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Reorganisation of environmental policy in Russia: The decade of success and failures in implementation and perspective quests

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Fondazione Eni Enrico Mattei

**Reorganisation of Environmental
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The Decade of Success and Failures
in Implementation and
Perspective Quests**

Vladimir Kotov and Elena Nikitina

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SUST – Sustainability Indicators and Environmental Evaluation
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Reorganisation of Environmental Policy in Russia: The Decade of Success and Failures in Implementation and Perspective Quests

Summary

During the nineties, significant reorganization of the Russian domestic and international environmental policy took place. Together with broader opportunities for institutional innovations in the environmental sector, the specifics of changes in economic, social and political systems, and instability of their major parameters during transition imposed constraints on institutional capacity building in environmental protection. Many of the newly introduced instruments of environmental management, most of them copied from the West, were significantly modified and deformed under such impacts: they had produced non-standard outcomes, and their effectiveness appeared to be lower than predicted at the start of reforms at the beginning of 1990s. This article analyses major success and failures in environmental policy implementation in Russia during the last decade, and outlines main features in approaches of the new government to institutional reorganization. Further developments are to demonstrate to what extent it would succeed in fostering economic growth in ways that protect the environment.

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1. INTRODUCTION

In the 1990s, the European countries of the former socialist block entered a new era of economic and political development that marked a transition to a market economy and democracy. Many of them adopted new environmental policies and formulated renewed commitment to sustainable development. Institutional innovations and wider participatory patterns, including increased role of business, locales, NGOs and public in environmental policy implementation, expanding support of the West for environmental capacity building and promoting integration of environmental concerns into economic and democratic reforms have been among the characteristics of their new environmental policy.

During the last decade, Russia as one among this group was actively involved in reorganisation of its national and international environmental policies. Among the lessons learned from the previous decade was that together with new broader opportunities for institutional innovations and for introduction of new instruments for environmental management, the specifics of changes in economic, social, and political systems as well as instability of their major parameters imposed additional constraints on environmentally sustainable development in this country. In many cases it resulted in failures in domestic and international implementation of new institutional responses, and by the turn of the century the gap between progressive environmental policy goals and real effects of putting them into action increased considerably. As a result, many of modern and ‘standard’ instruments of environmental management introduced during the recent decade produced ‘non-standard’ outcomes. Created mostly according to their Western prototypes, new environmental mechanisms aimed at responding to environmental threats lost part of their effectiveness while implementing within general domestic institutional framework deformed by corruption, weakness of the government at all levels, shadow economy, impacts of the interest groups, and low public control over environmental decision-making. Adaptation of environmental institutional innovations, including those transferred from the West, to the Russian reality of the transition period appeared to be quite painful and subjected to many distortions. Our analysis indicated that success, or failure in environmental responses depended not only on design of environmental policy as such, but to a greater extent, on the progress in domestic political reforms, on effectiveness of new economic institutions, on overcoming the economic depression, and financial crisis. Despite significant institutional innovations and environmental reforms the real opportunities for environmental problem-solving decreased sharply in Russia during the nineties; this was accompanied by diminishing of the environmental security concerns at the public agenda, and among the policy-makers. Economic priorities predominated over environmental ones within the sustainable development schemes. At the turn of the century, the new Russian government initiated efforts towards economic recovery and overcoming weakness of government authorities: new round of liberal reforms and strengthening the institutional performance are expected to increase capacity for environmental policy implementation. However, it’s to be seen to

what extent it would be possible to foster already commenced economic growth in ways that protect environment¹.

2. MAJOR FEATURES IN REORGANISATION OF RUSSIAN ENVIRONMENTAL POLICY IN THE 1990s

From the beginning of the nineties Russia started to elaborate new environmental policy aimed at addressing environmental degradation which was inherited to a high extent from the Soviet period of extensive and unsustainable use of the environment. Transition to new economic and political systems brought with it a renewed commitment to sustainable development. During the last decade Russia redefined its approaches to environmental security and designed new schemes for responding to environmental problems. There was an important feature in this policy: formation of new domestic environmental management system was under a considerable impact of the West. A variety of institutional mechanisms applied in market societies was transferred and adopted in Russia during the last decade. Major innovative elements of environmental policy reform of the nineties included the following:

- elaboration of the new environmental legislation and adoption in 1991 of the first framework environmental law in the history of Russia², which was supplemented later by special laws in particular spheres of nature protection;
- significant institutional changes in environmental management, including creation of a specialised government institutional structure responsible for protection of the environment, and establishment of institutional horizontal and vertical subsidiarity;
- decentralization of environmental management with transferring the authority from the center to the regional and local level;
- introduction of economic mechanisms of environmental management, including polluter-pay principle and pollution charges, creation of a system of non-budget environmental funds;
- introduction of obligatory environmental impact assessment for all kinds of economic activities and industrial projects;
- declaring environmental *glasnost* and free access to ecological information;
- expanding participation in the globalisation process and in international environmental agreements

Formation of a new institutional framework for environmental management can be regarded as a success of the new Russia. Despite some perceptions widely spread both in the West and inside the country that there is an urgent need for institutional capacity formation in environmental sector in Russia, in fact, its basic elements are already in place and are embedded into ongoing market reforms.

¹ This article is based on the results of research performed within the EU/INTAS project *Sustainable Water Management Systems in NIS: Problems of Transfer and Adaptation*

² At the beginning of 2002 it was amended by the new federal law “On environmental protection” (10.01.2002, N 7-??)

However, the scrupulous analysis of the effectiveness of new policy implementation during the nineties indicated that still there are significant problems in its performance. Today, results of institutional reform look impressive, but their effects both on environmental problem solving and on changes of behavior of the main domestic polluters seem to be more modest than expected. Moreover, during the 1990s there was a widening gap between intentions of the new environmental policy, and their *implementation* and translating policy goals into actions. This specific relates not only to national environmental policy, but to domestic implementation of international environmental commitments as well.

3. BARRIERS TO NEW POLICY IMPLEMENTATION

Specifics of economic and political transition in Russia brought in certain constraints into environmental policy implementation. Together with significant positive opportunities for application of new instruments of environmental management it has negative implications for this process. During the nineties the environmental policy has become increasingly dependent on specifics of economic and political development, on the over-all instability in the country. It appeared that under transition period, within the sustainable development schemes officially advertised, the environmental priorities that have been at the top of national agenda at the start of reforms, have receded before economic goals. Ecological concerns were not of a high ranking in the programs of the prominent politicians and political parties. According to public polls, while the environment ranked high - second or third - as a public concern in the late 1980s, it has slipped to 10th place by mid-1990s, consistently appearing below other concerns such as wages, prices, crime, and social security. All these new realities have extremely negative implications for implementation of environmental policy and for ecological problems solving.

