed.

3. A good manager does waste-free housekeeping, he can apply and make use of anything. Rubbish is not only money after it is processing, it is sanitary by people and for people, and finally, under united territorial communities and Condominium Associations (OSBB) conditions big money and conveniences of an inhabited locality, accommodation. The State must provoke interest in solving the above-mentioned problems.

4. In some cases the very landfill sites can be very profitable. In Lviv, Vinnytsya within the framework of state-private partnership project 12 gas-gathering wells have been built on the landfill sites, a cogeneration plant has been mounted having 710 Kw/h capacity, electric power is generated etc.

5. At the local level, it is quite reasonable to encourage waste sorting, independent building of a power processing line on waste sorting and processing.

We can give many other examples and suggestions on this matter but in our country, they are put into practice few and far between. We must acknowledge that most of state leaders, branch

ministries, among which the Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine, suppose that this is the problem of only competence of united territorial communities, municipal services and Condominium Associations (OSBB). Besides, oligarchs have never been interested in it.

According to National Commission performing state regulation in the sphere of power and utilities of Ukraine (NKREKP), Ukraine could save 2200 mln. cubic meters of natural gas, 634 mln. Kw/h of electric power, and would obtain approximately 1,8 mln. tons of raw material that could be used in package production, cargo containers, construction materials and for other purposes. Moreover, waste management development will allow create 50 thousand of jobs, and, what the most important, is to turn 6148 existing authorized and 32 984 unauthorized landfill sites into civilized centers of solid domestic waste handling.

Nowadays waste is not only big money, but also economy, ecology and even big politics before next elections.

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