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CENTRAL ASIAN REGION: ANALYSIS OF ENVIRONMENTAL POLLUTION

Over a long period of economic activities on the territory of Central Asia have accumulated millions of tons of industrial and municipal solid wastes. As a result, there is a violation of ecosystems, a decrease in biodiversity, pollution and land degradation in large areas, leading to serious socio-economic consequences.

Many social and economic problems of this region lies a historically developed imbalance as the countries consume resources out of a proportion with their manufacture.

The purpose of this research was the study and analysis of environmental pollution in Central Asia. The main direction of the study is the assessment of solid waste pollution of production and consumption and the development of ways to solve the problem in this region.

In order to the radically change of the current situation and the status of activities for environmental protection and sustainable development, it is necessary to introduce the principles of a green economy implemented at the national and regional levels. The introduction of the principles of sustainable development is a great importance in solving this problem.

At present, the Central Asian countries are moving towards the practical implementation of the principles of sustainable development in strategic documents and practices of public waste management. The issue of waste management, taking into account their transboundary effect, and the environment as a whole is possible only on the principles of cooperation. In order to ensure timely solution to this problem is necessary to improve and harmonize the scheme of waste management at the state level and through regional cooperation.

Growing global threats related to climate change, energy, water and food security problems, as well as regional conflicts require new solutions and integration of the efforts of the entire community of this region.

To ensure timely solution of this problem, it is necessary to improve and harmonize the waste management scheme at the state level and through regional cooperation. The article summarizes the problems, directions of further integration in the field of waste management.

Key words: soil pollution, solid waste, green economy, regional cooperation, waste management, sustainable development.

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Орталық Азия аймағы: қоршаған ортаның ластануын талдау

Мақала Орталық Азия аймағындағы қоршаған ортаны ластау жағдайын зерттеуге арналған. Ұзақ уақыт бойы Орталық Азия аймағында экономикалық қызметтерінде миллиондаған тонна өндірістік және муниципалдық қатты қалдықтар жинақталып келді. Нәтижесінде экожүйенің бұзылуы, биоалуантүрліліктің азаюы, кейбір аумақтардың жер деградациясына ұшырауы мен ластануы жүруі сияқты маңызды әлеуметтік-экономикалық салдарына алып келді. Мемлекеттер өндіріске пропорционалды ресурстарды тұтынғандықтан бұл аймақтың көптеген әлеуметтік және экономикалық мәселелері тарихи қалыптасқан дисбалансқа байланысты. Бұл зерттеудің мақсаты – Орталық Азия аймағындағы қоршаған ортаның ластануын талдау және зерттеуге бағытталған

болатын. Зерттеудің негізгі бағыты: аталмыш аудандағы өндіріс және тұтыну қалдықтарын шығарудан болатын ластануды бағалау және шешу жолдарын қарастыру. Орын алған жағдай мен статусты түбегейлі өзгерту мақсатында қоршаған ортаны қорғау және тұрақты дамыту қызметтері ұйымдары жасыл экономиканың аймақтық, ұлттық деңгейде жүзеге асырылатын қағидаларын енгізуі қажет. Бұл мәселені шешудің үлкен мәні – тұрақты даму қағидаларын енгізу болып табылады. Қазіргі таңда Орталық Азия елдері тұрақты даму қағидаларын енгізуді іс жүзінде жүзеге асырудың стратегиялық құжаттары мен қалдықтарды басқарудың мемлекеттік тәжірибесіне өтуде. Шекаралық және қоршаған орта әсерлерін ескере отырып, қалдықтарды басқару мәселесін шешу жалпы ынтымақтастық ұйымдарының қағидалары негізінде ғана мүмкін болып отыр. Климаттың өзгеруі, энергетика, су ресурстары және азық-түлік қауіпсіздігі, сондай-ақ аймақтық жанжалдар секілді жаһандық қауіптердің өсуі осы ауданның бүкіл ынтымақтастығын арттыру интеграциялары мен жаңа шешімдерді қажет етеді. Бұл мәселені мерзімінде шешуді қамтамасыз ету үшін қалдықтарды басқару сызбасын мемлекеттік деңгейде және аймақтық ұйымдар арқылы келісім жасатып жетілдіру қажет. Мақалада қалдықтарды басқару саласындағы мәселелер, алдағы уақыттағы интеграция бағыттары жалпылама қарастырылған.

