



Russia: Environmental Market

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Summary

The Russian government has for years neglected environmental protection. As a result, the environmental situation in the country has been aggravating and in many cases is out of control. Burning environmental problems, including low quality of water in rivers and lakes, poor water sanitation, incidence of oil spills, polluted air and soil, have forced the government to place more emphasis on the environment. The government adopted a number of laws and regulations stipulating introduction of water and waste water management technologies, stricter emissions controls as well effective solid waste recycling systems in major cities such as Moscow and St. Petersburg and a number of other regions. Russia has a legislative framework aimed at protection of the environment, some of the norms and regulations are even stricter than in Europe. However the problem is enforcement. Another important problem is the fact that many of these norms are obsolete and do not comply with modern Western requirements. This report focuses on the municipal solid waste management equipment and technologies market. It discusses current regulations and rules governing that market and analyses opportunities for U.S. companies.

Current state of environmental protection in Russia: facts and figures

In the Soviet Union and then Russia manufacturing industries have always generated huge amounts of waste, however authorities never cared about it given the country's vast territory and abundant natural resources. Due to the Russia's enormous environmental capacity, the concept of environmental protection was considered as a problem for future generations.

Currently, about 80 billion tons of hard metallurgical, machine-building, mineral resource, chemical and energy and fuel industries waste has been accumulated in the dumps and deposits of Russia. Growing oil and gas production as well as expansion of other extraction industries exact a heavy cost to the health of the land and people. It is estimated that annual volumes of chemical reagents in contaminated industrial wastewaters ejected into surface water streams reach 17 million tons. These reagents contaminate 25 million cubic meters of topsoil. Complete utilization of co-extracted gas in oil extraction does not exceed 80 percent in Russia. Up to 17 billion cubic meters of non-utilized gas extracted alongside with oil is burned annually in gas torches. As a result, more than 400,000 tons of hazardous substances are released into the atmosphere each year. In addition, 560 million tons of methane is estimated to leak annually into atmosphere from oil and gas extraction facilities, not counting accidental outbursts and pipe leakage. There are numerous other examples of lack of federal environmental control measures in extraction and manufacturing industries. Decades of neglect of environmentally safe technologies, inadequate attention to protecting nature and health created double impact on wasted resources and environment.

Air pollution levels in major cities are very high. According to Roshydromet (Federal Service for Hydrometeorology and Environmental Monitoring, in 2005 the level of air contamination in 22 Russian cities exceeded permissible limits by 10-15 times. In 141 cities with a population of 65 million the level

of air contamination was estimated as high or very high. It means that half of Russia's population breathes polluted air. All inhabitants of Moscow and St. Petersburg breathe polluted air.

Environment has not been priority for municipal governments for decades as well. A few following examples prove how serious the problems are nowadays. St. Petersburg, which is considered one of the most advanced areas in the country in terms of water sanitation, has poor quality drinking water due to the city's antiquated iron pipes. Kaliningrad, a Baltic Sea gateway of Russia, pumps 70 million cubic meters of untreated, heavily polluted water into the Baltic Sea annually. Industrial pollution in the Urals casts a dark shadow, affecting a number of cities and their population. In some cases the rivers are dead, in others water is undrinkable. The Techa River in Chlyabinsk is the worst case, polluted with radioactive waste from the Mayak nuclear plant. The recent analysis of water quality in the Moskva River and its confluents, the results of which have been published in July 28, 2006 edition of Rossiyskaya Gazeta daily newspaper, shows that level of contamination ranges from medium to very high. The main threat comes from high presence of biogenic products in the water caused by untreated sewage and waste dumped into the rivers.

The situation with waste collection and processing is painful too. According to May 4, 2007 edition of Rossiyskaya Gazeta, annually inspectors of Gostekhnadzor (Federal Service for Ecological, Technological and Atomic Control), a government agency overlooking waste collection and processing, reveal 600 unauthorized disposal tips and about 2,000 disposal bulks in the Moscow region only. The total sum of fines, which they collect amounts to \$6.000. However these measures do not help to radically improve the situation because the fines imposed on legal entities for unauthorized waste disposal are ridiculously small, only less than 2 dollars. At the same time fines imposed for similar violations on physical persons vary from \$18 to 180. Therefore, many enterprises prefer to pay fines for unauthorized dumping of their waste instead of investing into collection and processing.

