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**Task Force for the Implementation of the Environmental Action Programmes for
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**SURVEY ON THE USE OF ECONOMIC INSTRUMENTS FOR POLLUTION
CONTROL AND NATURAL RESOURCE MANAGEMENT IN THE NIS:
PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS**

TWELFTH MEETING OF THE EAP TASK FORCE

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This paper has been prepared by the EAP Task Force Secretariat at the OECD. It presents preliminary conclusions from a survey on the use of economic instruments for pollution control and natural resource management in the New Independent States of the former Soviet Union (NIS). This document supports Agenda Item 5.

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**SURVEY ON THE USE OF ECONOMIC INSTRUMENTS FOR
POLLUTION CONTROL AND NATURAL RESOURCE MANAGEMENT IN THE NIS:
PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS**

Introduction and Background

1. This paper presents preliminary conclusions and recommendations on the use of economic instruments for pollution control and natural resource management in the New Independent States of the former Soviet Union (NIS). The information presented in this document summarises the results of a survey of the use of economic instruments for pollution control and natural resources management in the NIS carried out as a part of the work programme of the EAP Task Force. The survey, which is in the process of being finalised, is based on the NIS responses to a comprehensive questionnaire that was developed by the EAP Task Force Secretariat in June 1999. The responses to the questionnaire were received from officials and experts from individual NIS in autumn of 1999. Further discussion and additional data gathering were carried out at two workshops in January and March 2000.

2. It should be noted that the preparation of the survey has neither entailed any extensive research, actual visits to the individual NIS nor extensive independent quality control of data reported by the country authors. Thus, the findings presented in this paper are of a preliminary character and further analysis would be required to verify and complete them.

3. The following sections:

- present an overall framework for the use of economic instruments in the NIS;
- review individual types of economic instruments;
- present general recommendation for the future development and use of economic instruments in the NIS

Status and Trends in the Use of Economic Instruments in the NIS

The types of economic instruments used in the NIS

4. The use of economic instruments in the NIS dates back to the period of the Soviet Union. In the 1980's various forms of payments for natural resource use were introduced, e.g. for logging, extraction of subsurface mineral resources, and for water abstraction. In 1990, a system of pollution charges was experimentally introduced in selected regions of the Soviet Union. The payments were applied on most forms of emissions of air and water pollutants as well as on generation of solid waste.

5. After the break-up of the Soviet Union in 1991, the regulatory framework of the Soviet Union apparently served as a model for the subsequent design and introduction of economic instruments for environmental protection and natural resource management in all the NIS. Although timing and detailed design varied across the countries, nowadays all the NIS have systems of economic instruments with fundamental similarities. All countries apply the same basic system of pollution charges on a very large number of air emissions and water effluents as well as on generation of solid waste. Also fairly similar charges for utilisation and extraction of natural resources, such as water abstraction, logging, mineral extraction as well as hunting and fishing are in use in all NIS. An overview of the economic instruments in use in the NIS is found in table 1.

6. A defining feature for the use of economic instruments in the NIS is that the systems of pollution charges and payments for natural resource utilisation are closely integrated with systems of physical emission/utilisation limits. Enterprise specific emission limits are laid down in environmental permits. Standard pollution charge applies only for emissions within these limits whereas much higher non-compliance fees apply for emissions in excess of the limits. A similar system is used for the utilisation of natural resources with differentiated rates for their use within, and in excess of, the limits that are determined in the licence.

7. Another special feature of the use of economic instruments in the NIS is that the revenues are, in many cases, earmarked for financing specific environmental protection and natural resource management programmes and projects. A number of the NIS, such as Kazakhstan, Moldova, the Russian Federation and Ukraine, established environmental funds that are capitalised by the revenue from the pollution charge system. In other NIS, such as Armenia, Azerbaijan, Georgia, Kyrgyzstan or Uzbekistan such funds do not exist and the revenue is accrued to the general budget. Various natural resource use payments are similarly earmarked for specific resource management activities, for example for financing of reforestation, exploration of mineral resources and land amelioration activities.

8. All the NIS have systems of environmental liability, or damage compensation, which operate partly complementary and partly in parallel to the system of pollution charges and natural resource payments. Polluters and users of natural resource can become liable for damages to the environment, e.g. if

the provisions in the licence or permit are not complied with. In case of environmental liability, there are elaborate rules for determining the size of the damage compensation payments.