Түйін сөздер: топырақтың ластануы, қатты қалдықтар, жасыл экономика, аймақтық ынтымақтастық, қалдықтарды басқару, тұрақты даму.

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Регион Центральной Азии: анализ загрязнения окружающей среды

Статья посвящена изучению состояния загрязнения окружающей среды в Центрально-азиатском регионе. В течение длительного периода экономической деятельности на территории Центральной Азии накоплено миллионы тонн промышленных и муниципальных твердых отходов. В результате чего происходит нарушение экосистем, снижение биоразнообразия, загрязнение и деградация земель на значительных территориях, приводящие к серьезным социально-экономическим последствиям. Многие социальные и экономические проблемы этого региона связаны с исторически сложившимся дисбалансом, поскольку страны потребляют ресурсы пропорционально их производству.

Целью настоящего исследования явилось изучение и анализ загрязнения окружающей среды на территории Центральной Азии. Основное направление исследования – оценка загрязнения твердыми отходами производства и потребления и выработка путей решения проблемы в данном регионе. В целях кардинального изменения существующего положения и статуса деятельности по охране окружающей среды и устойчивому развитию необходимо внедрение принципов зеленой экономики, осуществляемое на национальном, региональном уровнях. Огромное значение в решении данной проблемы имеет внедрение принципов устойчивого развития. В настоящее время страны Центральной Азии переходят к практической реализации внедрения принципов устойчивого развития в стратегические документы и практику государственного управления отходами. Решение вопроса управления отходами, учитывая их трансграничный эффект, и окружающей среды в целом возможно только на принципах сотрудничества. Растущие глобальные угрозы, связанные с проблемами изменения климата, энергетике, водных ресурсов и продовольственной безопасности, а также региональные конфликты требуют новых решений и интеграции усилий всего сообщества этого региона.

Для обеспечения своевременного решения этой проблемы необходимо улучшить и согласовать схему управления отходами на государственном уровне и через региональное сотрудничество. В статье обобщены проблемы, направления дальнейшей интеграции в сфере управления отходами.

Ключевые слова: загрязнение почв, твердые отходы, зеленая экономика, региональное сотрудничество, управление отходами, устойчивое развитие.

Introduction

The Central Asian region is characterized by the uniqueness of natural ecosystems that play a crucial role in ensuring the environmental safety of the entire Eurasian continent. This region is characterized by high vulnerability to anthropogenic and climatic

changes and unsustainable use of natural resources. This aggravates environmental degradation (Central Asia: Batum Progress Carec, 2016: 29). It is one of the regions that most vulnerable to climate change, characterized by a sharply continental dry climate with significant seasonal and daily fluctuations in temperature and an uneven distribution of

precipitation (Fig. 1). The World Bank provided the highest level of vulnerability for four of the five Central Asian countries among the 28 countries in

Europe, the Caucasus and Central Asia, recognizing Tajikistan and Kyrgyzstan as the most vulnerable (World Bank, 2009: 35).



Figure 1 – Central Asian states

At the same time, climatic observations confirm that the growth of average annual temperature in Central Asia since the 1950s has outpaced global averages (Gupta et al, 2009: 68). Over the period between two thirty-year climate control periods (1942-1972 and 1973-2003), the temperature increased by 0, 65 °C. For example, in Kazakhstan and Uzbekistan, the average annual temperature has increased by 0,8-1,3 °C over the past 100 years. Throughout the region, climate warming during the winter months more pronounced than in other seasons. For Central Asia, according to climate change scenarios, a temperature increase of 1-3 °C is expected by 2030–2050 (Mirzabayev A., 2016: 102). According to the IPCC forecasts, by 2100 a global temperature increase can reach from 1,5 °C to 4,8 °C relative to the pre-industrial level (Shikai Song, 2016: 139). Such an increase in temperature can lead to serious consequences for people and ecosystems. Climate change exacerbates the effects of desertification and land degradation, poses a threat to biodiversity and causes displacement of vegetation zones. Increases social risks and affects environmental factors related to health – clean air, safe drinking water, food in sufficient quantities and safe shelter.

