DOI 10.22394/1818-4049-2017-79-2-182-185
УДК 351.777

Aleksandr Vladimirovich Yaroslavtsev – Candidate of History, docent of the public and municipal administration chair, the Far-Eastern institute of management – branch of RANEPA (Khabarovsk). *E-mail: mu322@mail.ru*

Ecological innovations in the housing and communal services: special contribution to improvement the qualities of life of the citizens

The modern city can't be presented with the overflowed ballot box for garbage, surrounded with the grounds and illegal dumps. For formation of a new quality of the Russian cities and public spaces it was entrusted to the regions to hold a number of events for starting of a new system of collecting the waste – from forming of a system of collecting municipal waste, before construction of the modern waste recycling plants. In 2016 and 2017 the capital of Siberia (Novosibirsk) became the platform for holding the International forum "City Technologies" where the new technologies for everyday life of citizens were discussed. The innovative technologies presented at that forum have positive practical experience of application. As A.N. Lyul'ko noted "innovations don't take root for the sake of innovations. The major problems are solved with their help".

Innovative developments in the housing and communal services having practical application in the Siberian federal district are shown in this article.

Экологические инновации в ЖКХ: особый вклад в улучшение качества жизни горожан

Современный город невозможно представить с переполненными урнами, окруженным полигонами и нелегальными свалками. Для формирования нового качества российских городов и общественного пространства регионам было поручено провести ряд мероприятий по запуску новой системы обращения с отходами – от выстраивания системы сбора коммунальных отходов до строительства современных мусороперерабатывающих заводов. В 2016 и 2017 гг. столица Сибири (г. Новосибирск) стала площадкой для проведения Международного форума «Городские технологии», где обсуждались новые технологии для повседневной жизни граждан. Инновационные технологии, представленные на форуме, имеют положительный практический опыт применения. Как отмечал А.Н. Люлько: «… инновации не внедряются ради инноваций. С их помощью решаются важнейшие задачи» [5].

В настоящей статье показаны инновационные разработки в жилищно-коммунальном хозяйстве, имеющие практическое применение в Сибирском федеральном округе.

Keywords: *ecological condition of the cities, quality of life of the citizens, innovations, technologies, municipal waste, International forum "City Technologies".*

Ключевые слова: *экологическое состояние городов, качество жизни горожан, инновации, технологии, коммунальные отходы, Международный форум «Городские технологии».*

Till January, 2017 the Russian companies had to give to the Federal nature management supervision service of the application about registration of the objects of negative impact on the environment (further – NIE). The state registration of the objects of NIE affects practically the all real sector of economy. In Russia there were about 300 thousand enterprises which are the subject to federal supervision in this sphere [4]. According to the article 8.46 of the Administrative Code (AC) administrative responsibility for non-performance of the obligation for application for registration of the objects of NIE is established (for legal entities from 30 to 100 thousand rubles). So, at the beginning of December, 2016 in electronic form about 50 thousand applications for registration have been submitted. Since January 1, 2019 in AC will come into force the article 8.47 in which obtaining "the complex ecological permission" to implementation of the economic and (other) activity on the objects of NIE is provided [3].

Since January 1, 2017 in Russia the new system of operating with the waste is step by step started. Forming of effective system of operating with the waste, including timely cleaning of public spaces and export of waste – the most important element of implementation of the priority project "Housing and Public Utilities and Urban Environment" [6].

The new system will allow order and automate the state accounting of the objects of NIE, to make it clear, transparent and impartial. The created information system will allow obtain more exact information on ecological tension on the concrete territories. For example, the revealed quantity of objects which make emissions in the atmospheric air in this or that city will allow the state bodies set quotas for the total amount of these emissions. It will also be favorable to the enterprises. For example, if the enterprise conducts activity only on the danger class objects IV, then it will be exempted from the ecological payments and checks of Rosprirodnadzor. If the organization proves that its objects don't make negative impact, don't pollute the soil, water or air, then it leaves from under the ecological supervision that reduces administrative barriers. If an object belongs to the category from the increased ecological danger (category I), but on it the modern technologies (the best available technologies) are used, then the businessman can receive essential preferences. These transformations are especially relevant for housing and public utilities.

Within the International forum "City Technologies" innovative technologies in the field of processing and recycling have been presented [1, 2].

