

SUSTAINABLE DEVELOPMENT OF THE REPUBLIC OF BELARUS BASED ON “GREEN” ECONOMY PRINCIPLES

National Report



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NATIONAL REPORT

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This National Report was drawn up by the staff of the Scientific-Research Economic Institute of the Ministry of Economy of Belarus with financial and organizational assistance from the United Nations Development Program Office in Belarus.

The National Report elaborates on the Belarusian sustainable socio-economic development model, demonstrates achievements in sustainable development in general and in specific sectors of the economy in particular, and identifies the directions and principles of the transition of Belarus to a “green” economy.

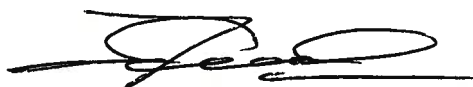
The draft National Report was reviewed at a roundtable held by the Ministry of Natural Resources and Environmental Protection of Belarus on May 18, 2012 in Minsk, attended by a wide range of representatives from state agencies, academic institutions, non-governmental organizations and UN agencies; it was also delivered at the scientific-practical conference “Sustainable Development of the Republic of Belarus Based on “Green” Economy Principles” on June 5, 2012.

Opening Remarks by the Minister of Economy of the Republic of Belarus

The Republic of Belarus takes an active part in building a prosperous, safe and sustainable future for all mankind. The economic policy of our country is developed solely with regard to environmental safety. Environmental requirements, declared today as the principles of "green" economy, are rigorously embedded into all development programs – they are the determinants of the "technological corridor" of innovative breakthrough and industrial modernization in Belarus. The Government of Belarus – a country that suffered from the Chernobyl accident – understands better than anybody that building "economy" provides a unique chance to secure long-term prosperous development in the interests not only of the present-day generation, but also those to come.

Belarus has chosen the so-called "win-win" scenario that is associated with ensuring both socially oriented economic growth and reducing harmful emissions, prudent environment management and development of low-waste production. That is why our national sustainable development strategy rests upon unbiased analysis of the economic situation and accounts for people's wish for better living. Our country is ready to support "green" ideas, it strives to utilize the best international experience and innovation and to attract "green" technology.

I am confident that this National Report lays that foundation for a new sustainable development strategy.



N.G. Snopkov

Opening Remarks by the Minister of Natural Resources and Environmental Protection of the Republic of Belarus

In the modern world, sustainable development is inconceivable without the environmental component, and the issues of "greening" economic growth are in the focus of the international community.

In the Republic of Belarus, the issues of sustainable development and the introduction of environmental principles into the national economy, creating conditions for better living of the population and ensuring social justice, while significantly reducing environmental risks are among the priorities of state policy.

All the preconditions for the implementation of sustainable development principles have been created and the concept of environmental "green" economy is deemed to be an important instrument for ensuring environmental safety.

At the same time, the state supports approaches that contain no grounds to using the "green" economy concept as an instrument of discrimination and protectionism and that contribute to better availability of environmental "green" technology for developing and transitional economies, to rendering financial, technical, advisory and other assistance for their development and introduction.

Meanwhile, environmental well-being as a foundation for the successful future of mankind and the life of the entire population of our planet can only result from constructive cooperation between all stakeholders at the local, regional and global levels.

On the threshold of the UN Sustainable Development Conference "Rio+20", which is to assess the achievements of humanity in sustainable development and set future objectives, it should be stressed that our country has always been open to multi-dimensional partnership for the sake of sustainable global development.

The National Report "Sustainable Development of the Republic of Belarus Based on the Principles of "Green" Economy" serves to highlight the substantial progress that our country has made in sustainable development and to inform the global community on the measures taken in Belarus towards sustainable development, towards a formation of a new model based on the principles of "green" economy.



V. Tsalko

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Prepared by _____

Science Editor:

Victor Pinigin

Experts:

Yakub Alexandrovich ("The Belarusian Sustainable Development Model")

Anatoly Bogdanovich ("Fulfillment of International Sustainable Development Commitments")

Ludmila Borovik ("Social Progress")

Olga Semashko ("Economic Development")

Irina Griboedova ("Economic Development")

Vera Zubacheva ("Environment and Nature Management", "Economic Policy and Instruments, The Role of the State in Transition to "Green" Economy")

Dmitry Chizsh ("Environment and Nature Management")

Dmitry Khamchukov ("Industry")

Alan Tabolov ("Energy and Fuel Resources")

Ludgara Tulupova ("Construction, Housing and Utilities")

Nadezhda Radchenko ("Agriculture")

Yury Septilko ("Transport")

Evegenya Selitskaya ("Forestry")

Ivan Udoenko ("Education for "Green" Economy")

Vyacheslav Ivanov ("Science and Innovation for Sustainable Development")

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List of acronyms _____

GDP	Gross Domestic Product
GVA	Gross Value Added
GEF	Global Environment Facility
SEE	State Environmental Assessment
ECE	Economic Commission for Europe
CES	Common Economic Space
UNCCD	United Nations Convention to Combat Desertification
ILO	International Labor Organization
NSSD	National Strategy for Sustainable Development
EIA	Environmental Impact Assessment
UN	United Nations
PA	Protected Areas
LE	Life Expectancy at birth
PPP	Purchasing Power Parity
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
CIS	Commonwealth of Independent States
SEA	Strategic Environmental Assessment
SMW	Solid Municipal Waste
MDG	Millennium Development Goals set forth in the UN Millennium Declaration
UNEP	United Nations Environment Program
FSC	Forest Stewardship Council
IRENA	International Renewable Energy Agency
PEFC	Pan European Forest Certification Council



FOREWORD

In 1987 the World Commission on Environment and Development (Brundtland Commission) published a report "Our common future", which convincingly testified to the close relationship between environmental, social and economic problems and the impossibility of their individual resolution. It was the first document to define the essence of sustainable development as a process based on satisfying the vital needs of the present generations without compromising those of the future generations.

However, the report presented compelling evidence of the intensifying human impact on the environment in the course of the implementation of the sustainable development model. This process resulted in: imbalance in the natural circulation of substances and damage to biodiversity, destruction of local ecosystems, excessive consumption and wasteful use of natural resources, high levels of pollution by harmful emissions and waste, climate change, and degradation of individual territories. This threatens the further development of human civilization.

Awareness of this potential environmental disaster prompted UN experts to develop a strategic action plan, "Agenda 21", which was adopted at the UN International Conference on Environment and Development in Rio de Janeiro (1992). It formulated the key tasks for mankind in order to ensure transition to sustainable development, further elaborated in the "Millennium Declaration" (2000) and the Johannesburg Declaration on Sustainable Development, adopted at the Summit (2002). Subsequent programs of the UN Environment Program (UNEP) and global environmental safety improvement programs (2011) and other program

documents further developed these approaches on the basis of the principles of "green" economy.

The concept of "green economy" is regarded as a model aimed at economic growth and social development through the use of predominantly intensive factors, but without exercising excessive pressure on natural resources or increasing the level of pollution. This concept envisages transformation of the market and the institutional mechanisms of the current model into effective instruments for achieving sustainable development.

Now, 20 years after the adoption of "Agenda 21", Belarus, like many other countries, is assessing the interim results of the transition process, evaluating both the successes and especially the shortcomings in solving the problems of sustainable development.

Today we can say that Belarus is moving steadily, step by step, towards the creation of conditions for sustainable development. Especially high indicators were achieved in the social sector, poverty eradication, reducing child mortality, ensuring education of the population, and social equality. This is the result of consistent formation of effective socio-economic institutions and the innovative development of the country.

This National Report aims to assess the progress of Belarus in moving towards sustainable development: to identify the degree of integration of the ideas of sustainable development in the policies and framework documents of the country, to determine the responses to the challenges in this area. An important objective of the Report is to assess compliance of the development of key sectors with the principles of "green" economy.



SECTION 1

THE BELARUSIAN SUSTAINABLE DEVELOPMENT MODEL

Belarus aims to create institutional and organizational preconditions for the transition to sustainable development. The major goals include:

- ◆ development and adoption of long-term and medium-term program and forecasting documents, focused on the sustainable socio-economic development of Belarus in various spheres;
- ◆ continuous improvement of national legislation to bring it into conformity with the principles of sustainable development;
- ◆ development of civil society, and above all, environmental non-governmental organizations;
- ◆ possibilities for integrated solutions in the field of public economics, ecology and social development;
- ◆ research and innovation infrastructure relevant to sustainable development goals;
- ◆ developed environmental monitoring and ecological statistics systems.

In 2004, Belarus developed a National Strategy for Sustainable Socio-economic Development in the Republic of Belarus up to 2020, in accordance with the principles of "Agenda 21" and other UN documents, taking into account the country-specific natural resources, production, and economic and social potential. At the strategy's core is the Belarusian model of sustainable development, with prime elements being the spiritual, social, economic and environmental components seen as equal and

harmoniously inter-related spheres of human activity.

The model is a way of organizing and functioning society, the state, and the national economy through the development of a national identity based on the principles of sustainable balanced development of all the elements, ensuring prevention and mitigation of external and internal threats in the interests of present-day and future generations. It is based on the scientific paradigm of evolution in an environmentally compatible form, and includes a set of principles and requirements for the development of the national economy, for its smooth functioning and interaction of its subsystems. The Belarusian model of sustainable development is based on a rational combination of spiritual and material values, on development of various forms of ownership, on adequate institutional and market infrastructure with effective mechanisms of state and market regulation and an effective social protection system.



The main characteristics of the Belarusian model are:

- ◆ strong effective state authority ensuring political stability, security, social justice and public order;
- ◆ equality of different forms of ownership, preconditioned by the main criterion - increasing the efficiency of the economy;
- ◆ raising spiritually and culturally developed generations of citizens who cherish their land, its historic past and present;
- ◆ strong social policy based on high social standards;
- ◆ multi-vector foreign policy as a key principle of sustainable development;
- ◆ development of integration processes with CIS countries, primarily Russia, Kazakhstan, and other countries.

To ensure the sustainable development of the country, the Belarusian model provides for coherent, integrated development of all its elements based on observing the following criteria:

- ◆ maximizing social and economic efficiency while preventing the deterioration of the environment;
- ◆ rationally managing the consumption of goods and services in accordance with scientifically grounded standards;
- ◆ compliance with the restrictions on resources of all kinds, especially non-renewable resources;
- ◆ maximal preservation of ecosystems in the process of environmental management based on balanced circulation of substances.

In order to achieve these sustainable development goals, the National Strategy (NSSD-2020) identified the following development areas for key components of the Belarusian model.

Economy:

- ◆ facilitating the institutional transformations needed to meet the requirements of "green" economy;

- ◆ modernization of fiscal policy and pricing for the sake of environmental management and environmental protection;
- ◆ changes in procurement policies to promote clean production and use of resource-efficient clean production technologies;
- ◆ development of fundamental and applied research in priority areas of the "green" economy;
- ◆ restructuring of the economy and modernization of production through the introduction of resource-saving, energy-efficient clean technologies of the 5th and 6th waves of technological innovation;
- ◆ state support for innovation and investment projects based on environmental impact assessment;
- ◆ increased public investment in environmentally friendly production and innovation infrastructure (energy, renewable energy, energy-efficient buildings, restoring and increasing natural and human capital);
- ◆ creation of "green" jobs, especially in energy, transportation, basic industries, waste management;
- ◆ targeted government support for research and development related to the creation of clean technologies;
- ◆ strengthening foreign economic policy and international cooperation, development of integration processes with CIS countries, the EU, etc.;
- ◆ broad use of regional and local initiatives, primarily those aimed at environmental management and preservation of the environment;
- ◆ ensuring economic security.

Social sphere:

- ◆ raising the quality and improving the structure of consumption of goods and services;
- ◆ raising real wages, pensions and allowances in line with growth in labor efficiency;

- ◆ closing the income gap, reducing poverty;
- ◆ human development - improving the demographic situation, creating a system for training physically healthy and spiritually mature individuals (education, health, culture, sport, tourism, etc.);
- ◆ creating a vibrant civil society, improving governance and the system of democratic institutions, strengthening the role of non-governmental organizations, trade unions and other associations;
- ◆ ensuring social and demographic security.



Environment:

- ◆ improving the system of regulation and economic incentives in environmental management and protection;
- ◆ adoption of legislative, regulatory and legal acts on environmental management, water use and environmental protection, their harmonization with European standards;
- ◆ introduction of resource-saving techniques and technologies, environmentally sound production;
- ◆ enhancing the environmental capacity of forest, land and water resources;
- ◆ reducing emissions of pollutants;
- ◆ rationalization of the generation, treatment and disposal of industrial and consumer waste;

- ◆ minimizing the anthropogenic impact on the environment;
- ◆ development of modern biotechnology and genetic engineering;
- ◆ modernization of environmental monitoring and awareness raising;
- ◆ enhancing coverage of environmental education and training systems;
- ◆ ensuring environmental security.

For each of these areas Belarus has designed laws and regulations which are currently being observed by the corresponding economic entities; state, targeted, scientific and technical, socio-economic, environmental, educational, industrial and regional programs have been developed and are being implemented.



SECTION 2

FULFILLMENT OF INTERNATIONAL SUSTAINABLE DEVELOPMENT COMMITMENTS

The Republic of Belarus is a party to 13 global and 9 European and international environmental conventions and protocols. Over the last decade, more than 40 international treaties - bilateral and multilateral - have been concluded in the field of environmental protection. For the sake of their implementation, national policies and programs are being developed, environmental legislation is being passed, the National Environment Monitoring System has been enacted, and relevant national reports and implementation reports are being compiled.

The Law of the Republic of Belarus "On Environmental Protection", which was substantially reviewed in 2002 and given a new edition, reflects the state's position on international cooperation in the field of environmental protection. Article 104 specifies that such cooperation shall be carried out in accordance with the generally recognized principles and norms of international law and the international treaties to which the Republic of Belarus is party. Article 105 of the Law stipulates the priority of application of environmental protection provisions, as enshrined in international treaties.

In 2010, the Center for International Environmental Conventions and Treaties was opened on the basis of the Belarusian Research Center "Ecology". The Center aims to address the issues associated with managing conventions, monitor their implementation, provide relevant reports to the Government and international organizations.

The Republic of Belarus is party to several international treaties on biological and landscape

diversity, including conventions on Biological Diversity on the Conservation of Migratory Species of Wild Animals, on International Trade in Endangered Species of Wild Fauna and Flora, and on Wetlands of International Importance Especially as Waterfowl Habitat.

In order to fulfill the commitments made in connection with participation in these conventions, the Republic of Belarus has adopted a range of policy documents setting forth the strategic directions for biological diversity in the country - the National Strategy for Development and Management System of Natural Protected Areas until January 1, 2015, the Strategy for Implementation of the Ramsar Convention, as well as the Strategy for the Preservation and Sustainable Use of Biological Diversity for 2011–2020.

Issues of adapting to climate change are key elements of the state climate policy. As a party to the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol to the UNFCCC,



the Republic of Belarus is making a significant contribution to stabilizing concentrations of greenhouse gases in the atmosphere at a level that prevents dangerous anthropogenic interference with the climate system.

The State Commission on Climate Change (approved by the Resolution of the Council of Ministers of the Republic of Belarus on September 5, 2006 №1145) ensures the coordination of the enforcement of obligations arising from the UNFCCC and the Kyoto Protocol by national governmental bodies and other state agencies subordinate to the Government of the Republic of Belarus, regional executive committees, Minsk city executive committee and other organizations.

Belarus has developed, approved and is currently implementing:

- ◆ a strategy to reduce emissions and increase absorption of greenhouse gases in the Republic of Belarus for 2007–2012, approved by the Resolution of the Council of Ministers of the Republic of Belarus of 07.09.2006, № 1155;
- ◆ a national program of measures to mitigate climate change for the period 2008–2012, approved by the Resolution of the Council of Ministers of 04.08.2008, №1117.

The state has also adopted the Decree of the President of the Republic of Belarus 08.12.2010, # 625 "On Some Issues of Reducing Greenhouse Gas Emissions", and other regulations.