Central Asia, there are common environmental threats: gradual destruction of wildlife, threatening the loss of fauna and flora, excessive chemicaliza-

tion of fertile lands and their removal from the land resources system, irrational use of water resources, pollution of aboveground and groundwater resources, airspace.

For the countries of Central Asia, there are similar environmental problems associated with the fact that in Soviet times the republics were a series of industrial and agricultural raw materials production complexes. As a result, billions of tons of solid wastes were accumulated mainly in the mining industry (in Kazakhstan alone we now have about 22 billion tons of waste), land resources were seriously damaged, the air was polluted, and aboveground and underground water resources were polluted. The environment of the region today, as experts note, is in a neglected state. Therefore, the region of Central Asia is one of the most important on the whole continent, influencing the solution of contemporary environmental problems.

Economic growth in Central Asia to date is mainly due to the increase in commodity prices on world markets and use a significant amount of natural resources. GDP growth accompanied by high emissions to the environment. At the core of many social and economic problems of this region lies a historically developed disbalance as the countries consume resources out of a proportion with their manufacture (Assessment Reports, 2006: 62; Bernauer, 2012: 233).

Environmental problems of Central Asia

Over a long period of economic activities on the territory of Central Asia have accumulated millions of tons of industrial and municipal solid wastes, a significant part of which are dangerous toxic wastes (Uranium Tailings, 2009: 28; DIPECHO Program, 2009: 4). In general, widespread processes of erosion and hazardous natural disasters characterize the ecological status of mountainous areas of Central Asia. Kyrgyzstan and Tajikistan are mountain countries, since more than 90 % of their territory is occupied by mountain while Uzbekistan, Kazakhstan and Turkmenistan with a smaller share of mountain areas (from 5 to 20% total area) are countries with mountains. The consequences of these processes are deep changes in the hydrological regime of the mountains, the depletion of renewable water sources and increase in the natural calamities occurrence. In general, 40% are concentrated in Tajikistan, and in Kyrgyzstan -30 % of the potential for the formation of water, which provide moisture to all countries of the Central Asia (Bernauer, 2012: 228; Uranium Tailings, 2009: 19).

Substantial part of the population lives in areas with high seismic activity, where there is a probability of earthquakes. They are living under the threat of flooding. Landslides, droughts and other disasters associated with climate change have become more frequent over the past few years, resulting in considerable human and economic losses (DIPECHO Program, 2009: 5; ENVSEC, 2011: 41).

In the exploitation of mineral deposits only 1-2 dominant components are «skimmed», which make up about 3-5% the mined minerals, the remaining mass accumulates in the form of waste. Most of the oil-rich areas and adjacent ones are contaminated with oil. Arable land contaminated with high doses of pesticides (Bernauer, 2012: 229; Uranium Tailings, 2009: 33).

A significant portion of persistent organic pollutants (POPs) are presented by pesticides, residues of which remain in the soil and plants for years. Industrial POPs are formed at the enterprises of energy, petrochemical and chemical industry (Assessment Reports, 2006: 46; Uranium Tailings, 2009: 27). The uncontrolled wastes create a threat of pollution, worsen sanitary-epidemiological situation. The bulk of waste is formed by mining and processing enterprises.

According to (ENVSEC, 2011: 49) 40 billion tons of waste has been accumulated in Kazakhstan, 1 billion – in Kyrgyzstan, 210 million – in Tajikistan, 165 million – in Turkmenistan, 1.3 billion tons of waste in Uzbekistan.

Environmental destabilization of Kazakhstan

In Kazakhstan, according to available estimations, about 75 % of the territory of the country are subject to high risks of environmental destabilization. Specific environmental and social issues associated with underground and open-air nuclear weapons tests carried out during 40 years at the Semipalatinsk test site, have been causing a serious concerns. This environmental situation has brought in significant decline in economic development, social and demographic situation. The total amount of waste by mining and smelting of non-ferrous, rare, precious and radioactive metals is comparable to the reserves of large deposits.

The Aral Sea crisis – is the most striking example of environmental problems with serious socio – economic effects, which directly or indirectly involving with all Central Asian states (Bernauer, 2012: 235). The crisis caused by the drying of the Aral Sea was the result of irrigated agriculture. It all resulted from the policy of the Soviet state, aimed at the economic interests at the expense of the environment and the interests of the population of the region.