9. The transport sector is another area where the use of economic instruments shows a high degree of similarity across the NIS. All countries apply a large number of fairly similar transport related taxes and charges, such as fuel excises, taxes and charges on vehicle ownership, payments on car sales and imports, entrance and transit fees as well as road taxes. These instruments have been reported as aiming to stimulate pollution reduction in the transport sector. In many cases, transport related taxes accrue to specialised funds, so-called "road funds", which finance road maintenance and construction. About half of the NIS reported the use of tax differences between leaded and un-leaded gasoline. In some of the countries, pollution charges also apply for mobile sources.

10. Only few experiments have been launched in the NIS with other types of economic instruments for environmental protection. For example, Armenia introduced in 1999 a set of product charges on a large number of environmentally harmful products. In Georgia, a tax differentiation on fuel oil dependent on the sulphur content was applied. Various NIS have introduced taxes on certain waste products. However, these attempts were in most cases unsuccessful due to resistance from industry. For example, a charge on plastic bottles in Georgia and a set of charges on packaging waste in Ukraine were repealed even before entering into effect. Most countries report a consideration of new forms of economic instruments. One area where pilot schemes have been introduced, for example in Russia, is a system of environmental insurance.

11. Some of the types of economic instruments which were applied in the Soviet Union have not survived in the new economic situation. The deposit-refund system presents a case in point. The deposit-refund systems were in use for glass bottles in the Soviet Union and an extensive network of collection points was in place. The system has not survived the collapse of the centralised system of decision-making and was abandoned in their original form. In some case, though they informal market-based systems which rely on the commercial interest of individuals have emerged.

Table 1 Overview of the use of economic instruments related to environmental protection and natural resource management reported by the NIS, 1999.

	Armenia	Azerbaijan	Belarus	Georgia	Kazakhstan	Kyrgyzstan	Moldova	Russia	Tajikistan	Turkmenistan	Ukraine	Uzbekistan
Economic instruments for environmental protection												
Pollution Charges/taxes												
- Air emissions	X	X	X	X	X	X	X	X	X	X	X	X
- Water effluents	X	X	X	X	X	X	X	X	X	X	X	X
- Solid waste	X	X	X	X	X	X	X	X	X	X	X	X
- Non-Compliance Fees	X	X	X	X	X	X	X	X	X	X	X	X
Product Charges/taxes												
- Energy taxes			X	X	X	X	X	X	X			
- Tax diff. based on Sulphur in energy prod, CO2 tax				X								
- Other environmentally harmful products	X				X							
Transport related charges/taxes												
- Charges/taxes on transport fuel	X		X	X		X	X	X				X
- Tax diff. Unleaded gasoline	X			X		X	X					
- Charges on emissions from mobile sources	X	X	X	X	X	X	X	X	X		X	X
- Charges on car purchase/import/ownership	X	X	X	X	X	X	X	X	X	X	X	X
- Other transport related charges	X	X	X	X	X	X	X	X		X	X	X
Deposit-refund system												
- Glass bottles	X	X	X	X	X	X	X	X	X	X	X	X
User Charges												
- water supply and sewerage	X	X	X	X	X	X	X	X	X	X	X	X
- Municipal solid waste	X	X	X	X	X	X	X	X	X	X	X	X
Other Instruments												
- Other environmentally related instruments												X 1)
Natural resource payments/taxes												
Water												
- Abstraction/extraction charges	X	X	X	X	X	X	X	X	X	X	X	X
- Non Compliance Fee	X	X	X	X	X	X	X	X	X	X	X	X
Forestry												
- Logging Charge		X	X	X	X	X	X	X	X		X	X
- Charge for use of forest resources	X	X	X	X	X	X	X	X	X	X	X	X
- Non Compliance Fee	X	X	X	X	X	X	X	X	X	X	X	X
Mineral resources												
- Extraction Charge	X	X	X	X	X	X	X	X	X	X	X	X
- Charge for maintenance of resource base						X		X			X	
- Non Compliance Fee	X	X	X	X	X	X	X	X	X	X	X	X
Biodiversity and wildlife												
- Licence fees for hunting/fishing	X	X	X	X	X	X	X	X	X	X	X	X
- Charges for utilisation of resources	X	X	X	X	X	X	X	X	X	X	X	X
- Non Compliance Fee	X	X	X	X	X	X	X	X	X	X	X	X

1) An ecological tax of 1% levied on total revenue of enterprises

12. Compared to the OECD, the use of economic instruments for environmental protection in the NIS is in many ways very different. While in the NIS charges are levied on a large number of pollutants, emission charges are used in OECD countries only for a limited number of pollutants, mostly air pollutants such as SO₂, NO_x and CO₂. Product taxes, except for transport related taxes, are used to a very limited extent in the NIS while the OECD countries have focused much more on product charges levied on environmental harmful products.