In order to determine the specific quantitative commitments of the Republic of Belarus to reduce emissions of greenhouse gases by 2020, an updated forecast of greenhouse gas emissions was developed in 2011 on the basis of the adopted national, sectoral and regional economic development programs.

This forecast was the basis for approving the commitment of Belarus to limit emissions of greenhouse gases after 2012, during the second period of the Kyoto Protocol to the UN Framework Convention on Climate Change; the target for

reducing greenhouse gas emissions in 2020 was set at 8% as compared to 1990 levels.

Belarus is a full party to the UN Convention to Combat Desertification / Land Degradation (hereinafter - the UNCCD). In accordance with Annex V to the Convention Belarus is an affected party to the Convention.

In January 2011 the country adopted its Strategy for UNCCD Implementation for 2011–2020 and the Action Plan to Implement the Strategy for 2011–2015.

Within the framework of the commitments made by the Republic of Belarus under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the transboundary movement of hazardous wastes is regulated, and in that process the Ministry of Natural Resources and Environmental Protection of Belarus issues permits (licenses) to import and (or) export waste. In accordance with the law, the import of waste into the Republic of Belarus is only allowed for the purpose of further use as secondary raw materials in the country.

For the purposes of implementing the Stockholm Convention on Persistent Organic Pollutants, the country adopted the Decree of the President of the Republic of Belarus № 271 "On Approval of the National Plan of Fulfillment of Commitments Made by the Republic of Belarus to Implement the Stockholm Convention on Persistent Organic



Pollutants for 2011–2015" on June 27, 2011, and this plan is currently being implemented.

The country has been working on creating a single database on Persistent Organic Pollutants, as well as on eliminating expired pesticide burial sites. The state has organized systematic monitoring of POP content in water and sediments at cross-border sections of 35 rivers of the Republic of Belarus.

The Republic of Belarus has been actively working to solve the problems of air quality management in a transboundary context, notably through its fulfillment of commitments under the UNECE Convention on Long-range Transboundary Air Pollution, the Protocol to the Convention on Long-range Transboundary Air Pollution of 1979, the long-term financing of the Co-operative program for monitoring and evaluating the long range transmission of air pollutants in Europe (EMEP); the Protocol on the Reduction of Sulfur Emissions or their Transboundary Fluxes by at least 30%; of the Protocol on the Control of Emissions of Nitrogen Oxides or their Transboundary fluxes.

Belarus is also party to regional conventions such as:

The UNECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention);

The UNECE Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention);

The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki Convention), as well as the Protocol on Water and Health to the above Convention;

The UNECE Convention on the Transboundary Effects of Industrial Accidents.

The main directions of international cooperation in the area of the country's economic and social development are defined in the National Strategy for

Sustainable Socio-economic Development of Belarus up to 2020, approved by the National Commission on Sustainable Development and the Presidium of the Council of Ministers, and the Program for the Socio-economic Development of Belarus for 2011–2015, approved by Presidential Decree № 136 of April 11, 2011.

The most important avenue of the foreign policy of the Republic of Belarus is participation in general and specialized global and regional international organizations and integration groups. In recent years, Belarus has been actively developing its cooperation with partners within integration associations and organizations in the territory of the former Soviet Union - the CIS and EurAsEC.

The Customs Union of Belarus, Kazakhstan and the Russian Federation came into effect on January 1, 2010, serving as the basis for transition to a deeper form of integration from 1 January 2012 – the Common Economic Space (CES). 17 basic agreements have been signed for the purpose of the legal framework of this new formation.

In October 2010, the first ever UN Development Assistance Framework Program for the Republic of Belarus for the period 2011–2015 was signed. This instrument for strategic planning of the interaction of the Government of Belarus with all of the specialized UN agencies, funds and programs working in Belarus stipulates raising external resources totaling US\$490 million.

The Republic of Belarus is carrying out systematic work in order to achieve the development goals set forth in the UN Millennium Declaration, adopted in September 2000 at the New York Summit. The Republic of Belarus has already reached almost all of the Millennium Development Goals (MDGs). Detailed information on this is presented in the 2010 Second National Report on the Achievement of the Millennium Development Goals. The integration of each goal in the state policy of Belarus has been analyzed. Literally all of the national goals and objectives of the Millennium Development Goals have been included in a range of government policies and programs.



SECTION 3

ACHIEVEMENTS IN SUSTAINABLE DEVELOPMENT

3.1. Social Progress

Modern reality has preconditioned the priority of the spiritual and social components of social development, associated with targeted policies to raise the spiritual culture and improve the well-being of the population, and most importantly with increasing the importance of human factors in economic growth. Belarus has formed its own model of social policy, with the following priority directions: increasing the real level of all types of monetary income of the population and provision of effective support to vulnerable categories of citizens, ensuring effective employment and retention of unemployment within socially tolerable limits, maintaining consistent increase in life expectancy and fertility rates, ensuring improved health and reduced mortality. Also among the priorities are qualitative transformation of educational systems, religious education, healthcare, development of the social sphere towards enhancing the availability and quality of social services.

The Republic of Belarus has adopted a number of legislative acts in the field of social policy, aimed at improving relations in the sphere of labor, pensions and social protection of poor families with children, the disabled and the elderly. Further legislative development has been undertaken in the areas of housing, healthcare, education and culture, social security.

The underlying instruments of the state's social policy are: the Labor Code, the Code on Marriage and Family,

the laws "On the Living Wage in the Republic of Belarus", "On Employment in the Republic of Belarus", "On the Rights of the Child," "On Social Protection of Disabled Persons"; "On Social Protection of Citizens Affected by the Chernobyl Catastrophe", "On Health", "On Education", "On Sanitary and Epidemic Welfare," "On Pension Security", "On the Demographic Security of Belarus", etc.

At the state level, the following important documents have been adopted in the course of the past two years: the National Program of Demographic Security of the Republic of Belarus for 2011–2015, the National Action Plan on Gender Equality of the Republic of Belarus for 2011–2015, the State Program to Promote Employment in Belarus for 2012, the State Program of Higher Education for 2011–2015, the State Program of Development of Physical Culture and Sport for 2011–2015, the State Cardiology Program for 2011–2015, the State Program of Prevention of HIV Infection for 2011–2015, the Comprehensive State Program of Prevention, Diagnosis and Treatment of Cancer for 2011–2015, the National Baby Food Program for 2011–2015, the State Program to Create a Barrier-free Living Environment for the Physically Handicapped Persons for 2011–2015, etc.

The Republic of Belarus has a goal to be among the 50 leading countries according to the Human Development Index (HDI). One of the main indicators of HDI is life expectancy at birth (LE). Since 2006, the Republic of Belarus has seen a steady growth of LE, the value increasing from 69 in 2000 to 70.4 years in 2010: 64.6 years for men and 76.5 years for women.

The increase in life expectancy at birth was the result not only of economic growth and improved living standards, but above all of a reduction in infant mortality from 9.3 to 4 ppm.

The country demonstrates a positive trend in the state of public health. The incidence of some forms of infectious diseases (viral hepatitis, measles, rubella, etc.) has decreased, significant improvement has been noted in the epidemiological situation re tuberculosis. There has been a reduction in the number of persons newly registered as disabled as a result of injuries and accidents. This was facilitated by state policies in the area of health, aimed at increasing the availability and quality of medical services, stronger promotion of healthy lifestyles, and enhanced preventive measures to strengthen public health.

The main priority in social development is to improve the standard of living based on the growth of real wages, pensions, social benefits and other types of monetary income.

The state's deliberate policy aimed at increasing the income of the population resulted in steady growth of real income levels, by a factor of 3.2 as compared with the year 2000. (Table 3.1.1)

In the period 2001–2010, real wages increased by 3.3 times. As a result, the purchasing power of wages reached a level of 2.62 times the minimum consumer budget, against 1.26 in 2000.

Belarus has revised almost all the major regulations governing wages and significantly changed its approach to managing wages in the private sector on the basis of collective-contractual regulation. Conditions for wages are constantly elaborated in order to motivate employees to be interested in their outputs, to ensure balanced growth of wages in various types of economic activities and to avoid unjustified wage differentiation among various categories of employees.

Pensions and benefits make a significant structural element of the income of the population. The country has formed a multilevel system of pension payments, - consisting of a state-guaranteed social pension, pensions provided under compulsory pension insurance and additional voluntary private pensions - while maintaining the leading role of the state in compulsory pension insurance. In terms of pensions, the state policy is aimed at the stable operation of the system, timely payment of pensions, maintenance of their real level. By the end of 2010, 2.6 million pensioners were registered with the agencies for labor, employment and social protection, and the average size of the assigned individual pension was 2.5 times the minimum living wage.

Given the increasing cost of living, an important role is played by gradual increases in the size of assigned pensions, adequate to the growth of average wages and salaries. As a result, in the past five years the ratio of the average size of pensions and the average

Table 3.1.1. The state's deliberate policy aimed at increasing the income of the population resulted in steady growth of real income levels, by a factor of 3.2 as compared with the year 2000.

Indicator	2000 ¹	2005	2006	2007	2008	2009	2010
Real monetary income of the population, as compared to the level of the previous year %	114,1	118,4	117,8	113,2	111,8	102,7	115,1
Real wages, as compared to the level of the previous year, %	112,0	120,9	117,3	110,0	109,0	100,1	115,0
Real size of the assigned pensions, as compared to the level of the previous year, %	143,2	113,2	123,4	105,4	104,7	100,2	123,9
Share of the population with a level of disposable income lower than the minimum living wage, % of the total population	41,9	12,7	11,1	7,7	6,1	5,4	5,2
Ratio of disposable income: 10% of the most well-off population to 10% of the least well-off population,	5,8	5,4	5,6	5,9	5,9	5,6	5,6

¹ Including denomination of 2000

monthly salary was within the limits for the minimum value as recommended by ILO: 40%. Minimum labor and social pensions and allowances have been growing steadily, as well as markups and raises. Monthly supplements were assigned to pensions for disabled children under the age of 18, people with grade I, II and III disabilities (including those disabled since childhood), and children who have lost their providers. In order to improve social protection for elderly persons, the pension legislation and general regulations include provisions to increase the retirement pension for persons with grade I disabilities, as well as persons over the age of 80 and those in need of permanent assistance in accordance with the decision of medical agencies.

A comprehensive program of social services for 2011-2015 was developed for the purpose of increasing the level and quality of life of veterans, persons affected by war, the elderly and the disabled, and enhancing the effectiveness and accessibility of social services and approximations of social services to the consumer. This initiative included the subprogram "Social Support of Veterans, Persons Affected by War, the Elderly and Disabled", "Disability Prevention and Rehabilitation of Persons with Disabilities", "Development of In-patient Social Service Facilities."

Today, the national system of state benefits covers about 440 thousand children under the age of 18, or 25.3%. The size of benefits and compensations for the birth of children have been substantially increased.

Consistent implementation of government measures to raise incomes and ensure social protection of the population have contributed to a significant reduction in poverty: the proportion of citizens with a level of disposable income below the subsistence wage decreased from 41.9% in 2000 to 12.7% in 2005 and 5.2 % in 2010. The objective to "reduce by more than three-fold the proportion of people living below the national poverty line over the period 2000-2015" has been successfully implemented in Belarus.

Due to the state's social support for marginalized groups, the Republic of Belarus has not allowed for significant differentiation between income levels. In recent years, the gap in the ratio of income between

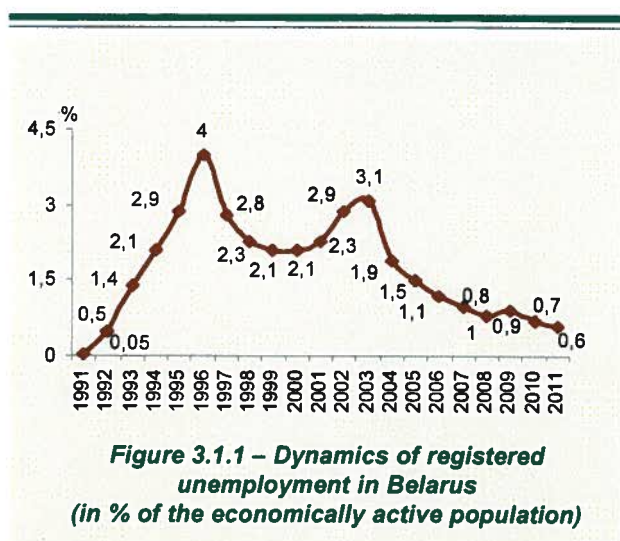
the most and least well-off population groups has almost not changed: in 2000 it was 5.8%, in 2010, 5.6%.

One of the key objectives of social development is to ensure effective employment and keeping unemployment within a socially tolerable range.

For a long period the situation in the labor market was characterized by a steady trend of growth in labor supply and a reduction in demand. As a result, the level of registered unemployment increased (2.1% in 2000 and 3.1% in 2003). Since 2004 there has been a tendency for increase in the demand for labor and reduction in unemployment - 1.5% of the economically active population in 2005 and 0.6% in 2011 (Figure 3.1.1).

The tendency of reduction in unemployment among women and youths has also proved steady. Thus, the proportion of women in the total number of the registered unemployed fell from 60.7% in 2000 to 54.1% by the end of December 2011. There has also been a reduction in the level of youth unemployment - from 53.9% in 2000 to 37.1 % in 2010.

The main efforts of the state in the field of employment are aimed at the formation of a rational structure in accordance with the requirements of the reformed economy, increase in the efficiency of labor use and its competitiveness. The emphasis is on creating new jobs in export-oriented industries and services, stimulating the development of small and medium-sized enterprises, improving the quality of labor potential, reducing the imbalance of supply and



demand of labor in the labor market by improving vocational training and retraining, improving the territorial mobility of labor.

Implementation of all of the state's identified priorities and objectives has been possible only on the basis of popular support and social consolidation in Belarusian society. Only efficient social policy in conjunction with the initiative of Belarusian citizens can ensure improvement in the quality of their lives, in their confidence in the future.

3.2. Economic Development

In twenty years of independence, the Belarusian economy has gone the distance from being the "assembly line" of the USSR to becoming a socially oriented and highly efficient economy aimed at export. The country has not only been able to maintain its economic potential and brands, but also managed to develop them, create new lines of highly competitive products, making the seal "made in Belarus" recognizable in many overseas markets. Over the years, Belarus has proved the consistency of its economic model. Favoring the evolutionary path of development, non-shock reforms and gradual transition to market

economy principles, the country has escaped the major upheavals endured by many post-Soviet countries, including the global financial crisis.

The main indicator of macroeconomic dynamics - national GDP – has been growing steadily since 1996 with an average increase of 6.3% per year up to 2000 and 7.5% and 7.3% in the two consecutive five-year periods. During the period 2000–2011, the gross domestic product of Belarus increased by a factor of 2.1, and GDP per capita in dollars at purchasing power parity by a factor of 3.0. In terms of the average annual GDP growth rate, Belarus was ranked 25th among 183 countries with 107%. The same pace was seen in the growing efficiency of the Belarusian economy - in 2000–2011 labor productivity in the country grew by a factor of 2.06 (Figure 3.2.1).

In line with global trends, the GDP growth in Belarus took place against a backdrop of changes in the industrial and technological structure of gross added value towards increasing the proportion of high-efficiency production and expansion of services. In terms of GDP structure, Belarus is currently close to the Baltic States and other countries with emerging economies.