The overall decline in economic development has an impact on social indicators: population, migration, education and health.

Environmental changes are the shoaling and salinization of the sea, the destruction of the ecosystem, the disappearance of more than 200 species of organisms, the increase in climate continentality and in the depth of groundwater and desertification. As a result, in the middle belt of the great deserts another new desert «Aralkum» has formed.

Out of 40 billion tons of the total waste 6.7 billion tons are toxic, which are sources of pollution of land, surface and groundwater and atmosphere (National Report of Republic of Kazakhstan, 2010: 67; National report of Republic of Kazakhstan, 2015: 34).

These wastes are mainly located in Karaganda region (29,4 %), East-Kazakhstan region (25,7 %), Kostanay region (17 %), Pavlodar region (14,6 %).

In more than 100 storage locations, about 230 million tons of radioactive waste from uranium mining industry are accumulated with the total activity of more than 250 thousand curies (National Report of Republic of Kazakhstan, 2010: 42; National report of Republic of Kazakhstan, 2015: 51).

Annually about 4 billion tons of such wastes are produced, but only about 7% of them are recycled, and from nearly 150 million tons of toxic waste only 17%. On the territory of Kazakhstan there are 118

dumps of, sub-standard ores and wastes resulting from processing of radioactive ores amounting to 56 million m³ (National Report of Republic of Kazakhstan, 2010: 18).

The total volume of accumulated solid waste in Kazakhstan is about 100 million tons, at the same time, about 5-6 million tons of solid household waste are generated annually. According to the accounting data for 2015, the volume of generated solid waste in the country amounted to 5,467,254 thousand tons, of which 99.669 thousand tons were disposed, which is 1.8%, the rest is located at landfills. By 2025, this figure can grow up to 8 million tons, while the generated waste is placed on landfills without preliminary sorting and neutralization (Decree of the Government, 2010: 69).

With limited financial resources, illegal dumps and landfills are the cheapest method of long-term landfill storage. The bulk of the waste without sorting the components taken out and stored in open dumps and landfills, 97% of which do not meet the ecological requirements and the sanitation regulations. Only about 2-3% of municipal solid waste (MSW) are recycled. Thus, the reconstruction of existing landfills, in accordance with the specifications of their signed is necessary (Decree of the Government, 2010: 24).

Analysts have calculated the ratio of carbon dioxide emissions resulting from the combustion of fuel (coal, gas, oil), and the gross domestic product (GDP) of the country. In the ranking of the most polluted by environmentally harmful emissions, Kazakhstan ranked fourth with an index of 0,604 kg per unit of GDP. The volume of greenhouse gas for the year amounted to 229 million tons.

Over the past ten years, emissions have increased by 21,43 % (Mirzabayev, 2016: 98). The most unfavorable situation is observed in two areas, which account for half of all emissions of harmful substances in the country. In the Karaganda region, the air «pollutes» a large coal basin, and in Pavlodar – enterprises for the extraction of aluminum and oil refining. Astana, like the former capital of the country, Alma-Ata, has become one of the cities with a high level of pollution.

It is known that an increasing number of cars, combined with problems related to the quality of automotive fuel in the country, have led to excessive air pollution, and aggravated public health problems, especially in urban areas. Further development of the transport sector and related infrastructure is considered as a tool to simplify the process of diversification of the economy in the country. Constant deterioration of air quality in large cities is a painful problem.

Among the civil society and non-governmental organizations, which are increasingly demanding increased intervention by the state and other stakeholders and take measures to improve the situation (Emissions from the automotive sector, 2013: 6).

The air pollution is due mainly to emissions from ferrous and non-ferrous metallurgy, power engineering, oil and gas industry and transportation (National report of Republic of Kazakhstan, 2015: 74).

The state of air pollution is monitored in 28 cities. About 5 million people in Kazakhstan live in conditions of air pollution, 2 million – in extremely high levels of pollution. According to Kazhydromet, Zhezkazgan, Karatau, Karaganda, Shymkent, Temirtau, Ust-Kamenogorsk and the village Glubokoe were recognized as the dirtiest settlements in 2017. Sometimes the maximum concentrations of pollutants exceed the established standards by 10-20 times (for example, in the cities of Balkhash, Ust-Kamenogorsk with sulfur dioxide) (National report of Republic of Kazakhstan, 2015: 78).