Market Demand and Market Data

According to different estimates, the total market for environmental technologies and products is estimated at \$700-1,000 million. Current rates of the growth of the market are 20-25 percent a year. At the same time waste management capacity is not fully used. The key components of the market include: solid waste management, water treatment and air purification.

In the last several decades Russia's waste output has been growing faster than industrial production. To date Russia has accumulated 80 billion tons of solid waste, including industrial and residential. Russia generates around 3.5 billion tons of waste annually, including 36 million tons of municipal solid waste. According to the Ministry of Natural Resources of the Russian Federation only 30 percent of total waste is recycled or processed. For industrial waste, the percentage of processed waste is 35 percent of the total volume. As for municipal solid waste, it is only 5 percent, except for Moscow where the percentage reaches 27 percent.

Analysts believe that using existing technologies and equipment Russia could recycle 50 percent of its industrial waste and 10 percent of its municipal waste. The main reason for under-exploitation of existing recycling capacities is undeveloped environmental protection concept, lack of up-to-date waste sorting rules and technologies, low environmental culture and education of population as well as insufficient support from the government authorities.

Municipal solid waste market consists of two parts, which are being financed from different sources:

- Residential Waste (financed by municipalities and population)
- Commercial and Public Waste (financed by enterprises and institutions)

Waste market covers five main areas:

- Collection
- Storing
- Transportation
- Landfilling
- Processing and management

Waste management is becoming more attractive for private investment despite a number of obstacles. First of all, there are no tax breaks for providers of waste management services. Secondly, waste collection and transportation costs are generally high due to the country's large territory and significant distances between waste management facilities and industrial plants producing waste. Thirdly, unlike European countries, no recycling fee is built into the final cost of packaging. Therefore, foreign investors planning to build recycling facilities in Russia have to think about financing sources for collection and transportation of waste.

Lastly, waste-processing industry does not produce finished products; it produces raw materials, which are further used in production of finished goods. Often times, these recycled raw materials are not cost effective in comparison to original raw materials. Cost effective recycled raw materials include aluminum, mercury from mercury lamps and other metals, as well as glass and cardboard. However less cost effective types of recycled waste such as tin, tire, plastic waste, including polyethylenetereftalin (PET), polythene, polypropylene, etc. are getting more and more attention from investors.

Examples of environmentally safe behaviors by manufacturing facilities are still few. However there are positive examples. It is reported that in April 2007 Metallurgical Industrial Complex of Nizhniy Tagil, part of Evraz Group, won the first place in the European Quality Gold Medal contest. The company competed with more than 150 other companies involved in conservation, pollution control and waste recycling activities and was the winner in the Russia's TOP 100 Enterprises in the Environment and Environmental Management category.

Another positive example is the completion of the Environmental Protection Program for the city of Lipetsk, which was started in 2004. The corner stone of the program was emission control on the major roads by arranging traffic lights in such a way that allows uninterrupted passage of the traffic lights. It was discovered in the course of air monitoring that major emissions happen during breakaway and braking. By reducing those, where possible, the city's authorities managed to reduce the atmospheric pollution index from 24.4 to 8.6. As a result Lipetsk was removed from the list of highly polluted cities.

A significant number of industrial enterprises and cottage villages around Moscow have started using waste pressing and shredding equipment to significantly reduce waste transportation costs. Mayor of Kaliningrand in North West Russia has formed an administrative and technical inspection responsible

for garbage collection in the city. The inspection has installed about 1,000 garbage containers in the city.

Best Prospects

Best selling products include:

- Waste sorting, pressing, crushing and washing equipment;
- Plastic and steel waste containers;
- Special containers for dangerous waste;
- Refuse collecting vehicles and litter bins;
- Waste incineration plants;
- Hydraulic presses for packing paper, cardboard, plastic and other kinds of waste;
- Recycling equipment for production of plastic packaging;
- Food waste processing equipment;
- Polymeric, plastic and paper waste processing equipment.