Belarus specializes in the manufacture of engineering products, chemicals and petrochemicals, food

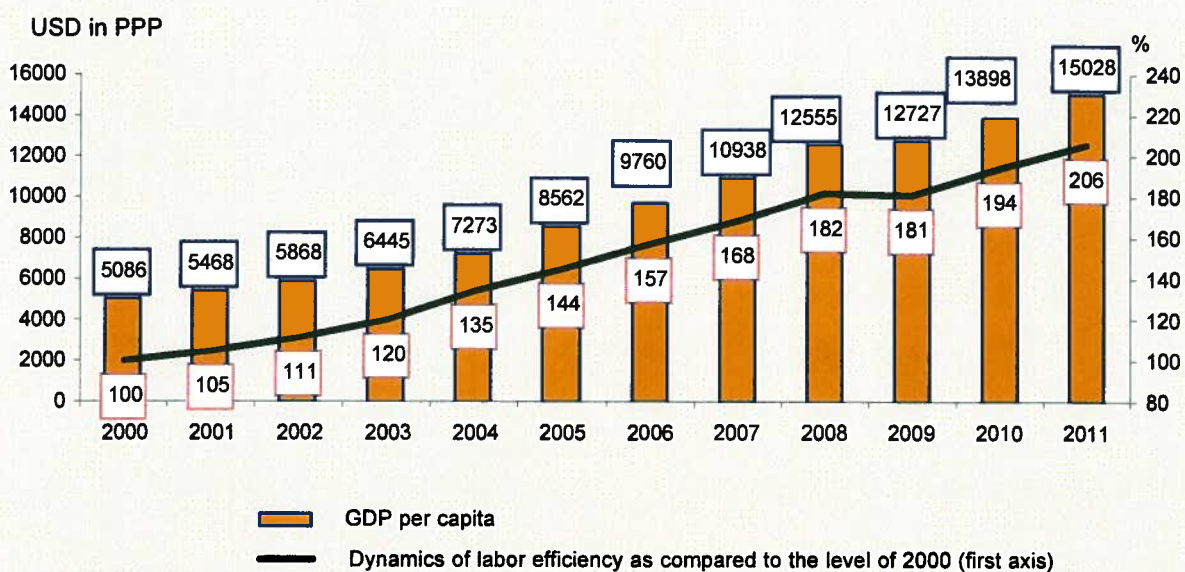


Figure 3.2.1. Dynamics of labor efficiency and GDP in PPP per capita in Belarus in 2000-2011.

processing, light industry, as well as livestock, flax, potato, and demonstrates stable performance indicators in the real sector. Overall, in the years 2000–2011 the volume of industrial output in Belarus grew by a factor of 2.4, agricultural output by a factor of 1.7, and the volume of contracted works generalized as "Construction" grew by a factor of 3.4.

Active investment contributed to the transformation of the economy into a system based on market relations, rapid reconstruction and restructuring of enterprises, accelerated development of high-tech industries, enhanced competitiveness of Belarusian products, as well as implementation of priorities of social development of the country. Investments in fixed capital in Belarus grew at an annual average rate of 5.9% in the years 1996-2000, 12.4% in 2001–2005 and 18.1% in 2006-2010. As compared with 2000, the volume of investment in 2011 increased by a factor of 4.7.

Rejecting total privatization at the early stages of its independence, Belarus developed mainly through internal investment resources. However, realizing the impossibility of carrying out large-scale modernization of its productive capacity without significant capital inflows, the country has made every effort to create a favorable investment climate, which is reflected in the improvement of the national legislation to protect investors' interests. In particular, the country has adopted a strategy to attract direct foreign investments up to the year 2015.

The achievements of Belarus in creating a favorable business climate and the increased investment attractiveness of the country have been recognized

internationally, resulting in a gradual improvement of the country's position in leading country rankings. The World Bank's "Doing Business" reports have observed positive trends in the business areas of Republic of Belarus, in areas such as obtaining construction permits, registering property, protection of investors, taxation, resolution of insolvency (liquidation) and others (Table 3.2.1).

The Program of the Government of the Republic of Belarus for 2011–2015 stipulates further implementation of measures aimed at Belarus achieving top rankings in international credit ratings that reflect competitiveness, the business environment, level of innovation and efficiency of public administration.

The achievements of the Belarusian economy are also largely due to the fact that science has taken an active part in solving the problems of the real sector. New technologies produced in laboratories, research centers and industrial parks have been constantly introduced into manufacturing, creating a fulcrum for innovative development of the country, which is especially important during changing waves of innovation and opening up "windows of opportunity" for technological breakthroughs. The country has a functioning and productive technology park with its residents working with more than 50 countries around the world.

The Belarusian economy is highly integrated into the international trading system - the country's export accounts for 85.4% of GDP. The positive image of Belarus in global markets is shaped by such brands as "Belarus", "BelAZ", "Atlant", "Hephaestus",

Table 3.2.1. The dynamics of certain components «Doing Business» rating

Components of the rating	2005	2006	2007	2008	2009	2010.	2011
Index of investor protection (from 0 to 10)	4	4	5	5	5	5	5
Time necessary for business start-up, days	79	69	48	31	6	5	5
Business registration procedure, quantity	16	16	10	8	5	5	5
General tax rate, % of income	138	138	121	118	100	80	63
Tax payments, quantity	125	125	124	112	107	82	18

"Belaruskali", "Savushkin Product", "Milavitsa", "Pinskdiv" and others, with ever increasing assistance rendered to them by the IT.

Not possessing sufficient raw materials of its own, Belarus mainly imports fuel and energy resources, metals, and various semi-finished products - intermediate materials account for more than 75% of Belarusian import. Exposure of the world oil and gas markets to substantial fluctuations makes the Belarusian economy vulnerable and aggravates its ability to balance its economy in the event of a sharp rise in import prices. In the period 2005–2011, import prices on energy products for Belarus increased by 2.6 times, while the imported volumes grew only by a factor of 1.3; in conjunction with the expansion of domestic demand and the fixed exchange rate, that applied significant pressure on the trade balance and balance of payments and led to a devaluation of the national currency. However, the measures taken to scale down domestic demand and promote export led to structural changes in trade flows and led to the export growth rate exceeding imports by more than 28 percentage points. In 2011, the 5-year negative

trend of lack of growth in the physical volume of exports with constant growth of imports was reversed. The trade balance deficit was brought back to the range of values comparable to that of 2000 - minus 3.0% (Figure 3.2.2).

More than 60% of the country's produce was shipped to foreign markets in 2011, which has greatly strengthened both the foundation for achieving the strategic objectives of achieving a positive trade surplus and the performance of the National Program for the Development of Export in the Republic of Belarus for 2011–2015 .

The effective functioning of the economy is impossible without development of competition between manufacturers. Proceeding from this principle, Belarus is gradually moving towards an optimal balance between state and private initiative. The country has carried out consistent work aimed at privatization and the development of public-private partnerships, thereby changing approaches to public management. Small and medium businesses have started to play an increasingly important role in the

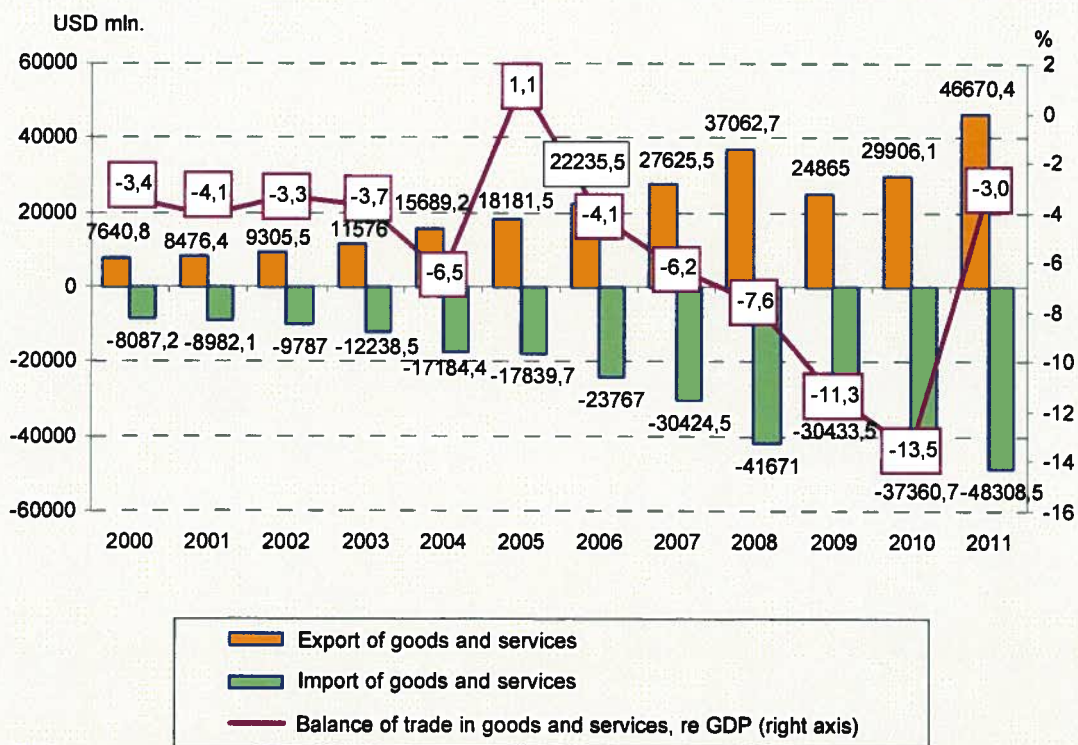


Figure 3.2.2. Indices of foreign trade of goods and services of Belarus in the period 2000-2011

country. In the period 2008–2010, the number of small and medium business entities of all forms of ownership increased by a factor of 1.5, which was supported by the implementation of the state complex program for the development of regions, small and medium towns for 2007–2011 and the transition to the declarative principle of state registration.

Additional impetus to the development of business was given after the adoption of Directive #4 of the President of the Republic of Belarus of December 31, 2010 "On the Development of Entrepreneurship and Stimulating Business Activity," which stipulates the implementation of a range of measures to liberalize pricing, improve competition law and issues of rent control, reduce administrative barriers, optimize the tax burden, and many other measures.

The Republic of Belarus is open to full-fledged international cooperation in the economy. In the course of the past few years, the country has been developing in conditions of enhanced integration with Russia and Kazakhstan within the Customs Union and Common Economic Space. Currently, member countries have removed all barriers to mutual trade by opening up their national borders, adopted a common customs code, and ratified 17 agreements which serve as the basis for the formation of the Common Economic Space. Further constructive multifaceted partnership within the CES will contribute to the development of the full potential of strategic interaction between the three nations and to the welfare of the citizens of Belarus, Russia and Kazakhstan.

For many years now, Belarus has been building its economy on the principles of sustainable development, which involves a complex linkage of economic, social and environmental components. The growth of Belarus' GDP comes about in line with constant increase in the levels of investment into the protection and rational use of water resources and air. The share of funds allocated for these purposes within the total investment in fixed assets grew in 2006–2009 by a factor of 1.87 (from 0.44% in 2006 to 0.81% in 2009). At the same time, there is strengthening of the social component of the country's development - ever more attention is paid to human

development, towards improving the educational and cultural level of the population, ensuring effective service delivery in health and growth of incomes. The share of socially-oriented sectors (education and health) in the country's GDP has increased over the 20 years of independence of the Republic of Belarus by a factor of 1.9 - from 4.3% in 1990 to 8.4% in 2010.

However, the global processes of gradual depletion of natural resources, increasing food shortages and the significant anthropogenic impact on the environment has forced the international community to take a new look at the elements of this triad, emphasizing the efforts to shift the economy to the "green" track. Belarus also intends to move towards "green" growth, developing new environment-friendly industries and establishing processes of continuous and permanent "green" improvements to ensure additional environmental and social gains in terms of reduced greenhouse gas emissions and pollution, creating jobs and innovative products.

3.3. Environment and Nature Management

In the course of the past twenty years, human activities in the Republic of Belarus have not had an increased negative impact on the integrity of ecosystems that provide vital functions to the benefit of economic growth and human welfare. Implementation of environmental policies, programs and action plans based on the principles of sustainable development have provided for improvement of the ecological situation in the country including most of the major industrial centers, and contributed to more efficient use of renewable and non-renewable natural resources. The highest priority of the State Environmental Policy of the Republic of Belarus is to maintain a favorable environment and rational ("smart") use of natural resources to meet the needs of present and future generations.

In terms of environment management in the Republic of Belarus, there is an established legal basis for transition to the "green" economy model: there are codes that have been developed and implemented

(water, forest, land, subsoil), laws "On Environmental Protection", "On Specially Protected Natural Areas" "On Fauna", "On the Vegetable World," etc. There is systematic inventory-taking of all natural resources: nine state cadasters are kept, including those for land, water, forest, flora, fauna, mineral resources. For the purpose of prudent use of natural resources, limits for extraction (removal) of natural resources have been approved, special permits are issued, and there is a tax on extraction (removal) of natural resources and land tax, as well as forest use fees.

The dominance of legal and regulatory practices in natural resources management and the regulation of relations between the owner (the state) and the users have had a positive effect in the field of environment protection and management. And while society at large is aware of the need for a transition to the principles of sustainable development, the country's lack of fuel and energy resources and the need to purchase them at constantly growing world market prices make it necessary to increase the volume of mining, for example, for potassium salts, which are abundant in our country. This approach is not consistent with the principles of "green" economy and is preconditioned by the present-day conditions of social and economic development of Belarus.

3.3.1 Protection of the Atmosphere

From the standpoint of the modern understanding and resolution of the issues of sustainable development based on "green" principles, the main problems related to atmospheric pollution are associated with pollution of atmospheric air by all energy and industry entities and mobile sources, with climate change caused by greenhouse gases and ozone depletion.

As a result of competent state policies to protect air quality, conducted in the period 1990–2010, total emissions from stationary and mobile sources decreased by a factor of 2.6, from stationary sources by a factor of 3.1 (Fig. 3.3.1.1).

Due to the modernization of many industrial plants, greening of economic activity, more stringent environmental regulations and limitations imposed for

atmospheric protection, the levels of emissions in all major industrial centers have decreased, although occasionally elevated concentrations in the air are registered.

Reductions in emissions from stationary sources have been achieved through conducting a targeted environmental policy, including increased rates of environmental tax on emissions of pollutants into the air and the introduction of an automated emission accounting system for businesses, as well as increased fines for violating environmental laws. Positive results were facilitated by the introduction of progressive technologies and implementation of energy saving measures. While increasing production output, large polluters have installed both dust and gas-traps, bringing the proportion of trapped and neutralized emissions from stationary sources from 77% in 1990 to 88% in 2010.

There was a steady decline in emissions from mobile sources across the country, despite the fact that over the past 20 years the Republic's car fleet has grown considerably.

Positive results were achieved mainly due to energy saving, restructuring of fuel consumption and shifting of boilers to natural gas, as well as the introduction of payments for emissions of the main greenhouse gases.

As no ozone-depleting substances are produced in Belarus, the main efforts are focused on the reduction and termination of their use in industry and agriculture.

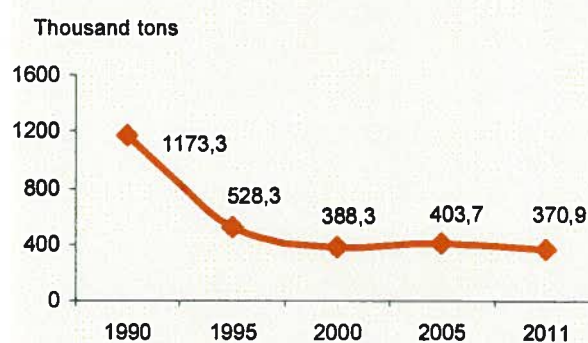


Figure 3.3.1.1. Dynamics of emission of air pollutants from stationary sources in 1990-2011

3.3.1.1 Greenhouse Gases

In Belarus, which is a signatory party to the UNFCCC and the Kyoto Protocol to the UNFCCC, reducing greenhouse gas emissions is a priority. During the period 1990-2010, total emissions decreased from 139.18 to 89.44 million tons of CO₂-eq. (Figure 3.3.1.2). Carbon dioxide emissions in absolute terms went down from 103.8 million tons in 1990 to 58.3 million tons in 2010, which is 56% of the 1990 levels. This was mainly due to reductions in fuel consumption for heat and electricity production, as well as changes in the structure of fuel consumption - an increase in the share of natural gas from 65% in 1990 to 92% in 2010. Reduced emission of greenhouse gases has been achieved through energy saving, reconfiguring boilers to burn natural gas, and use of non-conventional energy sources.