Revenues from economic instruments

13. From the revenue raising perspective, economic instruments in the NIS can be divided into three main categories:

- *Environmental charges and taxes.* Pollution charges, and also some product taxes, fall into this category as these instruments have been introduced for environmental purposes. These charges and taxes are, in most cases, designed and introduced by environmental agencies.

- *Natural resource taxes and payments.* This group contains payments for the use of natural resources such as extraction of mineral resources and fossil fuel, abstraction of water, use of forests and other forms of bio-resources. These instruments have originally been introduced to stimulate more efficient natural resources management but in majority of cases they serve rent collection purposes.
- *Environmentally related taxes and charges.* This group concerns instruments that potentially have positive environmental effect but the instruments have been introduced mainly for other purposes. Most taxes/charges on energy and taxes/charges related to transport belong to this group.

14. The revenue presented as a share of total public budget revenue from the two first groups of instruments presented above is summarised in table 2. While data exists on the revenues from the first two groups, little information has been provided on revenues from the third category of the instruments. Typically the revenue from the third group of instruments is much greater than the revenue from pure environmental taxes and from the natural resource payments. E.g. excise taxes on energy amounted to nearly 6% of total budget revenue in the Russian Federation in 1998 and the revenue from transport-related taxes amounted to 5% of the Russia's budget revenue.

Table 2 Revenue from environmental taxes/charges and natural resource payments as percentage of the public budget revenue, 1998

% of budget revenue	Arm.	Aze.	Bel.	Geo.	Kaz.	Kyr.	Mol.	Rus.	Taj.	Tur.	Ukr.	Uzb.
Environmental taxes/charges	0.002	0.02	0.001	0.9	1.0	0.2	0.01	0.3	0.03	0.002	0.1	0.03
Natural resource payments	0.1	6.3	0.4	0.3	4.3	0.02	0.2	2.9	n.r.	1.4	0.8	2.1

n.r.: not reported

15. Table 2 shows that the revenue from environmental taxes and charges measured as the percentage of the total budget revenue varies strongly across the NIS. In Kazakhstan and Georgia, environmental taxes and charges generated around 1% of the budget revenue in 1998 whereas in Armenia, Azerbaijan, Moldova, Tajikistan and Uzbekistan, these taxes and charges represented 0.03% of the total budget revenues or less. The main reasons for these differences could be the combination of the extremely low rates of taxes and charges with the low share of industry in the structure of the national economies. Some countries, such as Kazakhstan, have actively adjusted the rate levels whereas in other countries, such as Azerbaijan, high inflation at the beginning of 1990's and lack of adjustments have totally eroded the value of the pollution charges in real terms.

16. The revenue from natural resource payments is generally of much greater importance than the revenue from environmental taxes and charges in the NIS, especially in the countries where natural resources are abundant. The revenue varies from less than 0.3% of the total budget revenue in 1998 in countries like Armenia, Belarus, Georgia, Kyrgyzstan, Moldova, and Tajikistan to around 3%, 4% and 6% of the total budget revenue in 1998 in the Russian Federation, Kazakhstan and Azerbaijan respectively. It should be noted that the high share of revenues from payments for natural resources use could be attributed to the fact that all three latter countries are major oil producers.