The decade of transition in Russia introduced its modifications and limitations into new environmental policy performance. Recently introduced environmental instruments were losing their effectiveness within general institutional framework deformed by corruption, weakness of the government, and impacts of the groups' interests. A variety of 'situational' factors rooted in the economic and political systems' specifics of the transition period had a negative impact on environmental problem solving. These factors can be summarized as follows:

- general weakness of the state authority and governmental control at all levels, including weakness of the environmental institutions to perform their functions
- deeply penetrating corruption and 'status rent' actively applied by the bureaucracies
- a sharp increase in a shadow economy accounting for 40 percent of the GNP
- underreformed property-rights
- institutional uncertainties in investment climate
- economic and financial crisis, considerable decrease in investments, aging of industrial and purification equipment
- illegal capital flow from Russia to the West

- Russia's high external debt to the West, with a high portion of it inherited from the Soviet Union
- low public control over environmental performance of government administration

The cumulative negative effect of these 'situational factors' led to serious deformations in application of environmental management instruments and environmental policy performance.

The success or failure of the environmental policy depended not only on design environmental policy as such and on the instruments selected, but to a greater extent, on the progress of domestic economic and political reforms, as well as on consolidation and effectiveness of new economic and governmental institutions. The economic instability and crisis that characterized the transition period of the nineties in Russia superseded environmental policy advancements. Thus, the standard instruments of environmental management, which in many cases had effective results when used in the West, and which were borrowed recently by Russia, often had non-expected and non-standard results when applied in this country without preliminary adaptation to the specifics of the transition period, and not 'protected' from negative impacts of situational factors.

These obstacles should be also seriously taken into account in designing international cooperation strategies, including international assistance to environmental management and capacity building in Russia. Indeed, inadequate attention and assessment of negative impacts of these factors often led to failures in transfer of the Western models and practices of environmental management that had been in the core of cooperation between Russia and the West in the nineties. These factors also affected domestic implementation of Russia's obligations under international environmental agreements.

4. IMPLEMENTATION EFFECTIVENESS AND IMPLEMENTATION PROBLEMS

What were the major results and effects of new environmental policy implementation during the 1990s? Was it able to contribute to environmental problem solving and to amelioration of environmental situation in the country? Did it have an impact in forcing the major environmental polluters to change their behavior to environmentally responsible?

Brief overview of the environmental situation indicated that, by the end of the century, according to official environmental data, about 15 percent of the territory of the country with population of about 60 million was regarded as zones of ecological crisis. Environmental reports indicated that destabilization of environmental situation had a direct linkage to deterioration of human health. Russia ranked only 51st in the world for average life expectancy, and 62nd for human development index calculated regularly by the UNDP <UNDP, 2000>. Together with major demographic trends the environmental stress was among the causes for such alarming situation. Indeed, the quality of 70 percent of the surface freshwater did not meet existing norms. From the total amount of waters discharged, only 15 percent were thoroughly purified, while about 28 percent were untreated. Half of the population was drinking water that did not meet sanitary requirements. Air pollution also directly affected human health. In 185 cities with about 40 percent of the country's total population, the level of air pollution exceeded existing standards<Gosuidarstvennyi, 1999>. There have been a number of assessments and rankings of environmental problems in Russia. The main problems within the whole set were *drinking water*

quality and air pollution, pollution with *toxic and radioactive wastes*, ecological deterioration as a result of *industrial accidents*. The scales of environmental insecurity varied across the vast territory of Russia depending on the level of anthropogenic pressures and ecological degradation³.

However, analysis of dynamics during the nineties in the major indicators of human pressures on the environment, and, particularly, of the trends in major pollutants emissions, revealed that they have substantially *decreased over the last decade*. Tables 1-2 contain data on dynamics of some environmental indicators in Russia in the 1990s, and they show, for example, that air emissions from stationary sources declined during the decade by 46 percent, and discharges into water bodies – by 25 percent.

Table 1. Dynamics of environmental indicators and GNP in Russia

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Air emissions from stationary sources, (mill. tons)	34.1	31.8	28.2	24.8	21.9	21.3	20.3	19.3	18.7	18.5	18.8
Air emissions from automobile transport, (mln tons)	21.0	17.3	22.0	19.0	13.5	11.0	11.0	11.3	11.8	12.2	...
Discharges of polluted waters (bill.cub.meters)	27.8	28.0	27.1	27.2	24.6	24.5	22.4	23.0	22.0	20.7	20.3
Water use from water bodies (bill.cub.meters)	106.1	107.5	99.6	94.9	86.9	86.6	82.6	81.3	76.9	77.9	...
Industrial production (%from previous year)	...	-8	-18	-14	-21	-3	-4	0	-5	+8	+9

Source: RF National Environmental Reports (*for a number of years*); *Ohrana okruizhauishey sredy v Rossii*, Moscow, Goskomstat 2001; Rossiisky Statistichesky Ezhegodnik, 2000, Moscow, RF Goskomstat

At the first glance, the data characterizing emission reduction during the period when the new environmental policy has been initiated in Russia seemed to be very encouraging. However, more scrupulous analysis showed that the *main reason* for improvements in trends of environmental indicators was not mostly attributed to the effects of application of new management instrument and to enforcement of new environmental legislation. Indeed, the major cause for decrease in water and air discharges and in emissions of greenhouse gases in Russia during the nineties has been the decline in industrial production and curtailing of economic activities. The Russian economic depression of the nineties appeared to be an important tool in meeting the goals of many domestic environmental programs and in compliance with obligations under international environmental agreements. In many cases a phenomenon of *compliance without implementation* occurred<Kotov, Nikitina, 1996>, as a great portion of emission reduction was caused by industrial production decline, but not by installation of purification facilities and special anti-pollution measures introduced by producers in response to introduction of new instruments of environmental management. In fact, during the economic

³ From 89 regions of Russia under evaluation, 26 faced the most sharp problems of discharges of harmful pollutants into water bodies, 29 - hydrochemical pollution of surface waters, 30 - air discharges from stationary sources, 38 - high level of air pollution in the cities, 28 - pollution and depletion of ground waters, 37 - risks associated with toxic wastes treatment, 36 - radioactive pollution, 20 - soils degradation

depression the industrial production and GNP curtailed considerably (by about 55% and 50% respectively, from 1990 to 1997). As a result, air and water discharges from industry and agriculture dropped sharply. However, the decrease in emissions was not proportional to the decline in economic activities; its rates were much lower. This is the most crucial issue, since aging of purification equipment, its damage, or its switch-off compounded the whole problem. The environmental regulatory measures to reduce pollution were not as effective as expected at the start of reforms.

At the same time, implementation of special policies and mitigation measures accounted for some comparatively minor effects. For example, within climate change policy the effects of mitigation measures although being quite modest, have been registered. Some experts suggested, that about 60-70 percent of emission reduction in the energy sector during the recent decade was attributed to economic decline, about 8-12 percent – to initiation of institutional reforms in the energy sector, with the rest – due to wider use of natural gas and structural changes in the economy <Mastepanov, *et al*, 2001>. Within a number of international environmental treaties Russia complied with its commitments, but, at the same time did not take serious measures to implement them. Over-compliance by Russia with its commitments under the Convention on Long-Range Transboundary Air Pollution and decrease by 52 percent of sulphur dioxide emissions against the 30 percent required by its sulphur protocol was attributed mainly to curtailing in industrial production. The same cause could be identified for decline by half of Russia's pollutant discharges into the basin of the Baltic Sea during the 1990s which contributed to meeting the goals of the Convention on the Protection of the Marine Environment of the Baltic Sea.