Belarus seeks to prevent the entry of CO₂ into the atmosphere, and thus much attention is paid to development of forestry, preservation of wetland ecosystems, re-wetting of exhausted peatlands.

Positive results have been obtained mainly due to energy savings, the restructuring and transfer of fuel burning boilers to natural gas, as well as the introduction of payments for emissions of the main greenhouse gases. Currently the state is considering

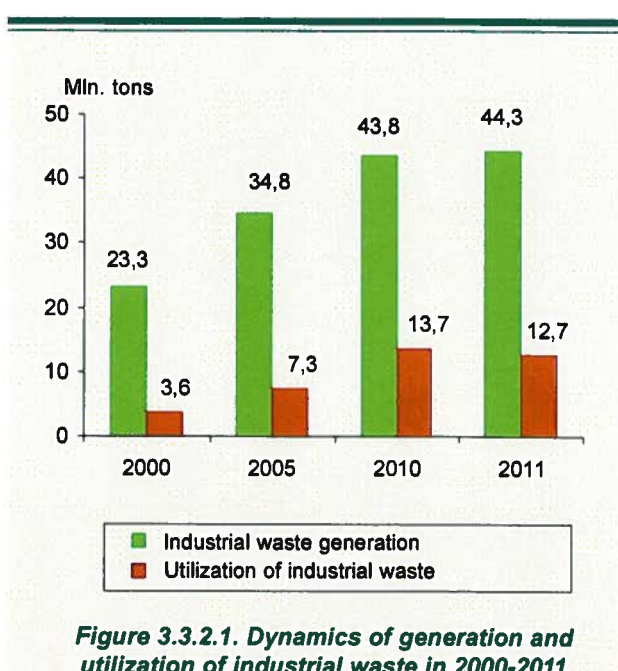
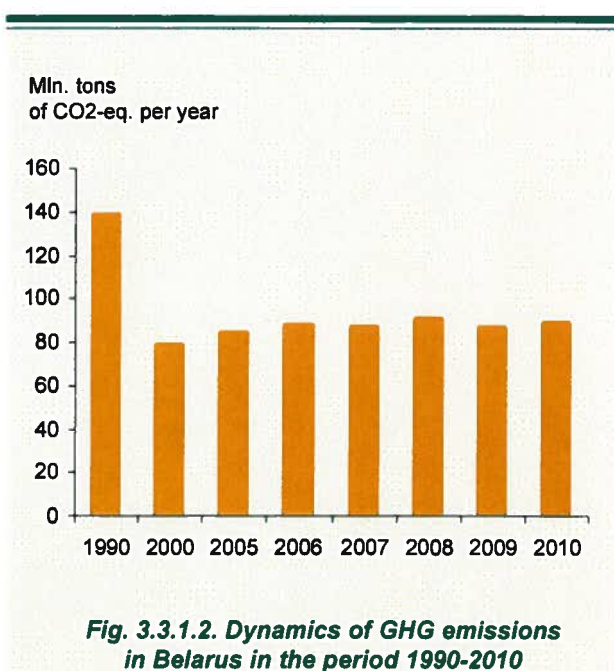
issues regarding the adoption of national commitments to reduce greenhouse gas emissions by 2020.

3.3.2 Industrial and Consumer Waste

At present in Belarus over 1400 types of waste are generated, possessing a wide range of morphological and chemical properties. The volume of accumulated industrial waste is growing and totals approx. 950 million tons. Over 85% of the accumulated waste is halite waste generated in the course of production of potash fertilizers. Its volume increased from 23.3 million tons in 2000 to 44.3 million tons in 2011 (Figure 3.3.2.1).

Ever-increasing levels of waste use reached 31% by 2010. More than half of the waste is utilized for the needs of the generating enterprises, the rest is sold to other enterprises or exported.

The volume of toxic (hazardous) waste production increased slightly, but its proportion in the total generation of waste dropped from 3.1% in 2000 to 2% in 2010. On a positive note, since 2005 the volume of processed hazardous waste has exceeded the volume generated, i.e. previously accumulated waste is being utilized.



Over the last decade, Belarus has seen steady growth in the volume of municipal solid waste (MSW). If in 2000 about 2,000 tons were collected, and in 2010, 3765 thousand tons (about 70% removed from the housing stock). The index of specific MSW generation grew from 0.540 to 1.09 kg/person per day during this period. As of 2010, the total area of land allotment for MSW landfills is about 900 hectares, more than 50% of which is taken by waste. In recent years the proportion of packaging waste in municipal waste has increased significantly. In order to involve municipal waste into circulation as a secondary raw material, the country has five waste treatment plants in Gomel, Mogilev, Novopolotsk, Brest and Baranovichi (first stage). There is a plan to build such facilities in coming years in cities with a population of over 100 thousand.

Sorting and recycling are effective means of reducing the amount of MSW at landfills, as MSW contains valuable components that can be used as secondary raw materials. The main problems in the treatment of MSW are associated with imperfections in the collection and sorting system.

Currently, the state environmental policy on the treatment of MSW is moving towards improving the regulatory framework, recovering costs for collection and disposal of municipal waste, introducing the principle of greater responsibility of producers and importers, and strengthening the role of national and local governments and private entrepreneurship in the resolution of existing problems.

Thus, the most problematic area in the field of environmental protection in the Republic of Belarus is waste management, primarily of large-scale and solid municipal waste.

3.3.3. Water and Potable Water Supply

With its large reserves of water resources, Belarus fully meets the needs of the national economy and the population for ground and surface waters. In order to implement the principles of sustainable water use, the country is covered by a set of measures for water conservation and protection of water bodies. The result is sustainable reduction in water intake from

natural water bodies (down by more than 46% in 1990-2010) and in water use in all sectors, except fisheries, which has been actively developing recently. In all industries, the water-intensity of production declined by more than 2 times in the years 2000–2010. The extension of metering in the residential sector of urban settlements to 98% provided for a reduction in water use for drinking and household needs down to 134 liters/day per person in 2010, which is close to European levels (Figure 3.3.3.1).

The population of Belarus obtains 92% of its drinking water from groundwater sources, with sanitation and hygiene at the corresponding intakes meeting modern requirements. The exception is water with a high content of iron and manganese, as well as a low fluorine content, due to its natural origin. Before the water is supplied to consumers it is treated for iron removal via simplified aeration.

Problems with drinking water quality have been resolved in recent years, especially in rural areas, through development of a centralized water supply system to replace rural wells, as well as construction of iron removal facilities. Today, more than 99% of the population is supplied with standard quality drinking water and less than 5% of rural residents consume drinking water which does not meet health and sanitation requirements. According to the Water

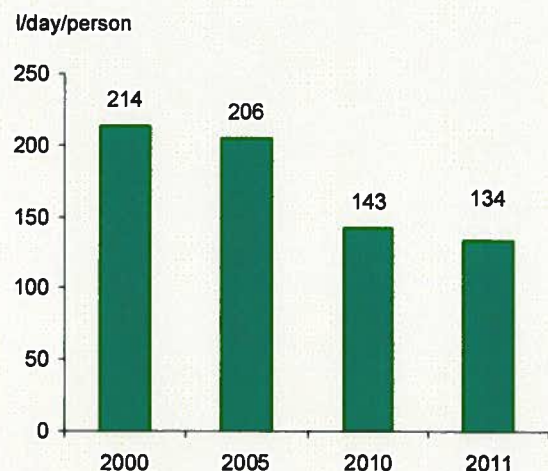


Fig. 3.3.3.1. Dynamics of household water use in the period 2000-2011.

Strategy of the Republic of Belarus for the period up to 2020, centralized water supply should cover 100% of the rural population in agro-towns by 2020.

The country has developed its water recycling system in order to cover the water needs of industrial facilities, especially energy facilities. In the period 1990-2010, the share of recycled water in the total volume used for production was more than 90%.

The reduction of fresh water consumption in the manufacturing sector, housing and utilities sectors has led to a reduction in sewage water discharge into water bodies. Effluents treated to standard quality make up most of the total volume of sewage. In 20 years, the discharge of inadequately treated (contaminated) waste water has dropped significantly: the volume now does not exceed 1% of the total discharge. In order to protect water bodies and prevent pollution of surface and ground water, the state and business entities have been allocating large amounts for the construction and reconstruction of sewage treatment plants over many years.

Belarus applies fairly strict requirements regarding the management of water protection areas, minimizing the ingress of contaminants into aquifers, reservoirs and streams. There is still an issue of pollution of individual sections of streams down from industrial centers, and of reservoirs located near livestock farms and large industrial enterprises.

3.3.4. Preservation of Natural Ecosystems, Biological and Landscape Diversity

Preservation of natural ecosystems, biological and landscape diversity is a vital interest of the Republic of Belarus in the field of the environment and a priority of public policy.

The instruments for the implementation of the state policy for preservation of biological diversity are regulated by the laws of the Republic of Belarus "On Environmental Protection", "On Fauna", "On the Vegetable World", "On Specially Protected Natural Areas".

These mechanisms include:

- ◆ Creating and maintaining a system of specially protected areas of national and local importance, of the national ecological network, of biosphere reserves;
- ◆ Maintenance of the Red Book of Belarus;
- ◆ Organizing and keeping records of volumes of fauna and flora and the volumes of their use, keeping inventories and conducting monitoring of flora and fauna;
- ◆ standardizing and regulating the use of animals and plants;
- ◆ regulating the distribution and abundance of invasive alien species of wild animals and wild plants, and other instruments.

The system of specially protected areas provides one of the main mechanisms for maintaining the functioning of ecosystems, biological and landscape diversity. These territories ensure the preservation of the gene pool and serve as centers of reproduction for flora and fauna. About 80% of rare and endangered plant species and about 30% of the identified areas of their growth are protected within the boundaries of the protected natural areas of Belarus, as well as about 90% of rare and endangered species of wild animals and over 50% of their identified habitats. Furthermore, the establishment of protected areas contributes to the preservation of the natural state of old-growth forests, swampy areas and water bodies which play an important role in maintaining biological



and landscape diversity, the formation of the climate, and improvements in the environmental situation.

The country has 1302 Specially Protected Areas, including the Berezinsky Biosphere Reserve, the "Belovezhskaya Pushcha", "Naroch", "Braslav lakes" and "Pripyat" National Parks, 417 wildlife sanctuaries and 880 natural sites of national and local significance. Currently, the area of specially protected natural territories of the republic occupies 7.7% of the territory of the Republic of Belarus.

The national strategy for development management of protected areas in the Republic of Belarus stipulates that the area of protected areas should reach 8.3% of the territory of the country by 2015. To this end, the Government has approved a scheme for the rational distribution of protected areas of national importance, and regional schemes are developed locally.

The system of specially protected areas in the Republic of Belarus is acknowledged at the international level. A number of areas, such as the Berezinsky Biosphere Reserve, "Belovezhskaya Pushcha" National Park, the national wildlife sanctuaries "Olmanskie bogs", "Pripyat", "Prostyry", "Kotra", "Osveysky", "Sporovsky", "Zvanets", "Yelnya" have international statuses as Biosphere Reserves, or Natural Heritage sites, Ramsar sites, important plant areas, or important bird areas.

Rare and endangered species of wild animals and plants are included in the Red Book of Belarus.



Currently, the Red Book of Belarus included 188 species of wild animals and 293 species of wild plants.

For the purpose of saving the rare species (bittern, greater spotted eagle, aquatic warbler, snipe, smew, roller, moonwort, *Liparis loeseli*, etc.), protection action plans are being developed and implemented, and habitats and growth areas are being placed under the protection of land users. Resettlement activities are being conducted in order to restore populations of rare and endangered species of wild animals and wild plants (bison, sturgeon, *Adenophora*, etc.). In particular, the reproduction of the bison in Belarus started with state support in the 1940s in Belovezhskaya Pushcha, when 10 bison were brought from Poland to start the population. Now Belarus has more than a thousand specimens of this rare species.

Despite the high recreation applicability of the natural areas, existing landmarks, natural and natural-anthropogenic landscapes, for a long time Belarus was paying insufficient attention to development of rural tourism. Environmental education of the population was carried out only with reference to the exhibits of local history museums and museums of nature. Drastic changes were outlined in 2006 after the President of the Republic of Belarus signed two decrees relating to state support for rural tourism through tax benefits and loans.

Currently, the country is implementing a number of strategies, state and regional programs aimed at developing tourism in general and rural tourism in particular.

For effective development of rural tourism, agro-tourist complexes and homesteads are being built and specialized scientific and educational tours and environmental-focused excursions are being developed. A systematic approach to the development of rural tourism applied by state and local governments has led to an increase in the number of rural tourism entities, from 34 in 2006 to 1,576 in 2011. The number of tourists utilizing rural tourism services totaled 145 thousand people in 2011, 21.5% more than in 2010.

3.3.5. Mineral Deposits

Today the Republic of Belarus fully covers its needs for potash, salt, lime and cement, refractory and ceramic clays, construction sand, gravel, facing stone and fresh underground water with its own deposits. The country has significant resources of mineral water (226 explored deposits of mineral water, 128 of which are operated), which form the basis for the development of sanatorium and resort activities and the creation of new mineral and potable water bottling and sale enterprises.

Peat deposits are widespread, however their intensive development in the 20th century led to depletion. Excavated deposits now amount to 600 million tons, the rest is found mostly within protected areas. The annual volume of peat extraction has decreased to 2-3 million tons and is predetermined mainly by the needs of the fuel industry. Peat is extracted in small quantities for agricultural purposes. Complex use of peat and sapropelic resources has become topical. Currently the stock of sapropelic clays is estimated at 3 billion m³.

In recent years there has been a steady reduction in the balance of oil reserves, caused by imbalances in the growth of grade A+B+C oil reserves and the volume of production: in 2008 reserves growth was 1.56 million tons and production was 1.77 million tons, in 2009, respectively 1.67 and 1.7 million, and 0.95 and 1.68 million tons in 2010.

The fact of the country having limited oil reserves has led to a recognition of the need for prudent production from the country's own sources, thus in the past decade the production has stabilized at 2.0-1.7 million tons per year. In the context of "green" economy, the introduction of new technologies for extraction of viscous oil is deemed urgent, as only low-gravity oil was extracted in recent years.

Brown coal and oil shale may serve as sources of fuel and energy resources in the future. Geological

surveys are currently under way in relation to that matter.

Being ranked highly in world reserves of potash, the Republic of Belarus is currently developing only the Starobinskoye deposit, while the other two (Oktyabrskoye and Petrikovskoye) are not yet involved in the economy. In 2011 OJSC "Belaruskali" won the tender for the development of the Petrikov site and have already resolved the issue of attracting foreign investment.

There are deposits of tripoli, bentonite clays, silica sand, gypsum and other mineral resources prepared for industrial development, but not yet developed due to lack of modern mining and processing technologies and lack of investment. There is an active state policy on the use of local mineral resources, as defined by the program of development of mineral deposits and mineral resources of the Republic of Belarus for 2011-2015 and up to 2020. In 2012 construction of a new soda factory shall commence on the basis of the Kustovnitky salt dome of Mozyr rock salt deposit, involving Chinese investments; in Lelchitsy region, production of products from local facing stone is to commence; there are plans to sign a concession contract for the development of the Ostrozhansky deposits of bentonite clays; detailed exploration of the Brinev deposits of gypsum will take place with a view to building a mining enterprise, and detailed exploration is underway at the marl deposits adjacent to the cement plants.

Effective use of mineral resources for sustainable socio-economic development of the country is restrained by a lack of modern technologies of resource production and beneficiation, a lack of proper investment and the underdevelopment of market relations in the sphere of subsurface resource management. However, domestic developments in science and technology allow us to study the subsoil at greater depths and develop mineral resources previously considered to be poor and economically non-viable.