Integrated management of waste of the enterprises of Novosibirsk is exercised by “the Clean City” company, one of the stages is the secondary

processing (recycling) and neutralization of waste. The “Ekosober” company has developed the new “Waste-wood” technology – waste-free, ecologically safe, economically effective technology of processing of waste: firm household (including polygon) and some industrial (waste of livestock production, agricultural production, the textile, food industry). As a result of processing the company makes unique production with almost absolute immunity to effect of the moisture, hostile environment, microorganisms, high and low temperatures, ultra-violet radiation, being in the increased demand in different scopes.

In the sphere of environmentally friendly processing of waste with receiving additional products – the thermal and electric power, high-quality organic fertilizers, biogas – innovations in practice of the “Sibbiogaz” Group successfully are implemented. On the basis of renewables power objects – biogas stations, solar power stations, hot water supply and heating on the basis of solar collectors are projected and under construction.

The project directed to improvement of ecology, economy of construction of the new landfills, reduction and volume of the burned garbage is implemented by the waste-processing company "Retsikl-N Polymer" together with the "Tiger Siberia" company in Novosibirsk. Within the project the companies have established on the garbage platforms of the city mesh designs for collecting glass, plastic and aluminum.

The Center of Utilization companies, one of the largest specialized enterprises of the Siberian federal district, and “Utilitservice” use the incinerators[1] of various models allowing provide the high-temperature (till 1200 C) destruction of waste from 100% neutralization, promote thereby the reduction of their volume by 90–95% and exclude the risk of environmental pollution by the infected and pathogenic microorganisms.

“The Tion” group has developed "green" technologies of heat supply which allow utilize waste heat from productions in the system of centralized heat supply that gives decrease in the emission of CO2 due to the replacement of combustion of coal in the boiler rooms.

Innovative developments in the field of water purification are presented by the scientists of the Novosibirsk state architectural and construction university, the Institute of cytology and genetics of the Siberian branch of the Russian academy of sciences and the other developers.

On the basis of complex researches, production tests of the equipment and processes at the Novosibirsk state architectural and construction university the universal, ecologically safe technology of preparation of drinking water from superficial and underground sources is developed for drinking water supply of the settlements and also the new highly effective water-purifying equipment, ways of utilization of washing sewage and a deposit, receiving the active filtering material. The novelty of the offered methods and constructions is protected by 12 patents for inventions.

[1] Note: incinerators – specialized installations for controlled high-temperature ecologically safe thermal destruction (burning) and neutralization of the practically all types of waste.

Scientists from the Institute of cytology and genetics of the Siberian Branch of the Russian Academy of Sciences have developed technology of sewage treatment by the means of bio-ponds planted with the eykhorniya excellent or the water hyacinth. This plant well absorbs radionuclides of heavy metals. "Factory" for its cultivation is created at the institute of the Siberian branch of the Russian academy of sciences.

The company the Siberian water technologies "Hybrid Technology" is a team of scientists and engineers working on creation of the systems of water purification capable harmonious to fit into the existing ecosystem. A profile of the company is autonomous purification and utilization of the household sewage on the place of water consumption. The new technology consists in the separate processing of drains of various origin that allows combine biological and physical and chemical processing of separate components of drain and does the system cheap. Together with the partner – "the Vacuum Systems of Automatic Equipment" company – delivers installations of UF-radiation with parallel ozonization of water for receiving ultraviolet and ozone, in small quantities, for the water processing.

Innovative technologies in the sphere of energy saving and transfer of transport to an environmentally friendly power source are presented by "the Liotekh Innovation" company, developed on the basis of high-capacious lithium-ion accumulators of new generation for the safe storage and use of energy.

The Russian producer of innovative technologies for housing and public utilities and construction "The R-tekhno" Scientific and production enterprise has presented the scientific developments concentrated on creation of the small-sized power-intensive and ecologically safe equipment.

In the field of improvement the innovative developments allowing influence positively the ecology of urban environment are presented by the scientists of a number of higher education institutions. In particular, the Institute of mining of N.A. Chinakal of the Siberian branch of the Russian academy of science has developed pneumo-shock cars for laying of communications in the soil (pneumo-punches) which purpose – making in the condensed soil of wells up to 40 m long for the purpose of the subsequent laying of communications in them of different function. Pneumo-punches are successfully used at a driving of wells under the streets, tram and railway tracks, highways, runways of airfields, at the reconstruction of underground communications, etc.