Table 2. Dynamics in Greenhouse Gases Emissions in Russia

	1990 (Gg of CO₂ eq.)	1996 (Gg of CO₂ eq.)	Change 1990-1996, (percent)
CO₂	2 372 303	1 495 920	- 37
CH₄	26 504	18 544	- 30
N₂O	225.7	131.7	- 42
HFCs,	9.665	5.915	- 39
PFCs	31.630	30.262	- 4
Total Emissions	3 040 062	1 962 441	- 35

Source: Second National Communication of the Russian Federation, Moscow, 1998;
 FCCC/IDR.2/RUS

An important question is *how* will emissions be controlled when the economy recovers? Although the official environmental statistics for the new century is not available yet, the reverse changes in emission dynamics are expected at that point due to new trends in macro-economic situation and shift

to economic growth in the country. In 2000 industrial production in Russia was officially reported to increase by 9 percent from the previous year with positive dynamics in some economic indicators registered starting from 1999. Most of the environmental indicators are supposed to follow the major trends in the latter ones. It seems that environmental management systems in the forms they function currently are unlikely to be able to deal effectively with the problem. More concise efforts are needed from implementators of the environmental policy to enforce and to adjust new instruments of environmental management to the current macroeconomic situation.

The following sections of this paper intend to analyze the particular elements of the environmental reorganisation in Russia in the 1990s, and to assess the outcomes in environmental policy innovations. They aim at exploring the question *why* and *how* the effects of the newly introduced instruments are deformed by the specifics in economic and political development in the country during the decade.

5. INNOVATIONS IN INSTITUTIONAL FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT

5.1. Administrative Reorganisation: De-greening of the Government by the 2000s?

Among the prior results of environmental reform of the nineties in Russia was thorough reorganisation in institutional framework of environmental management with creation of a specialised governmental environmental protection body. That was a significant achievement, since under the Soviet regime there was no environmental agency responsible for environmental protection and implementation of national environmental policies. Formerly, environmental protection function was dispersed among 16-18 ministries engaged simultaneously in economic activities and in environmental protection: an institution had to ensure environmental enforcement over its own activities mainly aimed at utilisation of environment. The result was that economic interests were of a priority over environmental, and nature and its resources were severely plundered.

Institutional changes were initiated at the end of 1980s in a course of *perestroika* in the USSR when in 1988 the State Committee on Nature Protection was formed (similar committees had been created in the Soviet republics, including Russia). By the end of 1991 its status was elevated, and the RF Ministry of Environment and Natural Resources protection was created. This major federal institution with a special competence was intended to combine regulatory, licensing and control functions in environmental protection.

During the nineties, and, especially, in the second half of the decade, the bureaucratic competition between government institutions for control over assets of nature and for access to financial flows in this sector was very strong in Russia; it was supplemented by lobbying from powerful industrial groups and political elites. Gradually, the status of the federal environmental agency in the government hierarchy, and its role in decision-making was diminishing during the last decade. It reflected the gradual weakening in position of the environmental protection authority in the structure of power. In this period the environmental agency was under constant institutional reorganization, and some of its newly acquired functions had been withdrawn from its competence. In a

course of competition at the top level for the control over the use of natural resources and minerals part of responsibilities of the former Ministry of Environment, i.e. protection and rational use of natural resources, had been transferred to the newly established RF Ministry of Natural Resources (MNR). Later, its formal status within the government structure was further lowered down, and in 1996 the newly created Ministry of Environment was transferred into the State Committee for the Environment. It had negative implications for environmental problem solving: as a result, the head of the environmental agency lost part of its influence in the government because only the heads of the ministries, but not of the state committees, were the members of the government and had the voting right in decision-making. It acquired weaker positions against many other government institutions. Protests of the scientific community and leading environmentalists, of the public, of the members of the State Duma's ecological committee against such administrative reorganisation did not help. Abolishing of this ministry reflected a low priority of environmental concerns in the government and among politicians.

Finally, the *culmination* of these negative trends in institutional structure for environmental protection has been complete dismantling of the environmental protection agency (in a course of the next governmental reorganization in 2000), and transfer of all its functions to the MNR. The latter was a pro-development entity and it was expected to combine functions of both economic use of natural resources and their protection from over-exploitation. It seems that similar design in governmental structure already used to be in force in this country before, and it did not appear to be effective. Being combined in the same governmental body, the interests of economic use of nature, usually, predominated over protection interests and over sustainable use of natural resources. So, by the turn of the century the situation reverted back exactly to the point as it had been at the start of the environmental reforms at the beginning of the nineties. In a course of such 'modernization' many positive results in administrative capacity building during the nineties had been deformed, and had a negative effect on environmental problem solving.

Recent institutional reorganization manifested the weak position of the environmental protection institutions in the modern structure of power in Russia. Hopes of the beginning of 1990s for improving environmental situation with institutional reforms did not come true. Administrative competition and lobbying of the interest groups resulted in the failure in institutional design of environmental protection. Power of the state in Russia has greatly lessened, including its ability to enforce environmental regulations. Recent weakening of its authority vis-à-vis industrial polluters and various potential violators of environmental rules has negative implications for nature. The complexity and conflicting pressures inherent in this situation make it difficult for the governmental organs to wield much influence in the environmental area. Many government acts had not been enforced, and many domestic actors are not complying with governmental environmental regulations.

5.2. Decentralization of Environmental Management

With development of a real federalism in Russia during the last decade regions began to play an increasing role in environmental policy. This was a new phenomenon, since during the Soviet

regime their impact was reduced to zero, and in fact, the regions were almost unable to implement their own environmental policies, and their environmental interests had been subdued. As a result of changes in domestic political system during the nineties, regional authorities acquired larger roles in performing environmental policies within their territories. According to the new constitution the nature protection became to be in a joint competence of the federation and the regions.

As a part of new environmental policy the federal level shifted to sharing its authority with the regions and locales. It seemed that federation was doing it rather willingly, thus, dividing its responsibilities and practical efforts in environmental protection with the regions. According to the national 1991 Law on Environmental Protection the joint competence of the federation and the regions includes:

- elaboration and implementation of environmental programs;
- establishing the fees for pollutants discharges;
- allocation of permits for the use of natural resources, and for the wastes disposal;
- governmental environmental impact assessment;
- governmental environmental control and monitoring;
- decision-making regarding the closure of industrial enterprises damaging the environment;
- organisation and maintenance of nature reserves;
- environmental education.

What institutions in Russia performed in the nineties environmental functions at the regional level? Originally, as a result of environmental reform the newly established territorial branches of the federal Ministry of Environment acquired this responsibility. These regional environmental bodies have been formed in all 89 subjects of the federation (in republics, *oblasts*, and *autonomous okruigs*). In their turn, they established their territorial affiliations in the locales (municipalities). Regions and locales were turning to be more active players in domestic environmental policy implementation. They interacted directly with economic actors: they controlled and inspected enterprises, enforced environmental regulations, imposed limits for companies' emissions, allocated licenses, and fixed rates for pollution fees. Particularly important was that the major part of finance accumulated from the recently introduced system of pollution charges went to the local and regional level. Further dissemination of these financial resources for environmental protection purposes was in the competence of territorial environmental organs.