SECTION 4

PROGRESS IN DEVELOPMENT OF A «GREEN» ECONOMY

4.1. Energy and Fuel Resources

Over the past decade, Belarus has made significant progress in increasing the efficiency of the national economy (Figure 4.1.1). The main reason for the decrease in the energy-intensity of GDP is a decline in the share of conditionally constant energy costs against a backdrop of economic growth.

Program activities on energy saving also largely contributed to this trend. In 2011, savings in fuel and energy resources made through energy efficiency

measures amounted to 1446.6 thousand tons of eq. fuel. The greatest effect has been obtained by introducing modern energy-efficient technologies into production (28%). According to the National Energy Saving Program for 2011-2015, savings in fuel and energy resources made through the use of advanced technological equipment and the introduction of other energy-saving measures will total 7.1 million tons of eq. fuel.

One of the priorities of energy sector development is commissioning of high power facilities for electricity generation with minimum fuel consumption. In this regard a positive trend has been observed. The year 2009 saw the commissioning of generating equipment with an electrical output of 363 MW, followed by 450MW in 2010, and 629 MW in 2011.

Another priority is the development of nuclear energy. A Belarusian nuclear power plant with a yield of 2340 MW is expected to be built by 2018. Its commissioning would replace more than 5 billion m³ of natural gas in the fuel balance, reduce the production cost of power generation, and create new opportunities to export electricity to the EU. The introduction of nuclear fuel into the energy balance will reduce the country's environmental impact by reducing greenhouse gas emissions by 7-10 million tons.

Belarus seeks to develop local energy sources, as evidenced by an increase in their share in the balance of boiler and furnace fuel (see Figure 4.1.2).

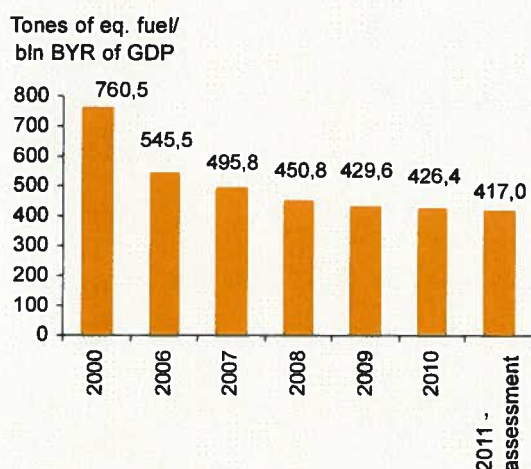


Figure 4.1.1. Energy intensity of DGP in mean annual prices of 2005

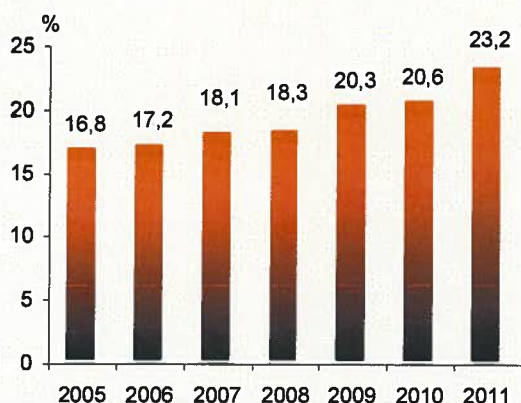


Figure 4.1.2. Share of local energy resources in the furnace fuel balance

In accordance with the Development Program for local and renewable energy sources for 2011-2015, the share of the country's own energy resources in the balance of boiler and furnace fuels must reach at least 30% by 2015.

Pruzhany CHP is a pilot project which uses the latest advanced technologies and is based on local energy resources. Analysis of its operations provides evidence of its efficiency; its equipment complies with all international environmental standards. A distinctive feature of the project is the use of technology for combined production of electricity and heat with full automation of all production processes. This project also performs a social task of developing the city's infrastructure and creating new jobs.

Accelerated development of renewable energy is already an established trend for highly developed countries - apart from increased energy security and decreased dependence on oil and gas, this avenue offers solutions to the issue of reducing greenhouse gas emissions. In Belarus the alternative energy sector is just beginning its development. The share of electricity produced from renewable sources is less than 1%.

In order to give impetus to the development of alternative energy and expand international cooperation in this area, the country has created a "Renewable Energy" association, adopted a law "On

Renewable Energy", and joined the International Renewable Energy Agency (IRENA).

1840 sites for wind turbines have been identified in the territory of the country. The first wind power plant in Belarus was commissioned in Grodno region in 2011, and is one of the largest in the CIS in terms of power output (1.5 MW).

Production of electricity from municipal solid waste was organized at the "Trostenets" landfill, in the capital city. The site has the only active landfill gas removal facility in post-Soviet territory, running biochemical processes: waste decomposes, forming methane and carbon dioxide. Methane is used as an alternative fuel for power generation. Due to this technology, greenhouse gas emissions are reduced, the process of global warming slows down, natural resources are saved, and generated electricity is fed to the grid.

There is ongoing construction of bio-gas systems: pilot projects were developed in 2008 and now Belarus has 7 biogas systems, including two landfill gas power plants, three biogas complexes which use agricultural residues and two running on industrial waste. There are plans to implement a range of pilot projects by 2015 on the introduction of technologies for producing biogas from low-calorie organic parts of municipal waste and the remnants of waste water, and collecting and utilizing biogas generated at municipal waste landfills.

One of the priorities of Belarusian policy in the field of energy efficiency and renewable energy is the development of technical standards and regulations. The republic has developed 129 technical regulations to ensure a comprehensive approach to establishing requirements for fuel and energy resources, energy-consuming products, insulation of buildings and structures, control and metering equipment, use of production waste, secondary and renewable energy sources. More than 80 of these documents are harmonized with international and European standards.

Currently the state implements a program of development of the technical regulation, standardization and conformity assessment for

energy saving for the period 2011–2015, developed and approved by the State Standard Committee. The program stipulates development of 136 national standards, while European and international standards form the basis for 123 of them (88%). There are provisions for the development of standards in the field of renewable energy, local fuels, small power systems, as well as the creation of standards aimed at improving the energy efficiency of buildings, development of energy management and energy audit of organizations.

A positive impetus to the development of "green" energy should come from legislative stipulation to assign multipliers to the tariffs for energy generated from renewable sources. For the first 10 years after the commissioning of equipment, a multiplying factor of 1.3 is applied. Exceptions are made for installations that use solar energy - for them a multiplier of 3 is used. For the subsequent 10 years all types of installations are subject to a stimulating factor of 0.85.

Thus, the country is gradually creating economic incentives for alternative energy development, which will largely determine the "green" image of the Belarusian economy.

4.2. Industry

Industry is the dominant national consumer of oil (100% of national consumption), natural gas (80%), electricity (47%), ferrous metals (40%), and timber (100%) and thus defines the resource-intensity of the entire economy. In the absence of the majority of minerals in the territory of Belarus, energy conservation and reduction of the resource-intensity of value-added production are especially important

for the industrial complex. Under these circumstances, transition to resource-efficient development and adoption of the principles of "green economy" are vital for the survival of industrial production in Belarus, amidst international competition.

In the period from 2000 to 2011, an active state policy on the rational use of material resources brought noticeable results - the material intensity of industry decreased by 10% and energy consumption decreased from 49% to 40% - a notable result, given the substantial growth in industrial output.

The achieved effect is a consequence of a deliberate policy to reduce consumption of material resources in real terms. As a result, consumption of basic material resources grew significantly slower than the increase in added value, and in some cases, as with consumption of crude oil and natural gas, it remained at the same level (Table 4.2.1).

The aforementioned period (2000–2011) can be divided into two stages in terms of trends (Fig. 4.2.1). From 2000 to 2005 the consumption of materials in the production of industrial added value decreased by 30%, while its energy intensity dropped by 50%. Direct generalized energy costs per 1 billion rubles of added value in constant prices (tons of eq. fuel/ bn.) decreased by 28%.

Once again, the active role of the government in saving material and especially energy resources should be noted. It was during this period that the state developed and implemented programs for energy efficiency in all industries, as well as implementing other measures to conserve energy resources. Their broad dissemination not only increased profitability, but also minimized the harmful environmental effects of industrial production.

Table 4.2.1. Dynamics of gross value added (GVA) and consumption of main materials by the industry

Indicator	Industrial GVA growth	Consumption of crude oil, incl. gas condensate, thousand tons	Consumption of electricity, mln kW-h	Consumption of finished ferrous metal, thousand tons	Consumption of industrial wood, thousand m ²
Growth in 2005 as compared to 2000, %	168,1	147,4	106,1	146,5	123,6
Growth in 2010 as compared to 2005, %	152,2	83,1	106,0	136,9	103,1

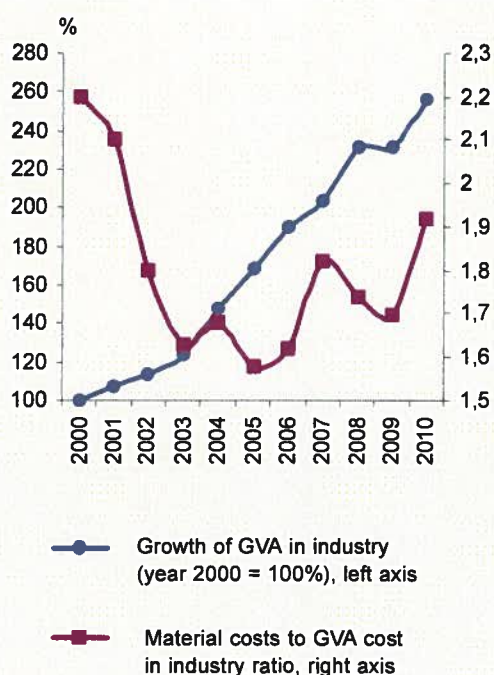


Figure 4.2.1. GVA growth in industry and material intensity of its production

In the past ten years, the country has seen a major trend of rapid growth of GVA, compared with an increase in industrial consumption of material resources in real terms. Moreover, while in the first five years the effect had, to a greater extent, to do with the savings which resulted from organizational factors, in the latter five years it was more due to the introduction of effective energy-saving technologies, replacement of production equipment with less energy-intensive and more efficient equipment, reducing the thermal conductivity of building envelopes, and using more rational design solutions in designing products. Due to the modernization of technological equipment, the processing depth of material resources grew each year.

As of today, the issue of upgrading the domestic cement industry has been solved - new energy-saving "dry" cement production lines are being installed. The large machine-building company "MTZ" has conducted the modernization of energy-intensive equipment in casting, thermal, electrochemical, and other workshops over the past two years. In order to reduce energy consumption at the large chemical

plant "SvetlogorskKhimvolokno", two new lines for production of non-woven materials were commissioned, thus reducing the energy intensity of production by almost 40%.

Throughout the five years, constant work has been done to tighten up the rules and regulations on material costs, modes of operation of production equipment in the chemical industry and oil refining have been optimized, a targeted industrial policy on the rational use of material and energy resources, including installation of metering and consumption management equipment, has been conducted. These measures resulted savings of energy resources in the years 2006–2010 which were 3.4 times greater than (in tons of eq. fuel) than for the previous five years.

State environmental policy is implemented in Belarusian industry through improvement of environmental legislation, certification of existing industries and industrial products manufactured in compliance with environmental standards, and creation of environmental management systems at enterprises. To date, the country has introduced 20 thousand standards that are in effect; compliance with these standards is aimed at ensuring environmental safety and the security of consumers of goods and services.

Thus, for the purpose of declaring conformity to the requirements of the production of natural food products without genetic engineering and artificial food additives, the technical code "Food. "Natural product" labeling rules. Main provisions" was introduced. As of the beginning of 2012, 76 local food producers had the right to label 597 of their products with this sign.

Priority areas of industrial policy in the past ten years have included introducing environmental standards aimed at minimizing anthropogenic impacts on the environment, and enhancing working health and safety. A vivid example is the introduction by RUP "Belarusneft" of an environmental management and ecological safety system, which meets the requirements of ISO 14000 and regulates activities for oil and gas production, construction of wells, and

generation of electricity. By implementing the principles of environmental protection enshrined in this system, the company continuously conducts corresponding activities: mastering advanced drilling methods, practicing drilling waste disposal in underground repositories, using hydrocarbon light fractions, catching installations, paying attention to gardening and landscaping of the production site. In 2008, another major petroleum-chemical company - "Belshina" – also received the environmental certificate, which testifies to the compliance of the systems for environmental management, design, development and manufacture of pneumatic tires for motor vehicles with ISO 14000. In subsequent years a number of large industrial enterprises ("Naftan", "Atlant" "MTZ", "Grodno Azot") have certified environmental management systems according to ISO 14000.

The country is actively developing biotechnologies as part of the "green" sector of the economy. The size of the market for biotech products in Belarus is about U.S. \$ 400 million per annum, with 20% of the market accounted for by domestic products, and this share is growing. To date the country has established commercial production of biologically active additives, feed protein and enzyme agents, and biological plant protection. Belarus is building up production of biodiesel, which in recent years reached 900 thousand tons, covering 25% of domestic needs for diesel fuel. The plans for the near future are as follows: construction of biogas plants, development of production of biotech-based means of diagnostics, treatment and prevention of human diseases, production of new biotechnological means of protecting animal health and means of diagnosing viral, bacterial and fungal infections; creation of large yeast production facilities, production of bacterial ferments and concentrates for the dairy industry, etc.

4.3. Transport

The major direction of sustainable development in the Republic of Belarus is the dynamic growth of transport activity, with full coverage of transport



demand, ensuring environmental public safety and traffic safety.

Belarus is located at the intersection of important trans-European corridors. In this regard, special attention is devoted to development of railways, roads, air routes, transit and export-import traffic. Exports of transport services in the years 1995–2011 grew by a factor of 11.7, and the balance surplus increased almost tenfold.

The volume of freight transportation in the republic increased by a factor of 1.9, which is associated with the growth of the economy. Passenger traffic is decreasing due to the increasing number of private cars, the convenient location of stores, and decreased interest in suburban activities.

However, the country's public transport performs a social function, generating demand for passenger transportation at relatively low cost and providing benefits for certain categories of people. As a result, the public transport system has managed to attract more passengers in recent years.

Transport is the second largest consumer of energy in Belarus after industry and one of the major environmental pollutants. The policy of "greening" transport in Belarus is based on three interrelated approaches: 1) reduction of unnecessary travel, 2) transition to more environmentally friendly modes of transport, and 3) modernization of equipment and fuel

used in order to reduce their negative impact on the environment and reduce social costs.

Reductions in unnecessary trips by the population are brought about by denser urban layouts, restraining the uncontrolled expansion of cities, constructing multi-level junctions, creating a network of convenience stores, constructing agro-towns, and approximating the standard of living of the rural population to that of urban dwellers.

According to the Program of Development of the Logistics System of the Republic of Belarus for the Period up to 2015, new delivery technologies are being introduced in order to optimize the freight logistics, and a system of logistics centers is being built.

Despite the advantages of road transport, urban electric transport is gradually becoming a more prominent niche in the urban transportation of passengers. In 2011 its share rose from 37.6% to 41.8% as compared with 1990. The operational length of subway rail track grew by a factor of 2.7, trolleybus lines by a factor of 1.3. Minsk is developing urban electric transport and implementing the "Urban train" project (railway commuting within the city).

Within the framework of the adopted State Program of Development of Railway Transport of the Republic of Belarus for 2011-2015, in order to implement the new format of passenger transport and reduce the environmental burden and operating costs, Belarusian Railways is working on electrification of the tracks. Works on the Transport Corridor II are complete, and the electrification of the Belarusian part of the IXB branch is envisaged by 2015.

Due to its greater environmental friendliness, as compared to other modes of transport, railways occupy an increasingly prominent place in the structure of freight transportation of Belarus, with their share growing from 27.8% in 2000 to 46.5% in 2010 (Figure 4.3.1.)