The staff of the Novosibirsk state technical university has developed mobile installation for purification of ice from the sidewalks. The cultivator in which instead of knives brushes from metal are used is developed. The uniqueness of technology is that in the course of purification of ice the cultivator doesn't put damages to a sidewalk layer that can't almost achieve at mechanical or manual cleaning of an ice crust.

Scientists of the scientific division of the largest botanical institution of the Siberian federal district of the Russian Federation – Laboratories of biotechnology "The Central Siberian botanical garden of the Siberian branch of the Russian academy of science" – have developed the production technology of decorative cultures by the

methods of biotechnology which allows increase the quality of greening works and also to expand the range of fruit and berry plants for consumers.

The development directed to restoration of fertility of the soils is presented by the Institute of chemistry of a solid body and mechanochemistry of the Siberian branch of the Russian academy of science which result was a new gumatny product intended for reanimation of the soil subject to a high techno-genic loading.

Thus, new technologies and scientific developments in the sphere of housing and communal services promote modernization and efficiency of municipal economy that will improve ecological state of the cities and the quality of life of the citizens.

Список литературы:

1. Материалы Международного форума «Городские технологии». – Изд-во Департамента промышленности, инноваций и предпринимательства мэрии г. Новосибирска. – Новосибирск, 2016. – 129 с.

2. Материалы Международного форума «Городские технологии». – Изд-во Департамента промышленности, инноваций и предпринимательства мэрии г. Новосибирска. – Новосибирск, 2017. – 150 с.

3. О внесении изменений в Федеральный закон «Об охране окружающей среды» и отдельные законодательные акты Российской Федерации : федер. закон от 21.07.2014 г. № 219-ФЗ // Собр. законодательства РФ. – 2014. – № 30. – Ст. 4220.

4. Официальный сайт Федеральной службы по надзору в сфере природопользования. URL.: http://rpn.gov.ru.

5. Примечание: А.Н. Люлько – начальник департамента промышленности, инноваций и предпринимательства мэрии г. Новосибирска // Материалы Международного форума «Городские технологии». – Изд-во Департамента промышленности, инноваций и предпринимательства мэрии г. Новосибирска. – Новосибирск, 2017.

6. Стратегическое направление развития «ЖКХ и городская среда» [Электронный ресурс] // Официальный сайт Министерства строительства и жилищно-коммунального хозяйства Российской Федерации. URL.: http://www.minstroyrf.ru.

References:

1. Materialy Mezhdunarodnogo foruma «Gorodskie tekhnologii». – Izd-vo Departamenta promyshlennosti, innovacij i predprinimatel'stva mehrii g. Novosibirska. – Novosibirsk, 2016. – 129 s.

2. Materialy Mezhdunarodnogo foruma «Gorodskie tekhnologii». – Izd-vo Departamenta promyshlennosti, innovacij i predprinimatel'stva mehrii g. Novosibirska. – Novosibirsk, 2017. – 150 s.

3. O vnesenii izmenenij v Federal'nyj zakon «Ob ohrane okruzhayushchej sredy» i otdel'nye zakonodatel'nye akty Rossijskoj Federacii : feder. zakon ot 21.07.2014 g. № 219-FZ // Sobr. zakonodatel'stva RF. – 2014. – № 30. – St. 4220.

4. Oficial'nyj sajt Federal'noj sluzhby po nadzoru v sfere prirodopol'zovaniya. URL.: http://rpn.gov.ru.

5. Primechanie: A.N. Lyul'ko – nachal'nik departamenta promyshlennosti, innovacij i predprinimatel'stva mehrii g. Novosibirska // Materialy Mezhdunarodnogo foruma «Gorodskie tekhnologii». – Izd-vo Departamenta promyshlennosti, innovacij i predprinimatel'stva mehrii g. Novosibirska. – Novosibirsk, 2017.

6. Strategicheskoe napravlenie razvitiya «ZHKH i gorodskaya sreda» [EHlektronnyj resurs] // Oficial'nyj sajt Ministerstva stroitel'stva i zhilishchno-kommunal'nogo hozyajstva Rossijskoj Federacii. URL.: http://www.minstroyrf.ru.