New system of decentralized environmental management with new regional structures has been in force in Russia only during the decade. Together with its positive features, serious problems emerged in a course of its implementation, and regional institutional framework was characterized by a number of distortions. In Russia, decentralization, especially the transfer of management functions from the center to the regional (local) level, was associated with great hopes for improving of environmental management which was supposed to bring the decision making process closer to the objects in need for protection. However, these hopes have not been justified in many cases, and on the contrary, decentralization sometimes has aggravated environmental problems. The general cause was that formation of democratic institutions at the local level has proved more difficult than at the federal

level. Local elites retained power in the majority of local institutions, spreading their control over environmental protection, over development of natural resources, and over finance allocated for these purposes. Quite often it has not been for the sake of environment and sustainable development, but in their own interests. Having eliminated control from above, local authorities have managed to avoid democratic control and accountability before the public, which was of a particular importance in the environmental sphere. Under a weak public control, in Russia in general, economic interests usually appeared to be stronger than environmental ones, and it was clearly manifested at a local level. The local elites tried to obtain the right to deal with natural resources with a free hand, and in many regions they have succeeded in that. According to major analysts, corruption in the regional and local state authority was much more severe than in the center. Violations of environmental regulations were becoming more numerous. Officials often accepted bribes in exchange for granting timber licenses and licenses for other types of natural resources, permitting developments within conservation areas, and falsifying tender results for the use of natural resources.

During the 1990s the territorial environmental organs appeared to be in a *dual subordination* both to the federal environmental agency, and to the regional administration simultaneously. Control rights of the federation and the regions over territorial environmental organs overlapped. Dualism resulted in escape from responsibility, in vagueness of both rights and obligations of territorial environmental organs. At the same time it seriously complicated the decision-making process. In fact, many territorial organs of the federal environmental agency ended up by the turn of the century under thorough control of the regional administration, which was skilfully spreading its influence over environmental organs' activities. Especially, such control became tight when it related to allocation of financial resources for environmental protection, and, particularly, to resources accumulated in environmental funds. Local administration attempted to spread its authority over regional environmental funds, and to use their finance not always for ecological purposes. It tried to participate actively in environmental decision-making as well, interfering into the actions of environmental organs to impose pollution charges over particular polluters, and into results of environmental impact assessment. For example, regional administrations used to take decisions not to close polluting enterprises because of their economic or social importance for the regions, disregarding completely opposite opinion of environmental organs based on ecological considerations.

By the end of the nineties, institutional controversies between the federation and the regions aggravated further. Significant contradictions were accumulating between federal and regional environmental and conservation laws and norms, and clear separation of functions between the two levels has not been achieved. Another feature was in a shift of focus in environmental interactions between federal and regional level of authority: the competition for control rights over natural resources and for access to financial flows from their exports has turned to be in its core. The main question was who would control these resources - elites (authorities) in the center, or elites (authorities) in the regions. The red thread in this competition has not been the control over rational use of natural resources and their environmentally benign exploitation, but who would benefit financially from their use. Environmental protection policy in the regions rich in natural resources appeared to be dependent and subordinated to resource-use issues. Environmental protection in the regions was gradually

receding from the political avant-scene towards a periphery of political interests and policy-making. Use of natural resources was becoming a priority item on the economic and political agenda in the regions

Finally, the above-mentioned reorganization in 2000 of the environmental protection authority at the federal level affected regional institutional capacities as well. The former regional/local committees on environmental protection, on forestry, and natural resources had been united under the regional branches of the MNR. At the same time, following the general reform in vertical subsidiarity in Russia under the new government of Vladimir Putin, which intended to sort out emerged problems in interaction between the federation and the regions and to eliminate the discrepancies in federal and regional laws, the MNR territorial structure was modified. Within its major eight regional Departments on Natural Resources⁴ about 74 regional Committees of natural resources have been established (data as of August, 2001) (Territorialnye, 2002)⁵; it also includes 21 water basins and forest management bodies in different regions of Russia. It is too early to evaluate effectiveness of this new territorial scheme in environmental protection, but it seems that major problems related to institutional organisation of environmental protection at the federal level are entirely replicated in the regions.

5.3. Economic Mechanisms of Environmental Management: Deformations in Application

Payments for Pollution. Since 1991 the new system of environmental management in Russia had introduced pollution charges, and it became the major economic instrument of environmental management. Today charges are established for air and water pollution, for solid wastes disposal⁶. There has been intention to spread payments for pollution to other types of pollutants and spheres, such as radioactive wastes disposal, electromagnetic pollution and noise, marine pollution and ground waters pollution, carbon dioxide emissions, production and consumption of ozone depleting substances. However, this system faced not only methodological problems, but sometimes it had to counteract to interests of powerful industrial groups. For example, the efforts of environmental organs to introduce earlier payments for CO₂ emissions had been suppressed by powerful energy lobby.

The system of pollution charges was intended to provide incentives for firms to reduce emissions. In practice, it appeared to be not as effective as envisaged. Some factors of internal design of this system, coupled with the effects of situational factors of the transition period accounted for deformations and limitations in implementation of its schemes. One of the reasons is that the fees

⁴ Departments on Natural Resources in following regions have been created: the Central, the North-West, the Southern, the Privolzhsk, the North-Caucasuses, the Urals, the Far East, and Siberian regions.

⁵ It is peculiar that some large and powerful federal subjects, such as, for example, Sakha Republic, Bashkortostan, Sverdlovsk, Moscow, Rostov, Novosibirsk, Nizhegorodskaya, Habarovsk oblasts did not report yet about establishment of regional committees on natural resources.

⁶ Under the system of pollution charges a firm may emit various types of pollutants up to individually specified limits but is required to pay fees. The fees are increased five fold against the basic rate, when a polluter exceeds allowable limits. Payments for pollution within allowable limits are subtracted from the costs of production, and payments above allowable limits are taken from the polluter's income. Differentiated basic fees for each pollutant were fixed by the federal organs, while limits of allowable emissions are set by its regional (or local) branch for each particular enterprise in the region. These emission limits are incorporated into a license allotted to a polluter. On this basis the level of payments (for each polluting substance), is established for each particular firm by territorial environmental organs. This regulatory mechanism incorporates changes in inflation (by using the index on inflation established by the federal government).

assessed are much lower than the cost of investing in more environmentally responsible technologies. The result is that polluters sometimes preferred to pay for pollution above allowable limits of emissions rather than to invest in environmental facilities⁷. At the same time the environmental organs were not able to increase the basic fees of payments, as they were guided as well by economic considerations to protect domestic producers against closure due to environmental reasons.