Infrastructure for cyclists is actively developing. The country has organized construction of bicycle paths, advertising and promoting their use, and expanded the range of bicycles manufactured in Belarus. A

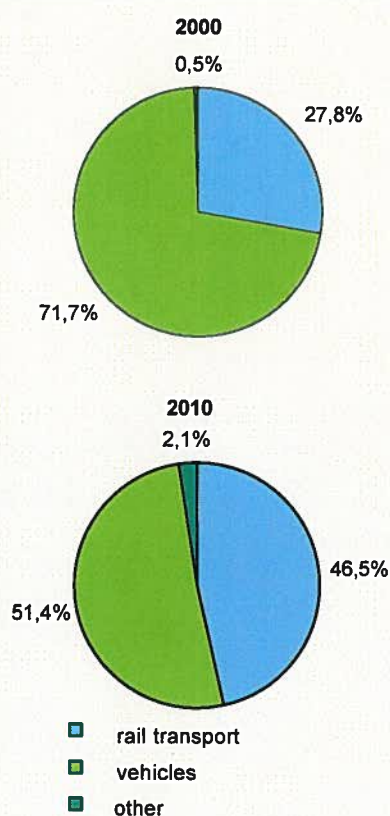


Figure 4.3.1. Structure of freight transportation by modes of transport

Concept for Cycling in Minsk for the Years 2012-2015 has been approved, stipulating organization of up to 500 km of bicycle paths in the city.

Much attention is being paid to improvement of technologies and fuel use: vehicles are being converted to run on compressed and liquefied petroleum gas and biodiesel, the quality of fuel produced by local refineries has improved. The Minsk Engine Plant has mastered production of Euro 4 standard diesel engines and plans to reach the Euro 5 level.

As a result of favorable conditions for the renewal of the rolling stock of domestic and imported vehicles, the transportation fleet for international goods was expanded with the addition of environmentally friendly models. Thus, if in 2000 73% of cars did not correspond to international standards, in 2010 all vehicles were compliant, 25% of them to Euro 5 standard (Figure 4.3.2).

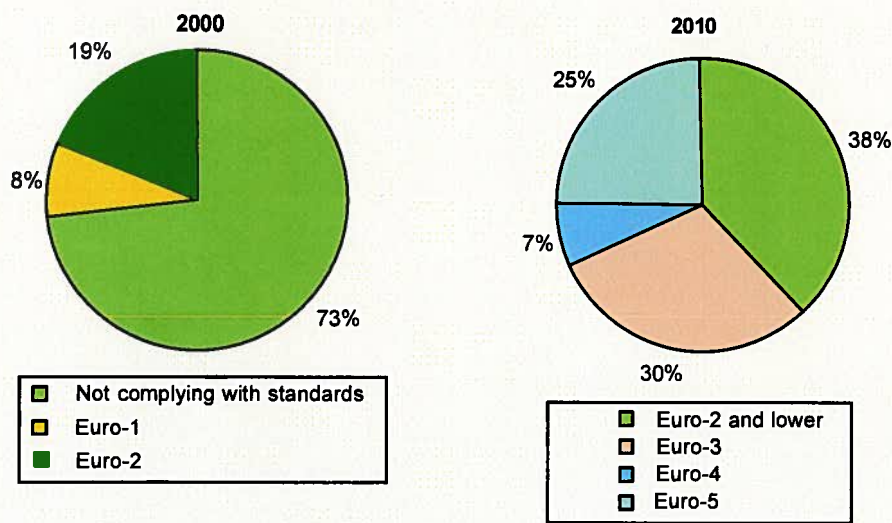


Figure 4.3.2. Share of Euro-1, 2, 3, 4, and 5 vehicles in 2000 and 2010

The State Motor Vehicle Development Program for 2011-2015 provides for the renewal of the current bus fleet with modern models, produced domestically by MAZ. Within the framework of the Intelligent Transportation System, there are plans to implement automated traffic control systems for buses using satellite navigation, which will improve the quality of operational control over the movement of buses, efficiency of public services and safety of passenger transportation.

The national airline "Belavia" has upgraded its fleet with modern Western models. All aircrafts meet the requirements of international standards for technical safety and noise, and can perform flights to neighboring and foreign countries without any restrictions.

In the field of railway transport, Belarus has signed an agreement with the Swiss company Stadler to supply trains for the new format of commuting. The country has a joint venture for production of such trains.

The measures undertaken have enabled atmosphere-polluting emissions from transport to be reduced by a factor of 2.4 in 2010 as compared with 1990. At the same time, the growth in income of the population has caused the number of private cars to increase by a factor of 4.3 (Fig. 4.3.3).

The Republic of Belarus is taking effective measures to ensure road safety. As a result, the number of road accidents decreased by 20%, the number of victims of road accidents by 32.4%, and the number of injuries by 13.7% in 2011 as compared to 1993. The Concept for road safety in the Republic of Belarus intends a decline of total losses in traffic by at least 25% in 2015 as compared to the 2005 level, including a reduction by at least 500 fatalities in traffic accidents.

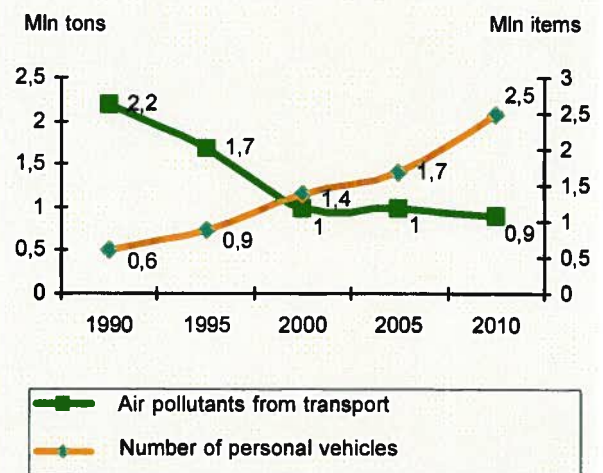


Figure 4.3.3 Emissions of air pollutants from transport and personal vehicles number

4.4. Construction, Housing and Utilities

The construction industry, as well as buildings and structures in the republic are using up to 40% of the total of consumed heat energy resources, and producing up to 35% of carbon dioxide emissions and nearly half of the municipal solid waste. Creation of a favorable environment, "green" construction and operation of "green" buildings helps to reduce the negative impact of construction on the ecological system.

The country has created the kind of urban development infrastructure that makes it possible to make each Belarusian town unique, keep its identity, enhance attractiveness and create the conditions necessary for the development of tourism in the country. Annually, there are contests in the sanitary conditions and living environment of different categories of settlements.

Over the past decade the country has vastly improved the appearance and sanitation of its urban and rural settlements. Belarusian settlements have acquired a European appearance: villages with well-kept estates, cities with beautiful parks, architectural and urban ensembles, landscape architecture, landscaped streets, squares and embankments, individual development areas, recreation areas, European-level roads, comfortable walking paths, park sculptures and hardscape, modern approaches to gardening. The adequacy of territorial development is ensured by regulations adopted in the field of urban planning and

ecology. Since 2004, Minsk and the regional centers of the republic have developed and improved according to new Master Plans under the law "On the Architecture, Urban Planning and Construction Activities in the Republic of Belarus."

The country has developed its Guidelines for State Urban Development Policy in the Republic of Belarus for 2011-2015, stipulating further improvement of the living environment through innovative approaches and the achievement of sustainable socio-economic development goals. Priority areas include rational use of natural values, improving the architectural appearance of construction, improving territorial organization in the country and creating safe, healthy, and aesthetically complete living environments for the population of Belarus. The state has developed a comprehensive scheme for the state territorial organization of the Republic of Belarus up to 2030, taking into account priorities such as innovative modernization of the economy, improvement of the quality of life, justified parameters of settlement system development, interregional and regional transportation and utilities.

In accordance with the law "On Environmental Protection", Belarus is developing the section "Environmental Impact Assessment" as part of pre-design and design documentation. This assessment includes identification of possible impacts on the environment during implementation of the design solutions, assumptions about the environment and predicting its future state in order to be able to decide on the possibility or impossibility of implementation of the design solutions.



The law "On State Environmental Expertise" regulates this type of state expert assessment of urban development projects, of general, special, and detailed planning, of area development architectural designs. Although elements of the strategic environmental assessment are already included in the development of plans, Belarus is yet to see its wide implementation.

The republic pays much attention to the improvement of landscapes and recreational areas. In accordance with the Guidelines, by 2015 availability of public plantings should be at least 8 m² per person, the proportion of green areas in the city - at least 40% (Figure 4.4.1). Cities across the country are improving their parks, squares, boulevards, flower beds and rock gardens, upgrading weakened tree plantations, planting trees, shrubs and flowers, developing recreation areas, and introducing vertical gardening. The difficult issue of additional water-logging in the capital city was resolved through the construction of a water system.

Belarus is taking its first steps in developing the "green" city concept. The first such city with more green areas and corresponding territorial organization will be Logoisk.

The most important conditions for creating "green" cities are construction of new "green" buildings and

renovation of existing high energy- and resource-consuming ones. These measures reduce emissions of carbon dioxide into the atmosphere and bring down energy consumption in the construction sector. It should be noted that housing in Belarus consumes a third of the country's energy resources for heating and hot water supply purposes, and so work to reduce energy consumption in the home are of great importance. Over the past decade there has been some progress in improving the energy efficiency of buildings and reducing heat loss.

One of the mechanisms for reducing energy consumption is reorganization of old buildings and construction of energy efficient prefabricated houses. The country is already making the transition to the construction of buildings with modern architectural and planning systems, modernizing and renovating the active part of the main foundations of buildings and industrial organization of the construction complex. Belarus was the first among the CIS countries to launch construction of energy efficient buildings with heat costs 2.5-3 times lower than in standard homes.

"Green" energy efficient construction of residential and public buildings is among the largest priority areas of modern architecture. Today, more than 810 thousand m² of housing have been built with energy efficient designs (see Figure 4.4.2).

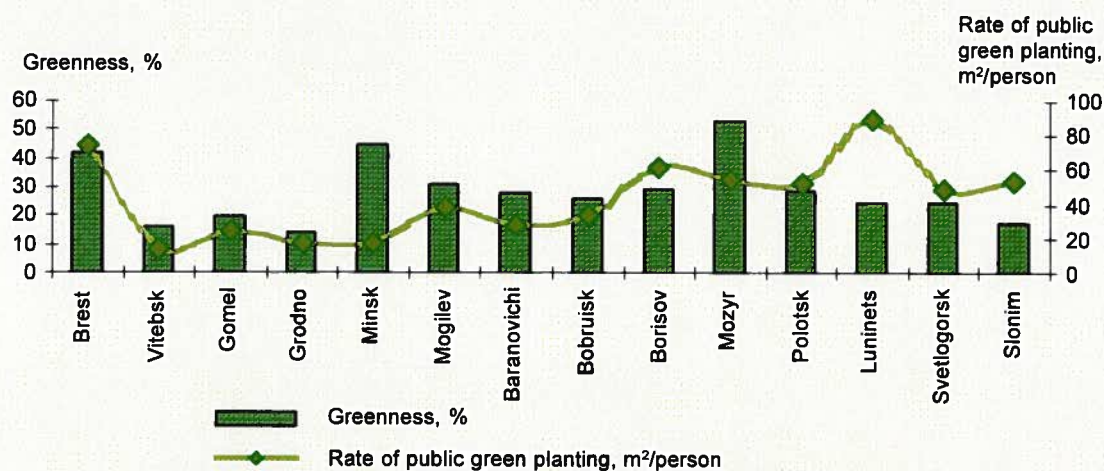


Figure 4.4.1. Level of greenness and rate of green planting per capita in the cities

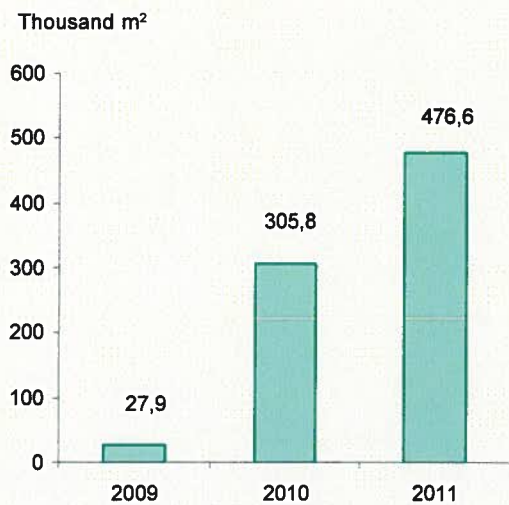


Figure 4.4.2. Total of energy-efficient housing commissioned

A comprehensive program for the design, construction and reconstruction of energy-efficient houses in the country for 2009-2010 and until 2020 has been developed, providing for the reduction in the specific consumption of thermal energy for heating down to 60 kW h/m² per year (2015), and in the future to 30-40 kW h/m² year (by 2020). There are plans to be building up to 60% of such housing by 2020. Measures to reduce energy consumption in the construction and operation of buildings and facilities include: thermal upgrading of existing residential buildings, mass replication of energy-efficient housing, organization of the production of virtually all products needed for furnishing homes, introduction of the European practice of calculating costs for the entire life cycle of the building.

Construction companies and organizations are among the major suppliers and consumers of secondary material resources. In the course of construction, about 12 tons of waste concrete is produced, as well as 1.5 tons of waste sand-lime brick, 2.0 tons of gypsum sheets, 0.6 tons of reinforced glass, etc. Much attention is paid to recycling and re-using these materials as intermediate and raw materials in construction, in production of construction materials, at processing and recycling enterprises.

Environmentally friendly materials are among of the most important elements of "green" construction, timber being the main one. Building of wooden houses is becoming increasingly important in housing. Residing in suburbs gains a more positive image; cottage housing is developing, alongside related infrastructure outside the major cities. The volume of construction of houses with wood serving as a prime construction material now accounts for 12% of total individual housing construction.

Production of environmentally friendly materials is expanding. Corrugated cardboard, drywall sheets, straw blocks, etc. are now widely used. It is worth mentioning that roofs in individual houses are also covered with cane and aspen shingles, already produced in Belarus. At the same time, reinforced concrete and precast concrete remain prime construction materials.

4.5. Agriculture

With regard to agriculture, Belarus is conducting a well-established public policy. Significant results were achieved in the course of implementation of the State Program of Rural Development for 2005-2010, as well as a number of sectoral programs. A sustainable dynamic of growth in agricultural production was secured (see Figure 4.5.1), the processing industry load was increased, export opportunities were substantially expanded, and the issue of food security was generally resolved. The observed growth is mainly due to increasing productivity of both agriculture and animal breeding.

The potential for increasing production and reducing costs in agriculture is fulfilled through the widespread use of information and high technologies, improved farming culture, and introduction of new forms of management. Differential fertilization and reclamation through the application of precision farming technologies and electronic maps reduce material and labor costs. In addition, satellite technologies help to create more accurate soil and agrochemical maps, which enables better planning of crop yields and more efficient fertilization.