Regulatory Environment, Market Issues and Obstacles

At the moment there are key seven laws governing environmental protection. They contain conflicting and exclusionary clauses, lack appropriate detailed elaboration. The Russian Ministry of Natural Resources has started to develop an Environmental Code, which will include all aspects of environmental protection. The corner stone of the Code will be incentives for introduction of the best-known world environmentally safe technologies. Those enterprises, which will not introduce the best technologies, will have to pay significant taxes. These taxes will be used to develop environmentally safe technologies. Currently from 80 to 90 percent of all industrial enterprises use obsolete and unsafe environmental technologies. In 2006 Rostekhnadzor conducted an environmental examination of business plans for construction of 297 new enterprises. The approval was received by 268, 19 projects were rejected. The Environmental Code will also stipulate high fines for environmentally unsafe enterprises and tax incentives for waste management projects. However until this Code is adopted as a law Russia will continue to rely upon an undeveloped legislative environmental framework.

Currently there are no well-defined norms for recycling of certain types of waste, for example, for utilization of batteries containing lead as well as mercury lamps. Similar legislative gaps relate to tire and used cars processing.

Sorting of waste by the population and use of separate containers for different types of waste are still not developed in Russia. Some of the cities are introducing these new garbage collection technologies as pilot projects. For example, such project is currently implemented in the city of Dubna, Moscow region. However, generally there are no laws and regulations stipulating participation of population in waste separation. The majority of citizens do not contribute in any way to sorting solid waste, leaving this job to a small group of people; this way the issue remains outside the cultural and educational mainstream. However waste management cannot succeed without citizens' participation on a mass scale.

Generally regulatory environment for solid waste management activities has been significantly improving in the last several years. A number of key Russian cities and regions have been adopting laws and regulations creating incentives for waste collection by population, private investment into the sector, developing public-private partnerships and attracting foreign investment. A significant number of solid waste management projects are under preparation for launching or have been launched in such cities as Kazan, Novosibirsk, Krasnoyarsk, Bryansk, Kursk, Tyumen and several others. According to the February 16, 2007 edition of Rossiyskaya Gazeta, in the last several years 16 modern solid waste management complexes have been built or modernized in the Moscow Region. The Moscow region has a purpose- sampling program for utilization of waste for the years 2004-2010 according to which the Moscow region authorities plan to spend more than \$230 million on waste management.

Responding to aggravating situation with garbage disposal in the Moscow region, authorities have been establishing paid garbage containers on the key roads and highways, which could be used by passing by cars. Currently, free containers, which are put on a number of Moscow region highways are only eligible for long-range drivers and tourist buses. "Dachniki", owners of small cottages and summerhouses around Moscow, do not have right to use free garbage cans on the roads.

On November 30, 2005, the Moscow City Duma (municipal legislative organ) passed a Law #68 on Production and Consumption of Waste in the City of Moscow. The Law draws distinction between recyclable material resources and recycled raw materials. According to the law, recyclable material resources are not identical to recycled raw materials. Recyclable material resources are extrapolated from the waste mass directly, they can be reused after additional processing. Recyclable material resources are turned into recycled raw materials after recycling. The law stipulates that municipal authorities are financially responsible for extracting recyclable raw materials from the waste mass. However, the government will not take full financial responsibility for further processing, or recycling. It actually should be responsibility of private business. In other words, the Moscow government will pay for sorting out waste out of municipal solid waste flow, but not for recycling waste. The law also provides for certain government support for private recycling activities.

According to Professor Adam Gonopolsky, Deputy Director of Ecotechprom State Enterprise (a waste recycling company), the new law boosts the development of recycled materials market. However it encourages recycling of only a few, selective types of waste with relatively high level of profitability. Such types of waste include cardboard, glass and aluminum, while the components that are harder to collect or sell, i.e. tin, plastic and Tetra Pak packages, are less attractive to recycling facilities.

Another important clause of the law is new requirements towards dangerous waste. Specifically the law stipulates that dangerous and extremely dangerous medical waste created by hospitals and clinics must undergo mandatory disinfection before warehousing and transportation to places where it is incinerated.

The law also provides for budget subsidies and low interest loans to legal entities and individual entrepreneurs who introduce effective low-waste technologies, use recycled materials in production. Budget funding is also provided for research and development activities in the area of waste management and recycling.