Certain *modifications* have been introduced into the system during the nineties that considerably corrupted its design (Kotov, Nikitina, 1998). Many Russian firms were exceeding their allowable emissions and incurring the fivefold increases in fees. Enterprises complained to the regional administration that increases in payments for pollution would result that they would lead to their bankruptcy, and they would be closed down. Instead of a closure the regional organs introduce ('as an exclusion') certain concessions into environmental payments, i.e. 'provisionally coordinated level of emissions' for particular polluters. In this case a firm still paid higher fees, but could deduct all of them as costs (in comparison with the mentioned above normative deduction from its income). Such protectionist measures were applied not only to firms experiencing severe financial deficit under economic crisis, but to rich and powerful producers as, for example, Norilsk Nickel, or Almaz-Sakha. In return, an enterprise had to set up a program of measures to reduce its emissions to allowable levels, and it promised to meet its goals, while environmental authorities were to control its implementation. However, the latter often have been weak to enforce control over actual anti-pollution activities and emission reductions by a company. As a result, the use of provisionally coordinated levels of emissions was increasing during the nineties, while the effectiveness of pollution charges was decreasing.

Another modification contributing to certain deformation in previously established regulatory mechanism was the development of the system of *offsets* of pollution payments against environmental measures undertaken by an enterprise. During recent years the share of offsets was rapidly increasing. By mid-1990s the release from payments for pollution as offsets had been extremely high: it had been twice as big as the collected sum of payments for pollution, and their level increased since then; about two thousand enterprises were using offsets. Such regulatory mechanism could be effective in general, but under current domestic conditions experienced a great deal of distortions. Indeed, institutional control and verification over the use by a firm the offsets to finance implementation of their environmental programs still poorly developed. There is no guarantee that offset funds would be used effectively according to ecological priorities. For example, sometimes firms unilaterally decided to use offsets and not to transfer payments for pollution into environmental funds without coordination with environmental organs. Moreover, under current economic conditions the offset sums were quite low to provide true environmental reconstruction. As a result, the system of offsets often used to be turned into a camouflaged form of release of producers from payments for pollution. In addition, inadmissible practice was introduced when the *level of pollution charges was reduced* for particular polluters, or even they were *exempted* from pollution taxes. For example, in 1996 according to official data about 2414 firms in Russia were exempted from payments for pollution, and for 1251 firms the level of payments was reduced (among them have been such large energy companies as Rosneft) (Komarov,

⁷ For example, according to earlier assessments of the World Bank for Pechenganickel and Severonickel non-ferrous facilities located on the Kola peninsula, annual payments for pollution of these two major polluters in the Russian North were about 1000 times lower than the level of investments necessary for transformation in the patterns of their behavior.

Husnutdinov, *et al*, 1998>. In these cases the government clearly demonstrated a priority of its economic interests over the environmental ones, thus, contributing to decline in effectiveness of economic mechanisms of environmental management.

The system of pollution charges faced enormous obstacles to implementation because of the weakness of governmental authority in Russia. It offered producers another means of avoiding pollution charges: simply not paying them. Incredible as it may seem to people in the West, and despite the nominal existence of penalties, the practice of not meeting one's financial obligations was widely spread in Russia in the nineties. Firms have evaded taxes, defaulted bank loans, and failed to pay their suppliers and employees, black market transactions were rampant. Territorial environmental organs being under subordination to local administration were often weak enough to apply true levers of control and enforcement towards polluters. In many regions the annual level of collection of payments was lower than expected (in Sakha Republic, for example, it has been about one third of the expected flows).

These modifications and revisions of the system of pollution charges have been undertaken as a means of adaptation to the specifics of domestic development and trends. They were mainly induced by economic considerations and by impact of economic crisis in the nineties. These revisions were also a result of lobbying in the government by producers. A number of considerable privileges were granted to polluters against the original design of pollution charges system. When only economic concerns governed adaptation of new environmental instruments to current reality, they often brought negative results. When it was supplemented by lobbying and corruption, it generated the devastating outcomes. These revisions of the system of pollution charges were introduced by the government authorities by the end of the last decade, and currently their modified versions are still widely used in practice.

Environmental Funds. Together with introduction of payments for pollution a system of government non-budget environmental funds was established in Russia at the beginning of the 1990s to finance environmental protection activities⁸. They were supposed to be a new source of financing the environmental protection. While in the West the pollution charges have a form of taxes, in the countries with economies in transition they have a non-tax form⁹ and are accumulated in non-budget environmental funds. Three-level system of local, regional environmental funds, with the federal environmental fund at the top was established: they are organized in all subjects of the Russian Federation¹⁰.

Environmental funds can be regarded as a typical form of adaptation of economic mechanisms of environmental control in the group of countries with economies in transition. In the nineties, they were used in most of the countries of Central and Eastern Europe as a transitional form of adaptation to

⁸ Financial resources derived from payments for pollution are deposited into governmental non-budget environmental funds. They also accumulate fines for pollution, and other transfers. Currently the major part of these funds - about 80% - is formed from payments for pollution.

⁹ Pollution charges in Russia have a non-tax form, and only 10% of total finance generated through pollution charges is transferred as taxes to the state budget, the rest goes to non-budget environmental funds.

¹⁰ The mechanism for distribution of financing within the system of funds between different levels is the following: after deduction of 10% of finance accumulated from environmental charges and fines into the federal budget, 60% goes to the local level, 30% - to the oblast and republican level, and 10% - to the federal level.

a market. In Russia, in the process of their introduction the lessons of the countries of Central and Eastern Europe were taken into account. Environmental funds there were at various stages of development, and they were established for financing mid-term and long-term projects in the countries where market economies were not fully developed, the banking system was under formation, the banking rates were high, and financial institutions were not yet interested in crediting environmental projects. It was expected that under developed market systems the shift from non-budget environmental funds to payments for pollution in a form of regular taxes as they exist currently in the West would take place.

By the end of the nineties about two hundred million dollars have been transferred annually to environmental funds: for such large country as Russia this figure was quite modest. The share of environmental funds in financing environmental protection in Russia has been much lower than predicted. The major reason is in low level in collection of pollution charges against the normative level, and it accounted only for about 40-50%. The environmental bodies aimed to increase this level through revising the mechanisms of indexation of charges, by reevaluation the basic levels of payments with their further increase, by establishing charges for other types of pollution, shifting to crediting operations, etc. <Ekologicheskoye, 1997>.

Meanwhile, during the nineties the financial authorities took the advantage by attempting to incorporate environmental funds into the consolidated budget (such consolidation contradicted to the federal 1991 Law on Environmental Protection). The decision about consolidation illustrated once again a weak position of environmental institutions in the hierarchy of power within the government at all levels. It provided additional opportunities to regional and federal authorities for control over environmental funds. After consolidation of environmental funds the territorial environmental organs in many cases have been alienated from management of these funds, and decisions were undertaken unilaterally by regional and local administrations. Among other negative results was that in some cases the finance from the environmental funds were used by the regions for the purposes other than environmental protection which is against the environmental legislation.

5.4. Financing of environmental protection

There have been three major sources of environmental financing in Russia: *state budget* at different levels, *environmental funds*, and *resources of enterprises*. Serious problems and severe shortages in financing environmental protection were registered in the nineties, and they have been among the major obstacles for performance of environmental protection.