Recent Developments in the Use of Economic Instruments in the NIS

17. Although all NIS have introduced fairly identical systems of economic instruments modelled on the instruments introduced towards the end of the Soviet era, the types of the instruments, and areas in which they have been applied, have evolved and expanded through the 1990-ies in most NIS. Taking into account the period after 1995, the developments may be grouped as follows:

- system of pollution charges has remained practically unchanged since its introduction except for changes in the rates. Ukraine has, as the only country in the NIS, attempted to simplify the system by reducing the number of pollutants on which individual rates are established, and in Kazakhstan charge rates have been increased to reflect inflation.
- instruments which were introduced before 1991 in natural resource management have been expanded and adjusted. Some of the countries that had not introduced the full range of instruments initially have gradually expanded the coverage of natural resource payments. For example, water charges were introduced in Kazakhstan in 1995 and in Georgia in 1996. Several countries have introduced new payments for the use of wildlife resources.
- new instruments are being introduced or considered in some NIS. Charges on environmental harmful products were introduced in Armenia in 1999 and Moldova introduced import levies on transport fuels favouring un-leaded gasoline in 1998. Most countries reported that the environmental authorities consider a wide range of new instruments, however, typically amid general opposition for such environmental measures from other government agencies and industry.
- earmarking appears to be declining. Extra-budgetary funds have been consolidated into the general budget and specific natural resource payments earmarked for the restoration of the resource bases have, in most NIS, been merged with the general natural resource payments.

Review of individual instruments

Pollution charges

18. Pollution charges are the key and most comprehensive type of economic instrument in use for environmental protection in the NIS. In all NIS similar systems of pollution charges exist. They are modelled on the system of pollution charges that was introduced in 1990 in the USSR. Pollution charges are levied on a large number of air emissions and water effluents. Pollution charges are applied on solid waste generation in all NIS except Georgia.

19. The system of pollution charges is closely connected with enterprise specific emission permits and non-compliance fees. The basic pollution charge rate applies for emissions within the allowable limits whereas higher non-compliance fees apply for emission in excess of permissible levels. Except for Georgia, non-compliance fees are determined by multiplying the basic pollution charge by a factor, ranging from 3 in Armenia to 25 in the Russian Federation. The emission limits have usually been very stringent and not attainable for many polluters. As a result temporary limits are applied as a transitional measure. Different charge rates apply for those different levels. For example in Russia, charge level for emission above permitted levels but below temporary levels is five times higher than the basic rate and for emissions above temporary level the rate is 25 times the basic rate.

20. It was reported that the system of pollution charges serves both the revenue raising function to finance environmental protection measures and the incentive function to reduce levels of emissions. However, the former appears to be the predominant consideration in the NIS. Several factors limit the effectiveness of pollution charges, as well as reduce the revenue potential of the instruments. They include:

- Low level of pollution charge rates. The hyperinflation in early 1990's that affected all NIS has eroded the real value of pollution charge rates. In Azerbaijan, the current real level of pollution charges is about 1,000 times lower than when they were introduced. In Russia, an annual indexation formula for charge rates has been introduced. However, their present rates are anyway about 50 times lower in real terms compared to 1990.
- Little relation between the actual level of emissions and due charges. The calculation of pollution charges is typically based on the estimated rather than actual emissions. Emissions are determined based on e.g. the employed technology, production plans and various standard emission factors. An enterprise that improves its environmental management and may reduce the emission has no guarantee that its payment of pollution charges will be lower.
- The high number of pollutants on which charges are levied and the administrative complexities of the system. The costs of monitoring and administering pollution charges for many of the less important pollutants appear to be excessive. In Russia, for example, pollution charges are levied on 200 different air pollutants and a similar number of water pollutants. The complexity of the system is also reducing the responsiveness of enterprises to charges, as those who have to react to economic signals often do not fully understand how they work.
- Low effectiveness of non-compliance fees. High non-compliance fees should in principle partly compensate for low base rates of pollution charges and should provide some incentives for reducing emissions in excess of permissible limits. In Russia for example, the applicable rate of non-compliance fee may be 50 times higher than the base rate (25 times for emission above temporary permissible limits and 2 times higher in regional "hot spots"). However, limited capacity for monitoring of emission levels, waiving of charges and discretion in setting the level of permissible emissions often reduce the actual effect of such non-compliance fees.
- Low collection of pollution charges. Collection rates for pollution charges vary strongly among the NIS. In Armenia, for example, the collected revenue from water and air pollution charges amounted to around 12% and 1% of the levied charges in 1998. In Russia and Kazakhstan collection rates are reported to be around 60% of the levied charges. These figures overstate, however, cash collection rates, as various forms of non-monetary settlements are included.
- Wide discretionary powers of environmental authorities. Environmental authorities, including enforcement agencies, have often wide discretionary powers which give them rights to adjust emission limits, waive charges as well as enter into various forms of non-monetary settlements. In addition to the reduced impact of certain instrument and the effectiveness of the whole system, it also induces enterprises to engage in so-called rent-seeking behaviour. The enterprise may re-direct resources away from pollution abatement measures and instead attempt to obtain special exemptions from the authorities. The wide discretionary powers also open a window for corruption.