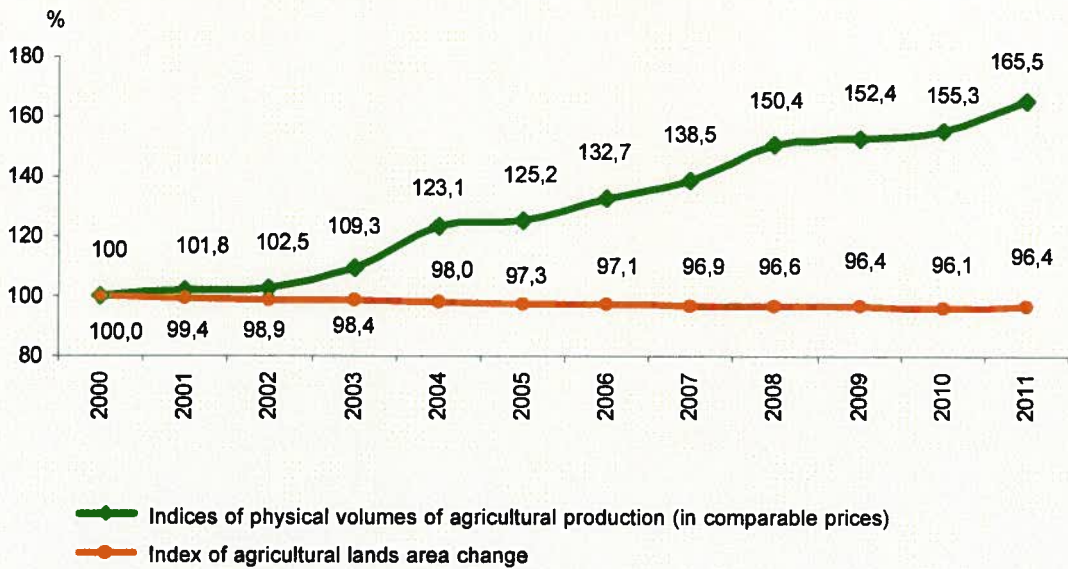


Figure 4.5.1. Dynamics of agricultural production and agricultural lands area

The State Program for Sustainable Rural Development for 2011–2015 stipulates further growth of crop and livestock production, which is aimed at forming an effective competitive, sustainable and environmentally friendly agro-industrial complex which corresponds to international standards.

The current approaches to rural development are consistent with the objectives of sustainable agriculture development, including: improvement of the environment and preservation of the diversity of landscapes, maintenance of soil fertility by observing and regulating the biological interactions between soil, plants, animals and humans with minimal human intervention in the naturally established order.

The most important events in the context of organic farming in the Republic of Belarus have been the following:

- 1) modernization of vocational training of agricultural workers in the field of enhancing environmental friendliness of production, obtaining biologically safe agricultural products, standardization and labeling of food, use of new resource-efficient technologies and equipment;
- 2) conducting research on various aspects of alternative agriculture;

- 3) increasing state control over production and use of modern biotechnology, particularly related to the genetic modification of animals and plants used for food products;
- 4) improvement of the breeding of farm animals, as well as the cultivation and protection of crops;
- 5) preservation, restoration and improvement of soil fertility of agricultural land for the purpose of maintaining and strengthening the natural and ecological balance;
- 6) creation of special zones for manufacturing environmentally friendly products.

Currently, the country is developing scientific criteria for: the production and efficient application of environmentally friendly means of protecting crops from pests on the basis of local raw materials and strains of microorganisms; methodological foundations of ecological security of plant protection systems; information technologies for plant protection; new resource-saving environmentally friendly technologies for the protection of agricultural crops from pests, diseases and weeds.

One of the most pressing environmental problems is the protection and sustainable non-exhaustive use

of land. Land degradation of various types is preconditioned by both natural factors and human activity, and by failures to comply with the norms and rules of rational land use and protection. The main factors of land degradation in Belarus are water and wind erosion, radioactive and chemical pollution, and degradation of drained peat soils due to their unsustainable use.

Of all types of land degradation, erosion is the most acute and significant one. According to the latest round of soil surveys, the total area of agricultural land affected by degradation due to erosion is about 556.5 thousand hectares, or 6.2% of the total area. Eroded soils predominantly belong to arable lands - 479.5 thousand ha (8.6% of the country's arable land).

The country works annually to prevent erosion and to ensure a steady increase in soil fertility through a combination of anti-erosion measures, which make a coherent system of soil conservation means and techniques, including organizational and territorial means, agricultural measures, phyto-melioration, hydraulic and other techniques. The most productive way to prevent erosion on agricultural lands is to shift to landscape-adaptive farming and establish anti-erosion crop rotation.

Development of land management schemes for administrative areas is an important direction for the organization of rational land use and protection. Within the framework of the UNDP / GEF project "Mainstreaming Biodiversity Conservation into Territorial Planning Policies and Practices", newly developed planning policies for several areas placed



an emphasis on ensuring sustainability of ecosystems, biodiversity and habitats of rare and endangered species.

In the period from the 1960s to the 1980s, the territory of Belarus was subjected to large-scale draining. Ameliorative reclamation of swamps and wetlands, mostly in Polesie region, was aimed at changing the hydrology of the area and optimizing the cultural soil formation to increase the fertility of the land and the possibility of its further use in agricultural production.

However, alongside the positive results of this project, ameliorative reclamation of more than 1000 hectares of peat soils (1/3 of the reclaimed land) led to a number of environmental problems. The key ones include mineralization of the peat layer, accelerated land degradation, increased number of droughts and extreme frost periods, disruption of the hydrological regime of the reclaimed areas, transformation of the regime and chemical composition of surface and ground waters.

Maintaining and improving soil fertility with the revision of the methods used for farming on reclaimed peat soils is aimed at protecting the land, improving the ecological condition of soil, and increasing the fertility of agricultural land. These activities are carried out within the framework of internal land development projects.

After the Chernobyl disaster, a large part of Belarus - 4.8 million hectares – was contaminated with radionuclides. Over the past 26 years the radiation situation in the contaminated land has improved significantly: short-lived radionuclides have decayed, and the concentration of long-lived radionuclides ^{137}Cs and ^{90}Sr in the soil has decreased (by approximately 40%) due to natural decay. There has been a gradual decrease in the area of contaminated lands which are used, with controlled minimum density due to natural decay of radionuclides and inclusion of lands in the non-contaminated category.

The wide-ranging complex of protective measures in the contaminated territories of Belarus can be divided into three stages: 1986–1991, 1992–2000, and from 2001 up to the present day. The first stage included

immediate, post-accident relief measures: the evacuation, followed by the resettlement of residents (a total of 138 thousand people), and the decommissioning of 265.4 thousand hectares of agricultural land with an extremely high contamination density.

The second stage of specific protective measures (1992-2000) was conducted alongside a consistent tightening of sanitary and hygienic standards for ¹³⁷Cs and ⁹⁰Sr content in food. Zoning of agricultural lands according to density of radionuclide contamination only was not enough. Since 1992, protective measures have been implemented which take into account the specific characteristics of each field. During this period, new techniques of differential mineral nutrition of plants and new forms of fertilizer were applied.

The third period of protective measures, which began in 2001, aims to ensure the production of regulatory clean food products and agricultural raw materials for the processing industries.

In 2010, the State Program for Socio-economic Development and Comprehensive Utilization of Natural Resources of Polesie for 2010–2015 was adopted. It covers seven districts of the Brest and Gomel regions with a total area of 1.8 million hectares, which include many floodplains and reclaimed areas. The region includes nearly 90% of the Pripjat floodplain and 320 hectares of reclaimed land.

This is the first regional program of integrated area development in our country which has a focus on "green" economy. The program envisages active involvement of floodplain meadows in agricultural production for the development of beef cattle breeding on pasture feed, complete restoration of drainage systems for intensive management of crop and vegetable production, and mobilization of development of recreational resources.

In recent years Belarus has taken active steps to reduce the impact of natural and anthropogenic factors of land degradation.

The most relevant activities are those aimed at rehabilitation of lands contaminated with

radionuclides, protecting land from wind and water erosion, conservation of reclaimed lands, especially drained peatlands, and afforestation of marginal agricultural and other unused lands. The most recent period was characterized by the implementation of an agricultural land optimization program, which was due to the necessity of redistributing and transforming unproductive lands decommissioned from agricultural use.

4.6. Forestry

Forests are the largest ecosystems on the Earth, which not only provide timber and other biological resources, but are also among factors contributing to sustainable human development.

However, forest ecosystems have limited economic capacity, and exceeding these limits is destructive to both the environment and humans. The contradiction between the increasing use of forest resources and the necessity of preserving them is removed, as evidenced by international experience, by "smart" rational and sustainable forest management, which is the foundation of "green" forest economy.

Forest resources are one of the main natural treasures of the Republic of Belarus. The total area of forest comprises, according to the National Forest Inventory as of 01/01/2012, 9455 hectares, the forest stock - 1.636 billion m³, forested areas - 39%. Belarus has 173 m³ of growing stock per capita, which is 2.2 times higher than the average value.

The forests of Belarus, being located in the heart of Europe, perform important ecological and environmental functions, and solve the problem of biological and genetic diversity not only for our country but also for the whole of Europe, to a large extent. The annual growth of wood in the forests is estimated at 31 million m³ and the total average annual felling amounts to approx. 15 million m³. Annual reforestation rates should be comparable to felling.

Over the past 10 years, a targeted forestry policy pursued by state forest management agencies



resulted in the growth of the forest-covered area and total stock by, respectively, 2.6% and 19.3%. Introduction of saplings into valuable tree plantations increased by a factor of 2.1 over this period, while the permitted felling for primary purposes grew by a factor of 1.4 (Figure 4.6.1). The annual rate of reforestation and afforestation is, on average, 46 thousand hectares.

Widespread use of biological and chemical protection methods have led to a reduction of forest pests and diseases hotbeds by 12%. The successes in protecting forests against fires are considerable: the occurrence of forest fires shrunk fourfold in 2010 as compared to 2000.

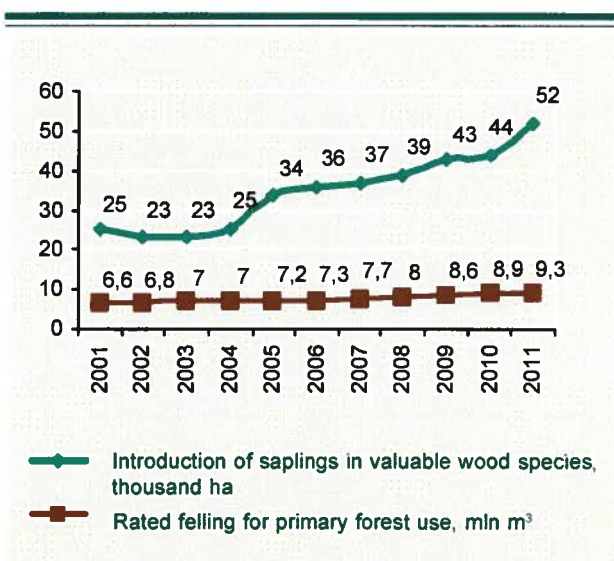


Figure 4.6.1 Dynamics of introduction of saplings in valuable wood species and rated felling for primary forest use

The issues of forest diseases, loss of forest plantations due to damage by wild animals, excessive moisture and natural disasters are still relevant. The total average annual loss of forest cover is 12.6 hectares (0.16% of the total forested area), of which 75% is due to exposure to adverse weather conditions, including more frequent hurricanes.

The overall ecological and economic value of forest lands in Belarus, according to the forest inventory of the republican unitary enterprise "Belgosles", is more than 80 billion U.S. dollars, with most of that sum (77.3%) accounted for by the environment protection functions of forests, with the cost of the land itself being valued at 18.3 billion U.S. dollars.

Given the economic importance of the forests, they are divided into two groups. The first covers the forest reserves, national parks, and other forests performing protective, water conservation, sanitation, and health functions. The total area of this type of forest is more than 4.87 million hectares. The second group includes forests which perform operational safety functions. They occupy 4.58 million hectares, or 48.5% of the total forest area of the country. Over the past decade the proportion of forests of the first group grew by 1.7 percentage points and reached 51.5%, indicating a strengthening of the environmental and social orientation of the state's forest policy.

Forestry in Belarus operates in conditions of state ownership of forests and centralized forest use and management. The state's main goal in the area of forestry is to ensure sustainable, cost-effective, environmentally responsible and socially oriented forest management, based on the principles of uniformity, integrity, consistency, and sustainability to the benefit of present and future generations.

The main objectives and implementation measures for achieving this goal are reflected in a number of conceptual and policy documents - the National Strategy for Sustainable Socio-economic Development of Belarus for the period up to 2020, the State Forestry Development Program for 2011–2015, etc.

The principles of sustainable forest management are set forth in the Forest Code. With their practical

implementation, Belarus' forests only provide continuous forest use within the annual growth of woods, but also contributes to the sustainable socio-economic development of the country, ensuring its economic, energy, food and environmental security.

Through purposeful innovation, a transition is being made to modern forestry technology, including logging and wood processing. New avenues of multipurpose forest management have gained prominence - bioenergy, hunting and ecotourism. Thus, under the State Program of Innovation Development of Belarus for 2011–2015, in 2011 the state "Schuchin Forest Enterprise" created a modern forest seed processing and storage facility; work is underway to create segments of an automated distant forest fire monitoring and early detection system using modern means of surveillance.

To comply with international standards of sustainable forest management, the country conducts forest certification in accordance with the requirements of the international scheme of the Forest Stewardship Council (FSC) and within the framework of the Forest Certification System of the National Compliance Verification System of the Republic of Belarus, recognized by the pan-European Forest Certification Council (PEFC). 52 forest enterprises are certified as meeting the requirements of the FSC, and according to the PEFC scheme the results are even more significant: 94 forest enterprises with an area of 7.98 million hectares are covered (99% of the total forest fund of the Ministry of Forestry).

According to the Program of Socio-economic Development of Belarus for 2011–2015 and State Forestry Development Program for 2011–2015, the priorities for effective use of forest resources in Belarus are as follows: development of the existing and creation of new export-oriented production facilities for deep processing of raw wood materials, manufacturing of products with high added value; widespread use of low-value raw wood material and timber waste as boiler fuel to reduce the costs of import of non-renewable energy sources (gas, oil).



There are already more than 50 production facilities organized at forest enterprises for processing low-value raw wood material and timber waste for production of wood chips, wood briquettes and pellets; more are to come. A number of export-oriented and import substitution enterprises for deep processing of raw wood materials will be created in 2012–2015, including a bleached pulp plant at OJSC "Svetlogorsk Pulp and Paper Mill", 8 particleboard and fiberboard plants within the "Bellesbumprom" Concern, etc.

The main objectives of forestry development for the period up to 2015 are: improved productivity and quality of forests, development of forest stock infrastructure, harmonization of the national forest produce standards with European standards.

Provisions have been made for: introducing space methods for forest inventory-taking and prompt evaluation of forest condition; modernization of logging technologies based on widespread use of multi-purpose machines; creation of permanent seed orchards and special-purpose forest plantations, including for energy purposes; improvement of forests for recreation; significant expansion of international hunting and ecotourism.

Thus, the basic principles of "green" forest economy are reflected in the conceptual and policy documents on socio-economic development of Belarus in the near and distant future. The main issue now is their successful implementation.



SECTION 5

DIRECTIONS AND PRINCIPLES OF TRANSITION TO A "GREEN" ECONOMY

5.1. *Economic Policy and Instruments. The Role of the State in the Transition to a "Green" Economy*

The main objectives of economic policy in the transition to «green» principles are creating conditions for economic growth, enhancing welfare and health with the rational use of natural resources, preserving the ecological balance and preventing imbalances in the ecosystem. The draft law «On State Indicative Planning in the Republic of Belarus», drafted and currently undergoing its first reading in the National Assembly, should become the systematic basis for achieving this goal. It stipulates that a sustainable development strategy shall be developed and updated every five years at the national and local levels.

The economic policy of the state during the transition to a «green» economy should be based on the following approaches and principles:

- ◆ equal treatment of economic, social and environmental issues;
- ◆ transition to a low-carbon economy;
- ◆ development and use of renewable energy sources and new environmentally friendly materials as a priority;
- ◆ creation of effective systems of industrial and consumption waste management;
- ◆ compliance with legislation on environmental protection, sanitation rules and regulations, environmental standards, in exercising economic activity;
- ◆ compliance with environmental protection requirements during the implementation of economic reforms. This principle is particularly relevant in the process of privatizing state property and in facilitating entrepreneurship;
- ◆ focusing on finding a reasonable compromise in resolving the conflict between the need to comply with environmental restrictions and requirements on the one hand, and to stimulate economic activity on the other;
- ◆ economic encouragement, by means of public credit and pricing instruments, of resource and energy saving, innovations in science, engineering and technology, economy, education, and information technology;
- ◆ wide use of economic instruments to cover the costs associated with the minimization of harm to the environment resulting from economic activities (environmental insurance, fines);
- ◆ development of international cooperation in order to preserve, protect and restore the integrity of the Earth's ecosystems.