Indeed, during 1970-1980s the budget financing of environmental protection was a major practice in the Soviet Union. It provided decent, but stable financial transfers into this sector. In the nineties, the situation was modified completely; traditional budget sources have decreased significantly. Crisis situation with the *state budget* in Russia had the most negative implications for solving environmental problems. The state budget for several recent years was characterized by experts as 'anti-ecological', and share of budget spending for environmental protection has been decreasing dramatically. For example, in 1997 the environmental expenditures from the state budget curtailed to

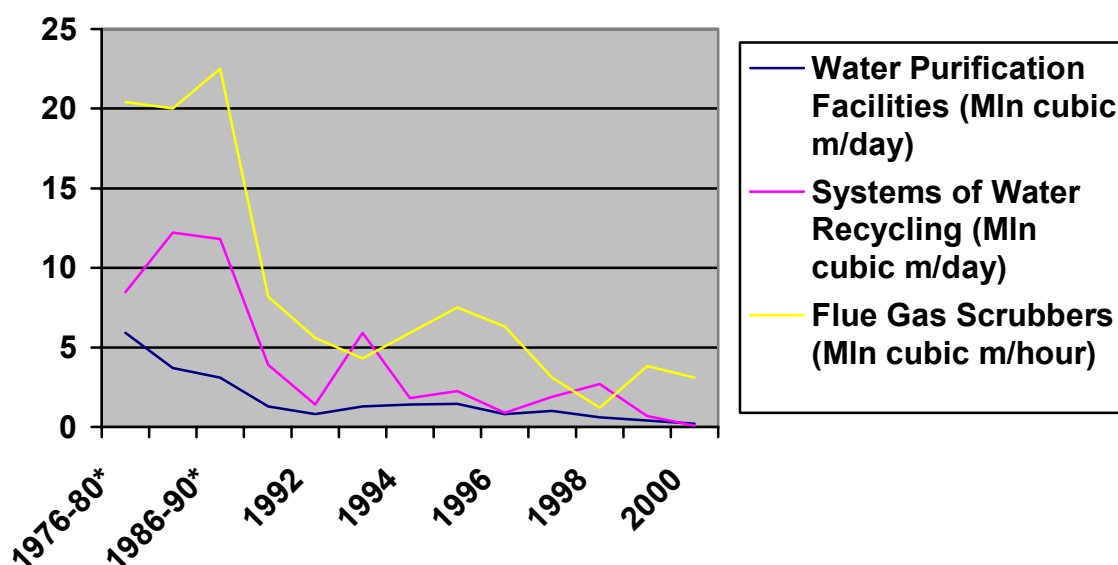
0.4% of its total expenditures against 0.6% in 1994. In the 1997 budget the environmental protection (and, what is peculiar - *together* with hydrometeorology and cartography) accounted only for 0.09% of GDP. Underfinancing from the state budget of activities of governmental environmental institutions was characteristic during the 1990s. 'Underfinancing' means in this case that even limited resources allocated by the state budget to environmental protection have not been transferred in due time and completely, and often they appeared to be just nominal.

The governmental financial support for implementation of major governmental environmental programs was decreasing, and such trend definitely called in question the prospects of their realization. According to different estimates, only 5-10% of required resources of adopted governmental environmental programs were actually covered by budget financing. For example, the major 1996-2000 federal program on climate change was supported by funding only for 3-4% of required resources, and it caused serious failures in its implementation. Despite that the government was still ambitiously adopting various new environmental programs, but all of them had one feature in common: they were not been able to be implemented as they are not supported by real financing. They were turning to be just 'dead letters'. Although some innovations has been introduced recently into financing of environmental protection, still, there are serious concerns whether the major federal environmental programmes¹¹ will be successfully executed if effective financial mechanisms would not be put into action.

Together with that, the direct result of general curtailing in industrial investments during the economic crisis in Russia was that environmental investments had been very low during the 1990s (however, the rates of curtailing in investments in environmental sphere during the decade were lower than in other sectors). During the last decade total capital investments in environmental protection were decreasing annually by about 88 percent from the previous year in average <Rossiisky, 2001>. As a result, in the nineties putting into operation of air and water purification equipment has been steadily declining by several folds (Figure 1). This situation will, of course, have very negative consequences in a long run, and will aggravate the already insecure environmental situation in the country.

¹¹ Ten percent of the total 60 federal programs for implementation at the beginning of the 2000s are in the environmental field. The major new federal environmental programme for the next decade "Environment and Natural Resources" adopted in 2001 embraces 12 subprogrammes in major sectors of environmental protection and natural resources conservation.

Figure 1. Putting into Operation Environmental Facilities in Russia, 1976-2000



* Annual average

Source: Ohrana Okruizhauishei Sredy v Rossii, 2001. RF Goskomstat, Moscow; Rossiisky Statisticheskyy Ezhegodnik, for several years. RF Goskomstat, Moscow

Some new trends have been registered recently in financing the environmental protection in Russia that might have positive implications for environmental problem solving. It relates to certain innovations in the structure of sources for environmental financing. The important feature is that share of non-budget sources for capital investments into environmental protection and rational use of natural resources increased, accounting for about 78 percent in 2000, and they become the major source of financing. Another innovation was that resources of enterprises were turning into an important source for financing environmental protection and natural resources conservation, contributing annually, according to official statistics, to about three quarters of total capital environmental investments¹². The structure of different sources of financing, including federal budget, budgets of federation subjects and locales, resources of enterprises, and environmental funds across various sectors of environmental protection is presented in Figure 2. It was also one of the reasons for positive dynamics in capital investments at the turn of the millennium: 2000 was the first year in contrast to those of the last decade when capital environmental investments increased by 133 percent from the previous year <Ohrana, 2001>. At the same time, the role of environmental funds was much less than desired: their share is about 4 percent in the structure of environmental protection financing in Russia.

For the next decade the Russian government intends to increase its support and spendings for environmental protection and natural resource conservation. The recently adopted major federal environmental programme “Environment and Natural Resources 2002-2010” envisages financing at a

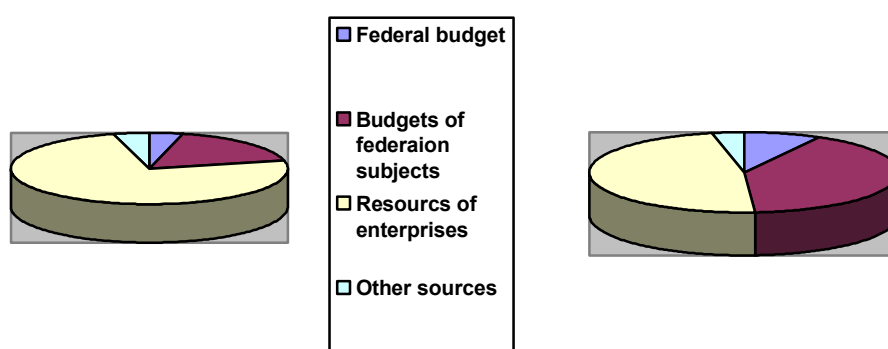
¹² Among industrial sectors, the enterprises of fuel industry were the major source of capital investments into environmental protection and rational use of natural resources (\$ 293 million in 2000); they were followed by non-ferrous companies (\$ 79 million)

level of about \$ 5.8 billion for the next decade, including its financing from the federal budget at about 24 percent, from the regional and local budgets - 31 percent, and from non-budget sources and resources of enterprises - 45 percent<Federalnaya, 2001>.