Environmental destabilization of Kyrgyzstan

On the territory of Kyrgyzstan, there are 75 sites of radioactive waste mining industry. The total volume exceeds 145 million m³, and they occupy the area of 6500 hectares.

The greatest danger is 38 radioactive wastes totaling to 62.12 million m³, including 29 uranium tailings with a total volume of radioactive waste over 41 million m³.

In the field of minerals extraction there are also 37 nonreclaimed dumps containing substandard (poor) radioactive ores total volume exceeding 83 million m³. The total volume dumps of 620 million m³, coverage area – 1950 hectares (National Report of the Kyrgyz Republic, 2010: 44; Report of Kazakhstan, Kyrgyzstan and Tajikistan, 2013: 86).

During the last decade in process of production and consumption 57 million tons of toxic waste accumulated, 4 million of which was recycled and about 0, 55 million (0.1 %) was fully neutralized. Out of the 44 landfills, more than half do not meet current regulations (National Report of the Kyrgyz Republic, 2010: 104; Report of Kazakhstan, Kyrgyzstan and Tajikistan, 2013: 148).

There is a significant deterioration of the tailings due to degradation and failure of protective coatings and structures. The situation is further aggravated by the fact that most of the waste deposits in Kyrgyzstan are located in high seismic and landslide activity areas, the place where mudslides and floods with elevated groundwater, which poses a threat not only to ecology of the Kyrgyz Republic, but the entire

Central Asian region (Report of Kazakhstan, Kyrgyzstan and Tajikistan, 2013: 38). In the past, there were accidents on the tailings at Mailuu-Suu, Min-Kush, Ak-Tuz with catastrophic consequences in the form of radioactive pollution of transboundary territories of Kyrgyzstan, Kazakhstan and Uzbekistan (Uranium Tailings, 2009: 46; Report of Kazakhstan, Kyrgyzstan and Tajikistan, 2013: 55). The risk of transboundary contamination exists to date.

A significant problem and ecologically unfavorable situation in Kyrgyzstan is caused by MSW, the annual accumulation of which is about 6 million tons. Regular collection of municipal wastes in communities in recent years has decrease significantly (National Report of the Kyrgyz Republic, 2010: 118; Report of Kazakhstan, Kyrgyzstan and Tajikistan, 2013: 104).

The system of sorting wastes was destroyed as well as the system of collection and treatment of contaminated areas. No recycling is practiced.

The ecological situation in Uzbekistan and other regions

In Uzbekistan, about 2 billion tons of waste over 14 % of them toxic have accumulated in dumps, sludge storages and landfills.

Of the toxic waste produced annually 0,08 % is utilized, 0,11% is transmitted to other organizations for recycling, and the rest goes to storage. Only 0,2 % of the total amount of wastes goes back into production as secondary resource, the bulk is accumulated in tailings, sludge storages and on the territory of the enterprises.

Each year produces about 125 thousand tons of the so-called bio-medical wastes, which are practically not utilized and therefore are extremely dangerous, contributing to spread of infections (Novikov, 2013: 47; Norbutaev, 2010: 73).

In 2016, Uzbekistan closed the «top five» of the Enerdata rating – 0,596 kg per unit of GDP. Since 2006, the level of CO₂ pollution has decreased by 10,9 %.

It is noteworthy that in 2012 this republic topped the list with an index of 0,881 kg per unit of GDP. In recent years, the ecological situation in the country has improved. The volume of greenhouse gas reached 103 million tons, which is 3% lower than the previous values (Mirzabayev A., 2016: 96).

In Uzbekistan about 155 locations of MSW are operational but only one of them fully meets the hygienic requirements of safety. The system of sorting wastes was dismantled, and the system of collection and treatment of MSW is imperfect and practically they are not recycled or processed (Norbutaev, 2010: 75; Shaumarov, 2013: 45).

At present, the tailings of mining enterprises of the Republic of Tajikistan are in critical condition. The main contaminants in waste are uranium, radium, polonium, thorium, and mercury.