There are certain administrative and management barriers, which hamper development of solid waste management industry in certain regions. For example, according to the law, manufacturing facilities

have to pay fees for waste collection to their respective local budgets, despite of the fact that waste processing facilities which they use might be located outside the territory they belong to. For example, Moscow processes most of its waste outside the city in the Moscow region. For example, 70 percent of all solid waste processed in the Moscow region comes from Moscow. However the waste management fees, which are paid by Moscow companies, go the city budget with negligible funds being received by the regional budgets. This situation is an obstacle to developing modern solid waste management plants in the Moscow region. Moscow city authorities plan to solve the problem by building waste incineration plants on the borders with the Moscow region. However this approach led to a lot of discussion about the effects of these plants on the health of population of both the Moscow city and the Moscow region. Regional authorities declared that they would do their best to prevent construction of such plants.

Key Suppliers

Foreign suppliers solid waste management equipment dominate the market. Imported equipment and products account for over 60 percent of the total market. Following are the shares of different types of domestically manufactured environmental equipment and products in the total market volume for each category:

- waste management – 29 percent;
- water treatment – 45 percent;
- air purification equipment – 15 percent.

The main foreign supplier of environmental equipment, including solid waste management equipment, is Germany, which accounts for 20 percent of all imports. Germany is followed by Italy, Sweden, USA, UK, Finland and Switzerland. Success of German companies in Russia can be attributed to the German government support for financing environmental projects through Hermes credit lines. German companies also widely use leasing arrangements.

There is a number of significant number of Russian manufacturers of solid waste management equipment, which specialize in such areas as metal scrap and chips processing (KEMET); hydraulic and other presses for different types of waste, including scrap paper and cardboard (Tochnaya Mechanika), defective apparel, footwear and electronics articles (STATICO Group); vibro-compression equipment for recycling iron-carbon containing waste into briquettes (EcoMashGeo); waste transfer stations, household waste containers, waste-lifting equipment (Ecopress); complex plants for disinfection of medical waste (Obninsk Center for Science and Technologies); solid waste sorting equipment, automatic briquette producing lines (OAO “Stankoagregat”); solid waste transportation vehicles (Mechanical plant Spetstrans); thermal processing of medical, biological and oil containing liquid waste (ZAO “Bezopasnye Technologii”); solid waste containers (Spetsmechizatsia); waste incinerating plants (ZAO Turmalin), treatment of medical biological and veterinary waste (CIS-Natural Resources); equipment for collection, compaction and transportation of waste (Waste Systems).

However many types of the most advanced and efficient solid waste management equipment are imported because local manufacturers cannot meet the domestic demand for such equipment. (Please see the Best Prospects Section for the types of modern equipment, which is in high demand).

Trade Events

1. WASMA/WASTE Management 2007

The 4th International specialized exhibition and forum of equipment and technologies for collection, processing and recycling

October 30, 2007 – November 2, 2007

Moscow, Russia

Venue: SOKOLNIKI CULTURE & EXHIBITION CENTRE.

Organizer: MVK

Phone: + 7 (495) 995-05-95

E-mail: info@mvk.ru

http://www.mvk.ru/eng/exhibitions/265_c_2007_10.shtm

2. Wastetech

The 6th International Trade Show and Congress for Waste Management, Recycling and Environmental Technologies

May-June 2009

Moscow, Russia

Venue: Crocus Expo

Organizer: SIBICO

Address: Russia, Moscow, 105062, PO Box 105

Phone/Fax: (495) 225 5986, 782 1013, 101 4621

E-mail: waste-tech@sibico.com or info@sibico.com - general questions

thesis@sibico.com - for abstracts and papers

http://w2007.sibico.com/?content=list§ion_id=30

Resources and Key Contacts

www.recycles.ru - leading solid waste management industry portal

1. Ministry of Natural Resources

Yuriy Trutnev, Minister of Natural Resources

B. Gruzinskaya, 4/6

Moscow, 123812

Web Site: www.mnr.gov.ru

Phone: 254-7633/6610 Fax: 254-4310

2. Department for Industrial and Domestic Waste Neutralization, Management and Processing of the City of Moscow

19 Porspekt Mira

Moscow 129090

Tel.: 7-495-681-3645

Fax: 7-495-688-9989

3. Federal Service for Environmental, Technological and Atomic Control of the Russian Federation

Mr. Konstantin Borisovich Kulikovskiy, Head
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Moscow, Moskva 105066
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4. Federal Service for Hydrometeorology and Environmental Monitoring

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