Product charges

21. Product taxes and charges on environmentally harmful products are used to a very limited extent in the NIS, except for a large number of transport-related product charges on vehicles and transport fuel. However, these charges have typically not been introduced for environmental purposes. The only country among the NIS that has introduced a comprehensive system of environmental product charges is Armenia. In addition, Georgia is the only NIS where product charges on various oil products have been introduced as a part of the environmental pollution charge system; tax differentiation applies in Georgia for fuel oil with low sulphur content and for un-leaded gasoline.

22. The collection rates of product charges in the NIS are typically reported to be higher than in the case of pollution charges. The collection rate of taxes on vehicles and taxes on environmentally harmful products in Armenia, for example, have been reported to be nearly 100%. One of the explanations for such a high collection rate is the fact that the taxes are levied on imported goods and monitoring and collection of the taxes can be limited to a few entrance points where it is undertaken as part of the customs control. For vehicles, control and monitoring are facilitated by easy identification of taxable objects.

23. Administrative efficiency of product charges depends, inter alia, on where the charges are introduced in the distribution chain and how they are introduced. Generally, the collection of a tax at a higher level in the distribution chain should reduce the administrative burden of the charge. Thus, the imposition of a tax at the import or production level would be more appropriate than at the retail level. Experienced in Georgia shows that the collected revenue increased dramatically as of 1998, when taxes on oil products were levied at the import/production level instead of at the retail level.

User charges for municipal services

24. User charges for municipal services exist in all NIS. They cover: water supply, wastewater collection and treatment as well as municipal solid waste collection and disposal. The main stated aim of user charges is to cover the costs of the provision of the service in question. The user charges in the NIS are determined at sub-national level with wide variation within and among countries. In many cases, social considerations keep the level of user charges well below full costs recovery, i.e. recovery of operating and maintenance costs as well as capital costs. In Turkmenistan, households do not pay for water supply and wastewater collection and sanitation.

Deposit refund systems

25. Deposit-refund systems provide an option for collection of certain forms of products separate from the general waste stream. In the Soviet times, a system of deposit and refunds was in place for collection and re-use of glass bottles and other products. Today, such systems have been abandoned in all NIS but Belarus. However, private systems of collection and re-use of glass bottles have been established as a commercial activity in most major cities.

Natural resource taxes and charges

26. In all NIS comprehensive systems are applied for payments for extraction and use of practically all types of natural resource. These include: payments for utilisation of subsurface resources, such as water, minerals and hydrocarbons; payments for surface water abstraction for households, agriculture and industrial use as well other forms of surface water use (e.g. for ships, hydropower production and timber transport); payments for logging, haymaking, grazing as well as hunting and fishing.

27. Most of the taxes and charges for natural resource use serve, first and foremost, the purpose of collecting part of the natural resource rent. Although it is often a stated goal in the law, the taxes and charges on natural resource use provide only in few instances real incentives for improved management of natural resources. The application of these economic instruments have an impact on natural resource management but mostly as a financing device as the revenue from the taxes and charges is collected in specialised funds and allocated for improvement of natural resource management.

28. Abstraction fees for water may be an exception to the above. As there is no market price for water, abstraction fees should result in higher costs for the water users and could thus promote more

efficient use of water. However, in most NIS, agriculture, which in some of the countries is the major water user, is either exempt from such charges or benefit from significantly reduced rate levels.

29. In general, however, natural resource utilisation in the NIS is managed through quantitative measures, such as granting of licences to utilise a natural resource. These licences typically specify the permissible rate of use or extraction. The total use or extraction of a given resource is then managed through the overall policy of licence granting.

30. The system of environmental liability and rules for calculating liability payments for over-utilisation of resources do, in some cases, provide an economic incentive to improve natural resource management. For example, natural resource users may be required to pay damage compensation to the state if the licence conditions are not complied with. There have been examples of such payments e.g. for logging outside the licence area or the use of logging practises that destroy the remaining forests. However, the system appears to be mired in inefficient court proceedings and complex rules for establishment of liability and damage compensation.