Figure 2. Sources of Capital Investments into Environmental Protection and Natural Resources Conservation in Russia, 2000 (in percent)

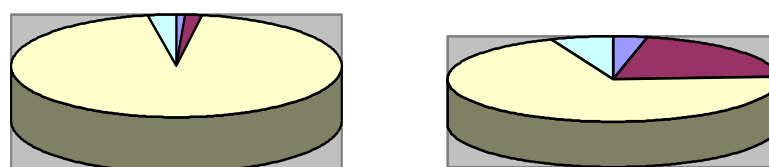
Protection and rational use of natural resources

Protection and rational use of soils



Protection and rational use of water resources

Air protection



Source: Ohrana Okruizhauishei Sredy v Rossii, 2001. RF Goskomstat, Moscow, pp.30-31

Environmental strategies on the Russian government for the next decade are also based on a wider use of new and non-traditional mechanisms for expanding environmental investments, including foreign investments. For example, it is expected that establishing of adequate national institutional frameworks for application of such international tools as *joint implementation* and *emission trading* would promote green investments in Russia. It is expected, that joint implementation projects (in energy sector, in forestry, in landfills) performed in Russia under the climate change international regime would attract additional foreign investments and result in reduction of green house gases and other air pollutants, and would significantly contribute to natural resource conservation and energy savings. At the same time, the innovative idea of the recently proposed “Green Investments Scheme” <for details see, Moe A. *et al*, 2001> suggests to use revenues from international emission trading for

development and implementation of energy efficiency improvements and energy savings projects in Russia, and, motivates rationale for additional investments in the Russian energy sector that would lead to higher energy efficiency and environmental amelioration. Among other ideas discussed currently at bilateral level between Russia and Finland is to use the mechanisms of debt-for-nature swaps in attracting investments to improve environmental situation in the areas of the Baltic basin.

5.5. Role of Foreign Assistance

Active debates are underway today about the role of the financial support of the West to environmental problem solving and to environmental capacity building in Russia.

According to some estimates over \$1 billion<U.S., 1998> has been committed by foreign governments and international organizations during the past decade to address the issues of environmental protection and natural resources management in Russia. At the turn of the century about thirty active donors (governments and international organizations) were taking part in environmental aid to Russia. During the nineties, there have been various assessments of foreign aid contribution to environmental sector. Some experts evaluated its share for approximately 40 percent of total environmental expenditures in Russia, which seemed to be a significant overestimation; others assessed the share of external sources in environmental financing more modestly - at about 7-8percent in 1997. During the nineties, despite growing scales of foreign environmental support during the 1990s in all former Soviet states, the share of foreign sources was much lower than domestic sources of finance (the highest share among NIS countries, i.e. 15 percent, has been in Estonia). In general, the foreign assistance to countries of Central Europe was higher than to NIS (approximately by 4-fold), and it accounted for ECU 23,0 per capita for the CEE in comparison with ECU 8,2 per capita for NIS<The Effectiveness, 1995; Zelenyi, 1997>.

Significant attention in the Western programs of environmental support to Russia was paid to assisting institutional capacity building, to modernisation of domestic environmental policy towards application of market instruments of environmental management, and to promoting sectoral measures in environmentally vulnerable areas. The major part of resources was going not to the central government, but directly to the regional and local level. For instance, about 80 percent of the IBRD environmental credits were allocated in the nineties to *oblasts* and locales. The relative role of western financing was higher for solving those environmental problems that threaten the environmental security of the West, or to global environmental problems. This related to such issues as transboundary air pollution, treatment of radioactive wastes, protection of freshwater quality, to regional seas, to natural resources that are important to enhance national security of the West, or, to such global problems as biodiversity conservation and climate change.

International financial transfers supported implementation of certain domestic environmental programs, and promoted compliance with Russia's international commitments. Quite often multilateral and bilateral donors have attempted to make this aid conditional on performance. For example, in the 1990s Russia was facing serious difficulties with meeting its obligations under the Montreal Protocol to 1985 Vienna Convention for the Protection of the Ozone Layer. In 1995, Russia (as a country with economy in transition) had submitted a statement to the secretariat of this convention to extend for five

years the ODS phase-out period and to allocate international assistance for this program. After analysing this statement the secretariat put forward several conditions (compliance with data reporting requirements, elaboration of detailed domestic phase-out program with feasible dates for phase-out of each gas by each sector), and if they are fulfilled the required privileges would be granted. Finally, upon meeting these requirements Russia got international financial assistance for implementation of its phase-out program and of its international obligations. Global Environmental Facility (GEF) was to cover about 60 percent of total costs of conversion of aerosols and refrigerators producing facilities, with the rest to be financed from domestic sources.

Many environmental programmes of international institutions in Russia could be regarded as 'no-regret' options linked to commercial and economic development projects. For example, the World Bank's environmental project aimed at shifting to ozone layer saving technologies was integrated with implementation of the project on the use of natural gas in the oil developments. According to experts estimates the latter one was supposed to compensate partially the costs of environmental assistance. On the other hand, GEF climate-related projects were associated directly with expanding activities of the World Bank in the energy sector in Russia, and global warming mitigation has been an integral component of the energy projects of the World Bank in this country. Oil 'rehabilitation project', costing \$1035 million and to be financed by the IBRD loan of \$610 million was approved in the first half of the nineties; it supported efforts against decline of oil production and its exports in the near-term future by making the industry more efficient, whereas reducing emissions of greenhouse gases was among its direct goals.

Although international financial transfers from the West have been important for Russia in the nineties, the mobilization of domestic resources for environmental protection is of a priority. One cannot claim that internal resources do not exist in this country. Rather, because Russia in transition faces many pressing needs simultaneously, available resources are often directed to purposes other than environmental protection. Moreover, often resources are abundant but public control is weak, a large informal (shadow) economy exists outside governmental control, and many resources are potentially available but untapped for public purposes. Billions of dollars illegally fly into private accounts abroad while Russian government seeks much smaller sums to be transferred from the West as assistance. Enforcement of strict institutional controls over allocation of financing, its redistribution and use is of a high priority today.

All projects of foreign environmental assistance are implemented within *specific domestic arena*, and current 'situational factors' define to a high extent their success, or failure. Major of them is facing the similar obstacles to implementation as domestic environmental projects do. Today, there is a need for donors to revise their approaches formed during the nineties to environmental assistance, and to elaborate new strategies taking into account the specifics in dynamic recent economic, social and political reforms in Russia. Modifications in the structure, mechanisms and tools of environmental assistance in conformity with the new parameters are necessary. Without such adaptation to domestic framework the foreign environmental support risks to loose its effectiveness as one of the tools of environmental policies of the West.