Considering that Tajikistan is an area of increased seismic activity, as well as in connection with constant mudslides, heavy rains, landslide processes, the risk of environmental pollution with negative consequences is very high. Today in Tajikistan is more than 22 tailing sites and dumps of rocks containing radioactive elements that pose a potential threat not only to the Tajik population, but also to neighboring countries. These tailings with over 210 million tons of waste of these, 55 million tons of radioactive waste cover an area of more than a thousand hectares with a total activity of 6.5 thousand curies.

Measures taken to protect the environment are carried out insufficiently and do not meet sanitary requirements. Reconstruction of the Republican disposal facility for radioactive waste located in the territory of the Faizabad district, commissioned as early as 1962 is needed. Currently, Tajikistan does not have sufficient financial capacity to independently implement all measures to ensure the safety of the above tailing dumps and a burial site. The situation at abandoned uranium tailings is so threatening. No work is being done on the recultivation of uranium waste dumps or the resettlement of residents from the danger zone.

Radioactive substances constantly leak out, and their concentration in the soil and water of the Sughd region increases at a very rapid pace.

In addition, these objects are located near large bodies of water – the Kairakkum reservoir and the Syr Darya River, which flows besides Tajikistan through the territories of Uzbekistan, Turkmenistan and Kazakhstan.

The situation is aggravated by the fact that the tailings of the Sughd region are a source of radioactive gas release – radon.

Every year, only in the Sughd region, the number of patients with oncological diseases, the bulk of which are children and adolescents, increases markedly.

The situation is similar at the tailings sites near the village of Adrasman and the city of Taboshar in the Sughd region.

These sources of radiation are of particular concern because they are located near settlements, as well as small rivers. There is practically no drinking and technical water, and the population uses polluted water for irrigation and drinking. About 70% of the total population of Taboshar suffer from a thy-

roid disease, infant mortality, and congenital malformations among women in Sughd region is growing rapidly. In addition, the potential threat in Tajikistan is the territory of the former Soviet military bases. It was found about 200 abandoned sources in the open dumps.

In Sughd region degradation of the 11 tailings with buried radioactive wastes, exceeding 50 million tons continues (Report of Kazakhstan, Kyrgyzstan and Tajikistan, 2013: 48; Tajik News Agency, 2013: 16).

In the most unsatisfactory condition there are three tailings and waste dumps near Taboshar city. Landfills often do not have any engineering protection, preventing the penetration of waste into the environment. Nearly 2 billion tons of solid wastes are stored in dumps and tailings.

Annually about 90 million tons of waste in the form of barren rock, flotation tailings, various slag and clinker dumps are stored. In non-ferrous mining and metallurgy annually, about 300 thousand tons of metallurgical slag are formed (Shaumarov, 2013: 49).

As for MSW, in Tajikistan the total territory of land used as for landfills is about 300 hectares. Over 90% of the landfills do not meet modern construction and sanitary standards. More than 3 million tons of MSW is produced annually (Tajik News Agency, 2013: 17).

Turkmenistan annually accumulated approximately 1 million tons of wastes. The greatest danger to the environment is represented by toxic wastes (Uranium Tailings, 2009: 47; National program of Turkmenistan, 2013: 58). Among chemical substances emitted from stationary sources, «the lead» is with hydrocarbons, emissions of which is 331.4 tons per year, making up 75% of the total emissions in the country (Bernauer, 2012: 233; National program of Turkmenistan, 2013: 18). Others are food wastes, glass, plastic, metal, construction debris. So far, in Turkmenistan the only method of waste disposal is to bury them in landfills. In the future, this trend will continue except for the city of Ashgabat where it is planned to build a recycling plant (Uranium Tailings, 2009: 14; National program of Turkmenistan, 2013: 88).

Growing global threats related to climate change, energy, water and food security problems, as well as regional conflicts require new solutions and integration of the efforts of the entire world community.

The need to address these problems through regional cooperation was recognized in 1993 by establishing the Interstate Commission for Sustainable Development. As part of the action plan for the pro-

tection of the environment supported by international organizations. However, to date the collection, recycling and disposal of industrial and municipal solid wastes are resolved unsatisfactorily, i.e.:

- Sorting and recycling of wastes in the waste treatment plants is not performed;
- Low waste and waste-free technology is poorly implemented;
- Not enough practice in involving the public and in decision-making in the field of waste management;
- There is no unified system of monitoring the state of facilities the collection, storage, use and disposal of wastes and their impact on the environment and human health;
- International standards, laws and regulations in waste management meeting EU standards are not sufficiently used;
- There is no practice of environmental insurance for the damage to the environment and funding its restoration;
- There are no IT systems for decision making in the field of waste management;
- There are no waste processing facilities, working on transboundary territories.