Adherence to the principles of «green» economy will help to avoid over-exploitation of natural resources, and thereby meet the needs of present and future generations for natural resources. For the purpose of shifting to a «green» economy, it would be

necessary to create conditions for attracting investment in the coming years, including DFI, in such key sectors as agriculture, forestry, energy, fisheries, industry, housing and utilities, tourism and waste management.

The principles of «green economy» suggest an economic policy which carries out reforms to the subsidy system by phasing out subsidies from state and local budgets in such areas as transport, construction, housing and utilities, agriculture, energy and gas supply. Modernization and regulation of government subsidies should encourage business entities to introduce low-waste, energy-saving technologies, make prudent use of local and imported natural resources, primarily fuel and energy, improve the quality of products and services, and develop market relations in all sectors of the economy. The population should also get motivated to save water, gas and electricity, conduct separate collection of municipal solid waste, preserve the housing infrastructure and adjacent territory.

In the period up to 2020, it is expedient to extend preferences for loans and depreciation allocations to businesses that provide a significant reduction in waste production, wastewater discharges, and pollutant emissions, especially greenhouse gases, into the environment per unit of raw materials, production capacity, produced goods, energy production, work performed, volume of service provided.

In the transition to a «green» economy it is expedient that the following tools should be used:

- ◆ education and training of the population consistent with the principles of sustainable development and environmental culture;
- ◆ pricing corresponding to principles of sustainable development, based on a flexible combination of free and controlled prices, abandonment of «harmful» subsidies;
- ◆ valuation of natural resources, which should be the basis for calculating the rates of tax on extraction (removal) of natural resources;
- ◆ channeling public funds into infrastructure which corresponds to the principles of

sustainable development (public transport, renewable energy, energy-efficient buildings) and natural capital, to restore and (where possible) increase the volume of natural capital. The priority is to protect the environment. Given that over 20 years the annual cost of environmental protection activities ranged from 1% of GDP in 1990 to 1.7% in 2000 and to 1.3% in 2009, by 2020 this figure should increase to at least 2%. In the course of transition of the national economy to «green» principles, the structure of funds aimed at protection and rational use will change: the share of spending on environmental protection from pollution by waste, as well as conservation and reproduction of wild animals, will grow;

- ◆ targeted government support of research and development related to creation of environmentally friendly technologies.

Administrative legal methods should also be used to ensure economic growth and prevent excessive depletion of natural resources and destruction of aquatic, wetland, forest and biological ecosystems and natural landscapes. In the field of nature management this entails: technical regulations and standards, sanitary and hygienic rules and regulations, limits, environmental restrictions and requirements, integrated environmental permits.

«Smart» nature management involves a review of traditional measures of national wealth and natural resources management. While in the «brown» economy, the wealth in natural resources of a country is characterized by a system of positive indicators, the «green» economy stipulates, alongside the traditional indicators, wider use of ratios and indicators on resource consumption (nature intensity) for improving resource efficiency, as well as on specific exponents (use of fresh water per one million of industrial produce or GDP, proportion of useful material in the volume of extracted minerals).

For the purpose of air protection, provision should be made for: improving the system of standardization and normalization of the load on the environment; economic incentives for business entities engaged

in activities to reduce emissions of pollutants into the atmosphere; development of a system of payments for greenhouse gas emissions; increases in the prices of motor fuel in terms of vehicle pollutant emissions fees. Belarus should use such economic instruments as air pollutants emissions trading, which have allowed countries of North America and Europe to significantly reduce emissions of sulfur dioxide, nitrogen and greenhouse gases since the 1980s up to the present day.

Reduction of emissions from mobile sources in Belarus will be facilitated by

the coming into force on December 31, 2012 of the technical regulation «On the Requirements for Automobile and Aviation Gasoline, Diesel and Marine Fuels, Jet Fuel and Heating Oil» adopted within the Customs Union.

Increasing the level of waste processing and bringing it to the level of European countries would require:

- ◆ changes and additions to the regulations governing the trans-boundary movement of waste;
- ◆ increases in tariffs for the removal and disposal of municipal waste, recovery of the costs of organizations providing public services;
- ◆ termination of budget subsidies to organizations that provide the public with services related to the removal and disposal of municipal waste;
- ◆ development of rules for organizing collection of waste packaging, household appliances, rubber waste and hazardous waste (mercury thermometers, batteries, tires, mercury-containing lamps, expired drugs, etc.);
- ◆ changes and additions to the regulations on licensing and standardization in the field of waste management;
- ◆ improvement of planning and monitoring of municipal waste management by increasing the participation of the Ministry of Natural Resources and Environment and its territorial agencies in the development and

implementation of activities in the field of waste management within the state and regional programs for socio-economic development; creating an inventory of solid municipal waste (SMW), or the inclusion of SMW in the current inventory of waste; use of new targets developed within the framework of forecasting and policy documents of socio-economic development of Belarus and its regions, including a general indicator of the cost of production and energy resulting from use of waste;

- ◆ development of a deposit-return system in municipal waste management, based on the effective experience of European countries;
- ◆ introduction of the principle of extended producer responsibility (EPR) for packaging made of cardboard and paper, polymers, glass and metals, for electrical and electronic equipment (batteries, computers, household appliances), automobiles, related materials and equipment (batteries, oil, tires), and medicines;
- ◆ economic incentives for the collection and sorting of waste, production of products using local recycled materials (preferential lending rates, accelerated depreciation of equipment used in the process of recycling; simplified procedures for obtaining permission to engage in economic activity in this area).

In order to attract investment into the area of municipal waste management, it is necessary to ensure the introduction of public-private partnership mechanisms in waste collecting, transporting, sorting and recycling, as well as provide additional benefits to investors for the implementation of specific investment projects.

The following measures are needed for saving energy in the field of water supply and for reducing public spending on supplying suitable quality water to the population and industries:

- ◆ development and implementation of administrative and economic tools to encourage the abandonment of the use of potable water for household purposes,

reduction in the volume of discharge of inadequately treated waste water; increased sanctions for violation of environmental legislation in this area;

- ◆ encouragement of large industrial organizations and businesses to implement low-water and water-free technologies by providing loan preferences;
- ◆ stricter drinking water standards for all categories of water users;
- ◆ increased tariffs for drinking water and, in the next few years, terminating subsidies for the supply of water to the population for the purpose of water extraction, refining and delivery cost recovery. The least socially protected categories of people (disabled, pensioners) if necessary, should be granted targeted financial assistance.

To prevent discharge of inadequately treated sewage into water bodies and streams, it is advisable that fines are increased for violating environmental laws in the field of protection and use of surface water, primarily for the unsatisfactory operation of treatment facilities.

In order to preserve biodiversity, protected areas should be developed on the basis of an optimal combination of budget financing, current economic and financial mechanisms, including investments, and extra-budgetary resources; there is a need to develop eco-tourism and use the proceeds not only for creation of tourist infrastructure, but also to preserve rare and endangered species of wild animals and birds.

To develop mineral deposits needed for the country's economy, the interested government agencies, companies and refiners need to actively attract foreign investment through the development of public-private partnerships and concession agreements. Concessionaires and foreign investors should be given additional privileges and preferences as defined by the Presidential Decree «On Certain Issues of Investment Activities in Respect to Mineral Resources» of October 3, 2011# 442, and other regulations.

5.2. Education for "Green" Economy

Issues associated with the transition of education to a «green» economy are generally formulated in the National Action Plan for the Implementation of the UN Economic Commission for Europe (UNECE) Strategy on Education for Sustainable Development in the Republic of Belarus for 2010–2014 and sectoral education development programs. Priority is given to the formation of a versatile and highly spiritual education for citizens responsible for their Ecohouse, their land and its management, concerned about the fate of their village, town, country and planet Earth. In this regard, the qualitative transformation of the education system is an important task.

The system designed for the transition of education to a «green» economy covers all types of schools: pre-schools, secondary schools, specialized secondary schools and universities.

The most common forms of «green» education in all types of educational institutions are environmental education lessons in schools, high schools, associations and eco-clubs, as well as extra-curricular courses.

Some experience in educating students for the «green economy» has already been gained by pre-school institutions, carrying out full-fledged, age-appropriate education of children, compliant with the requirements of environmental education. The Republican Ecological Center for Children and Youth coordinates this work.

In the system of secondary education, the task of shaping the ecological culture of students is being addressed through the inclusion in the curriculum of corresponding themes and topics that deepen and elaborate some aspects of environmental education. In January 2010, an educational-methodical complex entitled «Wild Nature of Belarus» was presented in Belarusian schools. It was presented as extracurricular activities for the 7th and 8th grades. With the support of the UN office in Belarus, a new project called «Green School» was launched.

Courses such as «Fundamentals of Environmental Protection» and «Fundamentals of Industrial Ecology» were introduced in vocational schools, along with other specialized courses. In technical schools, matters of familiarizing with the issues of «green» economy are included in specific topics of special subjects and courses.

Center for Advanced Training of Employees and Specialists”.

The “State Museum of Nature and Environment of the Republic of Belarus” is operating. Education of citizens in the area of “green economy» is also compatible with the environmental education of the

population that is carried out by the media, museums, ZOOs, botanical gardens, libraries and community organizations. The largest protected areas of Belarus are creating awareness-raising centers that are meant to work with different age groups.

The main conditions for achieving this goal are: further improvement of the regulatory and legislative framework on environmental education, upbringing and awareness-raising; increased use of

foreign experience in environmental education; training and retraining of teachers for all levels of basic and secondary education on «green» economy; strengthening of the role of media and public organizations in view of the principles of «green» economy; developing a network of educational institutions of a new type: «green» schools, universities implementing educational programs for «green» economy, etc.; development of education quality indicators for «green» economy and creation of a monitoring system.

Education of population in the field of environmental protection and nature management is ensured by including educational programs of fundamental knowledge in the area of environmental protection and nature management into academic and program documentation.

**The law of the Republic of Belarus
"About preservation of the environment", paragraph 75**

Within the system of higher education, courses in «Fundamentals of Ecology and Environmental Economics,» «Sectoral Ecology», «Living Safety,» «Radiation Safety» and other special courses covering the issues of «green» economy have been introduced. Environmentalists are raised at BSUIR (specialization - economy). Similar professions with other specializations are offered at the Belarusian State University, Belarusian State Economic University, Belarusian National Technical University, Belarusian Agricultural and Technical University, and other institutions. For example, at ISEU named after A.D. Sakharov, environmental specialists are trained with in-depth knowledge of information technology under the specialty «Information Systems and Technology», with certification as «Software Engineer-Ecologist.» Many institutions have created environmental («green») departments that are raising trained environmental specialists. Serious attention is paid in Belarus to post-graduate environmental education; there are national training courses conducted at the state education facility “National

The objective of environmental education and awareness-raising is to create conditions enabling all citizens to gain environmental knowledge, shape environmental mindset in the society, including cultural and ethic principles and behavioral norms that ensure sustainable development of the country.

**National strategy of sustainable
socio-economic development of the Republic
of Belarus for the period until 2020.**

5.3. Science and Innovation for Sustainable Development

Research and development are factors that stimulate development of a «green» economy. Energy conservation, agro-technology, environmental management, resource conservation, bio- and nanotechnology are recognized as priority areas of scientific and technological activities in Belarus in accordance with the Decree of the President of the Republic of Belarus of July 22, 2010 № 78.

The main tasks of the priority field of «Energy and Energy Efficiency» are: ensuring the introduction of atomic power into the energy system of the Republic of Belarus; creating a new trend in production of lighting products based on LEDs; developing and increasing production of alternative fuels and energy sources; purifying natural waters and condensates used for power engineering needs.

In the field of renewable energy, hydroelectric power plants with the a total yield of 102.1 MW will be commissioned in the period 2011–2015, the total electric power capacity of wind farms shall grow up to 460 MW, and the capacity of other energy sources (vegetative waste, solar, municipal waste, petroleum coke, etc.) will increase to 863.5 thousand tons of eq. fuel (provisional). Use of new advanced



technologies in electricity production will reduce the specific fuel consumption for electricity generation by 27.4 g of eq. fuel by 2016.

In the area of «Agro-Industrial Technology and Production», modern means of environmentally safe plant protection using local raw materials are being developed, including methods to combat pests, environmentally friendly techniques for production and the use of complex biomineral fertilizer, the latest methods of selection and breeding of farm animals, embryo transfer technology and DNA-technology, environmentally safe products and biotechnology for preparation and preservation of fodder resources for livestock.

The main objective in the field of «Industrial and Construction Technologies and Production» is the implementation of the concept of conservation of energy and resources in creating new machinery and constructing and operating residential and industrial premises. New models of vehicles are being developed which correspond to international environmental standards Euro 4 and Euro 5, as well as diesel engines adapted to run on biofuels, mining trucks which meet Tier 3 (Stage 3A) requirements for the release of toxic substances, mining transloaders with two-stage exhaust gases treatment systems, energy-efficient housing projects, energy-saving environmentally friendly technologies for a new generation of domestic construction materials.

In «Chemical Technology, Nanotechnology and Biotechnology», biopharmaceuticals and technologies are being developed for agriculture, industry, health and environmental protection. Among the main objectives in this field are the organization and increase of production of low-tonnage chemistry (drugs, food additives, preservatives, dyes, pesticides, additives to oils and fuels) with maximum use of traditional chemical intermediates and domestic raw materials.

In «Environmental Management, Resource Conservation and Protection from Emergency Situations,» the issues of geopotential management and environmental quality preservation are treated

as the pressing challenges of today. There are provisions for the development of new technologies and facilities for sustainable use of natural resources; standards for sustainable forest management have been developed; methodological approaches to environmental protection, flora and fauna preservation have been defined.

The results of the most promising scientific developments have been introduced into the real economy with the support of the state, primarily through the mechanism of the State Program of Innovative Development, which was first drawn up in 2007. Currently a new program for the period 2011–2015 is being implemented.

The state's efforts are aimed at applying an integrated approach to promote high-tech R & D, within which the innovation infrastructure facilities (research and production centers, industrial parks, etc.) implements the whole range of activities - from the scientific idea

of development to its implementation, including for the area of «green» economy.

Currently, there are a number of innovation infrastructure facilities: research and technology parks (11), research and production centers (theoretical and practical, 40), business incubators (9), etc. The National Academy of Sciences of Belarus took the path of creating science and practical centers (for materials science, biological resources, food, agriculture, agricultural mechanization, etc.). The main purpose of their operation is to enhance the efficiency of research, accelerating the introduction of scientific research into industry to intensify the innovative development of the economy.

A High-Tech Park has been operating in Belarus since 2005. In this unique enabling environment for IT-business development, unprecedented tax benefits are combined with the presence of well-trained professionals.



THE POSITION OF THE REPUBLIC OF BELARUS IN REGARD TO "GREEN" ECONOMY

The Republic of Belarus considers the "green economy" to be an important instrument for sustainable development and environmental safety, and intends to take sustained measures to implement "green" (ecological) principles in the national economy.

In order to create favorable conditions for an effective transition to the environmental economy model, Belarus supports an approach which:

- ◆ reinforces the central role of the environment and the global commitment to sustainable development on the international agenda;
- ◆ contributes to sustainable development by strengthening the balance of its components (economic, social and environmental);
- ◆ takes into account the principle of shared but differentiated responsibilities and different paces of introduction of "green" principles, depending on the level of socio-economic development of states;
- ◆ is consistent with obligations under international treaties ratified by the Republic of Belarus;
- ◆ contributes to increasing availability of environmental "green" technologies, introduces best available techniques for integrated environment pollution prevention and control, opens up new market opportunities;
- ◆ does not have grounds that allow for using the concept of "green economy" as an instrument of discrimination and protectionism;
- ◆ contributes to building international cooperation with countries, corresponding international and regional organizations, and financial institutions in order to provide Belarus with financial, technical, consultative and other types of assistance to develop and implement "green" technologies.



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