6. PERSPECTIVE QUESTS

Currently, the debates are going on in the country on how to make environmental protection policies more effective, what new mechanisms should be incorporated into already established patterns, or, how the existing instruments should be improved and adapted to national economic and political reforms. The important feature of new emerging approaches is, *first*, acceptance and support of sustainable development concept in environmental policy-making, *second*, an emphasis on close links between effectiveness of environmental policy and further progress in liberalisation in Russia, and *third*, a strong conditionality of success in environmental reform on further integration of Russia into international community and participation in globalisation processes. The new government under Putin's presidency acknowledges that success in implementation of environmental protection strategies is defined to a high extent by results of market and democratic reforms which create necessary systemic framework for environmental management and a precondition for environmental amelioration. Recently, with the start of economic growth in Russia, more active attempts have been made to integrate environmental policies with economic development, and to include assets of nature into social and economic systems. The encouraging sign is that the ministry of Economic Development and Trade headed by German Gref takes part in environmental decision-making, and makes attempts to interlink strategies of economic development with environmental concerns, while during the previous decade these two elements have been more autonomous. At the same time, it's too early to evaluate the results of these efforts. Further developments are to demonstrate whether the new government succeeded in fostering economic growth in ways that protect the environment and provide resources for investments in clean technologies.

Currently, the new environmental doctrine is being elaborated in Russia <Ekologicheskaya, 2002> which is supposed to govern national and international environmental policies in the future, and adaptation of environmental mechanisms to new challenges of market and democratic reforms. Some new approaches to innovations and adaptation of environmental instruments were also suggested by the government within its recent strategy of social and economic development up to 2010 <Proekt, 2001> It outlines some approaches towards modernisation of institutional framework for environmental management and its major instruments, and attempts to integrate environmental policy implementation with social and economic development. The core of them concentrates on the following:

- The major focus of domestic environmental policy in a short-term perspective will be on promoting environmental and human security, particularly, through rehabilitation and amelioration of environmental situation in the areas of *environmental crisis* that are usually characterized by development of heavy industries and non-deep processing of mineral resources. Thus, the governmental program is aimed at promoting by 2002-2004 the positive ecological dynamics within these areas, and then stabilization by 2010 of the environmental situation and rehabilitation of zones in environmental crisis. Particular economic mechanisms and incentives for potential investors are envisaged for these regions. Equally important attention is paid to improvement of human health in ecologically destroyed regions.

- Formerly, widely superficially exploited and advertised in this country the concept of *environmental and human security* has obtained concrete meaning and its new foci. Its major components are linked now with, *first*, enhancing safety and control over potentially dangerous activities, *second*, scaling of priorities in health care, demographic and migration policies, *third*, mitigation of negative environmental consequences of emergencies, *fourth*, prevention and control over spread of genetically modified products and alien species of wildlife, and, *fifth*, prevention of ecological terrorism.

- *Industrial transformation and structural economic reforms* in Russia are believed to contribute to environmental problem solving. The socio-economic program underlines that envisioned changes in industrial infrastructure, a closure, or modernization of outdated enterprises, on the one hand, and the development of new industrial capacities oriented towards market conditions, towards hi-tech, energy efficiency and deep processing of raw materials, on the other hand, that will allow to decrease pressures on the environment. Modernization of enterprises, especially in energy- and resource intensive sectors guided by already applied Western standards is expected to promote realization of environmental policy goals that would target changes in behavior of industrial polluters and extensive users of natural resources.

- As in a mid-term perspective the national balance of payments is expected to be maintained to a high extent through export of natural resources, and, particularly, energy resources, considerable attention is paid to assessment of possible environmental impacts of *export oriented* developments. Further expansion of resources exploitation will result in moving the mining industries to new sites and new territories; that might negatively affect extremely fragile ecosystems of the Russian Arctic and the Far East. Although, government underlines that preservation and enforcement of environmental norms is of a crucial importance in this respect, these particular strategies have a great deal of opposition, and provoke debates among the scientific community and environmentalists. At the same time, new tax and tariff policies are suggested that will promote reorientation of exports of raw natural resources towards exports of deeper processed products.

- Russia's integration into international community and participation in the processes of *globalization* are believed to be an important factor in environmental problem solving in the country, and in further development of its national and international environmental policies. It relates, *first*, to the Russia's entry into WTO and standardization of its national norms and rules; *second*, it includes harmonization of national environmental standards with their international analogues. *Third*, more scrupulous attention is paid to compliance and implementation of Russia's obligations under global environmental agreements, as well as wider application of such international mechanisms as joint implementation and international emission trading as means for expanding investments into ecological and environmentally benign projects. Also, environmental factors are supposed to be actively used for formation of favorable climate for foreign investments,

and for increasing the competitiveness of domestic products and services at international markets. Russia's participation in problem-solving within global environmental change agenda is expected to be more profound and substantial in contrast to more formal former activities.

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- (xlvii) This paper was presented at the Sixth Meeting of the Coalition Theory Network organised by the Fondazione Eni Enrico Mattei and the CORE, Université Catholique de Louvain, Louvain-la-Neuve, Belgium, January 26-27, 2001
- (xlviii) This paper was presented at the RICAMARE Workshop "Socioeconomic Assessments of Climate Change in the Mediterranean: Impact, Adaptation and Mitigation Co-benefits", organised by the Fondazione Eni Enrico Mattei, Milan, February 9-10, 2001
- (xlviii) This paper was presented at the International Workshop "Trade and the Environment in the Perspective of the EU Enlargement", organised by the Fondazione Eni Enrico Mattei, Milan, May 17-18, 2001
- (xlix) This paper was presented at the International Conference "Knowledge as an Economic Good", organised by Fondazione Eni Enrico Mattei and The Beijer International Institute of Environmental Economics, Palermo, April 20-21, 2001
- (l) This paper was presented at the Workshop "Growth, Environmental Policies and Sustainability" organised by the Fondazione Eni Enrico Mattei, Venice, June 1, 2001
- (li) This paper was presented at the Fourth Toulouse Conference on Environment and Resource Economics on "Property Rights, Institutions and Management of Environmental and Natural Resources", organised by Fondazione Eni Enrico Mattei, IDEI and INRA and sponsored by MATE, Toulouse, May 3-4, 2001
- (lii) This paper was presented at the International Conference on "Economic Valuation of Environmental Goods", organised by Fondazione Eni Enrico Mattei in cooperation with CORILA, Venice, May 11, 2001
- (liii) This paper was circulated at the International Conference on "Climate Policy – Do We Need a New Approach?", jointly organised by Fondazione Eni Enrico Mattei, Stanford University and Venice International University, Isola di San Servolo, Venice, September 6-8, 2001
- (liv) This paper was presented at the Seventh Meeting of the Coalition Theory Network organised by the Fondazione Eni Enrico Mattei and the CORE, Université Catholique de Louvain, Venice, Italy, January 11-12, 2002
- (lv) This paper was presented at the First Workshop of the Concerted Action on Tradable Emission Permits (CATEP) organised by the Fondazione Eni Enrico Mattei, Venice, Italy, December 3-4, 2001
- (lvi) This paper was presented at the ESF EURESCO Conference on Environmental Policy in a Global Economy "The International Dimension of Environmental Policy", organised with the collaboration of the Fondazione Eni Enrico Mattei, Acquafredda di Maratea, October 6-11, 2001
- (lvii) This paper was presented at the First Workshop of "CFEWE – Carbon Flows between Eastern and Western Europe", organised by the Fondazione Eni Enrico Mattei and Zentrum für Europäische Integrationsforschung (ZEI), Milan, July 5-6, 2001

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