In order to ensure timely solution to this problem is necessary to improve and harmonize the scheme of waste management at the state level, taking into account the peculiarities of economic development of the countries and create a single regional scheme for Central Asia.

Kazakhstan for the integration of the efforts of all countries proposed the Astana Green Bridge Initiative (Initiative «Green Bridge», 2010: 19).

The concept of «green» growth meets strategic needs countries of the Asia-Pacific and European regions. An approach «Green» growth, which is a pioneering strategic framework for sustainable development was recommended at the fifth The Ministerial Conference on Environment and Development as tools for the harmonization of activities under Goal 1 (reduction poverty reduction) and Goal 7 (environmental sustainability). The overall goal of the Green Bridge Partnership Program is to create the conditions for a partnership between countries and sectors of Europe, Asia and the Pacific to achieve an environmentally sustainable and prosperous future for these regions. The goal will be achieved through the transfer of experience, investment, technology, intellectual and other resources, networking and the sharing of knowledge and experience, as well as within national, regional, subregional projects (Initiative «Green Bridge», 2010: 38).

The main goal of the Initiative is to develop a partnership between the countries of Europe, Asia and the

Pacific to develop plans for the transition from traditional economic models to the concepts of «green» growth.

In many countries of Europe and Asia, there are many examples of practical support for Green Economy projects, including the development of renewable energy sources and energy efficiency, water productivity, sustainable tourism, organic farming and other areas of the green economy. In our view, it is necessary to analyze and summarize this experience

The countries of Central Asia interested in solving the growing problems of development and radically improving the existing situation could voluntarily create favorable conditions for green investments and technologies

Approaches of «green» growth are becoming increasingly important for increasing competitiveness, environmental sustainability and risk management. Investments in natural capital, clean energy and environmental efficiency provide an opportunity for a new «green» model of economic growth and for creating jobs that serve as the basis for open social development.

The main criteria for the practical implementation of the Green Bridge Program are the following:

- National strategic investment projects of the Green Economy, based on the country's most powerful capabilities and features in terms of long-term development and security objectives of the country and the region as a whole;
- two-sided or sub-regional projects that promote the conservation of transboundary ecosystems and save resources that do not duplicate but support or supplement other existing programs and projects;
- regional and multilateral projects based on the opportunities for regional and global cooperation and trade of countries or subregions with a view to saving and increasing the productivity of natural resources and the conservation of natural ecosystems.

Conclusion

In our view, it is important to note that the implementation of the Green Bridge Partnership Program will ensure:

- slowing the process of environmental degradation and stopping the wasteful use of natural resources with the replacement of traditional unsustainable patterns of production and consumption in the model of the Green Economy;

- in order to radically change the current situation and the status of activities for environmental protection and sustainable development, it is necessary to introduce the principles of a green economy implemented at the national and regional levels;

- a drastic change in the existing status and status of environmental protection and sustainable development activities at the national, regional and global levels;

- a significant increase in the level of security: environmental, political, national and regional.

Such an approach will also allow the use of mutually beneficial mechanisms of regional cooperation and trade for more efficient use of water and energy, transfer of clean technologies and investments – with minimal corruption capacity. Problems of environmental protection and the creation of favorable living conditions for humans require preventive measures and creating a strong international legal framework for cooperation among Central Asian states.

The system of legal regulation of environmental cooperation in Central Asia is represented by multilateral environmental agreements, regional, sub-regional and bilateral agreements and conventions in addition to national legislation.

It is necessary to develop effective mechanisms for the implementation of existing international legal instruments such as an Agreement «On interaction in the field of ecology and environmental protection», Agreement «On Cooperation in the Prevention and Elimination of Consequences of Natural and Technical Emergencies», Agreement «On informational cooperation in the field of ecology and environmental protection», «Agreement on cross-border cooperation in the field of study, development and protection of mineral resources».

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