Recommendations

31. The survey of the use of economic instruments in the NIS revealed their extensive use. However, the effectiveness of the instruments appears in general to be very limited. The broad coverage of the survey did not allow to develop recommendations at the level of individual instruments and this would require more focused analysis of the actual situation in individual NIS. However, based on the analyses and experiences on the use and implementation of economic instruments, a set of more general recommendations has emerged. These are presented below.

There is a need for a comprehensive reform of economic instruments for environmental protection in the NIS in the context of achieving priority objectives and targets of environmental policies.

32. Although the present system of pollution charges is extensive it does not function properly. The instruments provide little incentive for pollution reduction, and in many cases, the revenue generated is low. Thus a comprehensive reform of the entire system is needed. A key strategic question concerns the scope and depth of such reform: whether a partial improvement of individual instruments would be sufficient or whether the current system dating back from the Soviet era should be abandoned and a new and more effective environmental policy instruments developed. This question falls outside the scope of the present survey but is central for the future reform of the environmental management systems in the NIS.

33. In any case, some immediate reform of the present pollution charge system should be carried out to eliminate its most obvious flaws. This would include:

- drastic reduction in the number of pollutants upon which charges are levied and focussing on the major and priority pollutants that can be monitored at reasonable costs;
- increase in the rates to a level that would provide proper incentives to reduce pollution;
- reduction of the level of discretionary powers of implementing agencies

34. Reform of the pollution charge system rates and bases may, however, not be sufficient to deal with the more fundamental problems, which include the relations between environmental permits and the charge systems, and the relations between pollution charge system and other instruments, such as damage compensation payments.

35. The application of economic instruments should not be an aim in itself but should be seen as one of several options to address existing environmental problems, promote changes in environmental performance or natural resource management and to meet environmental policy. Through the analysis of the sources of pollution, identification of options for addressing environmental problems, and considerations of how the actors may be induced to change behaviour, an adequate mix of policy instruments need to be determined for individual environmental problems.

36. The appropriate mix of instruments will, inter alia, depend on the type and toxicity of the pollutants, the type of actors responsible for pollution, the overall industry structure, the costs of and options for addressing the problem as well as the level of uncertainty in regard to the various factors. The present approach in the NIS where the same types of environmental policy instruments are applied for all types of pollution and all sectors is clearly not the optimal strategy.

The effectiveness of economic instruments will be enhanced by broader reforms promoting the well-functioning of markets and enterprises

37. The effectiveness of economic instruments for environmental protection and natural resource management depends on the overall functioning of the market. Policies to enhance the market economy are thus central for the impact of economic instruments. Important areas of market reforms would include:

- Removal of environmental harmful subsidies. Before implementing economic instruments, it would normally be recommended to remove or phase out subsidies that have negative environmental impacts, e.g. subsidised prices on energy and agro-chemicals.
- Liberalisation of markets, hardening of budget constraints of public and semi-public enterprises and removal of trade barriers. Implementation of these reforms would be expected to increase the responsiveness of enterprises to economic signals. Many industrial sectors in the NIS are still dominated by state-own monopolies with close ties to the public authorities. This, in many cases, limits their responsiveness to market signals.
- Improvement of internal management systems and access to the knowledge of alternative options. In particular, policies and programmes to promote environmental management systems in enterprises could enhance the effectiveness of economic instruments by providing opportunities for enterprises to seek least-cost solutions and technological alternatives for pollution reduction.

Individual instruments must be designed and assessed based on costs and benefits

38. Resources for environmental protection in the NIS - as in many other countries - are limited. Therefore, it is of outmost importance that the available resources are allocated in a way to achieve environmental improvement at the lowest cost possible. The selection and design of environmental policy instruments must therefore be based on consideration of the costs they impose versus the expected environmental improvements they are expected to result in.

39. The present system of emission limits, which defines how pollution charges and non-compliance fees are applied, has been established largely without considerations of costs and benefits. As a result a set of far too stringent emission limits are applied, which the industry often cannot comply with. This creates the situation in which the prioritisation is made by environmental authorities for implementing, controlling and enforcing the instruments. As various forms of exemptions are granted in this process such a situation can lead to non-transparency and can stimulate corruption.

Measures to improve collection rates should be strengthened

40. Impacts of economic instruments - both with regard to providing incentives for reduced pollution and to revenue generation – depend on the collection rates of levied taxes and charges. Environmental compliance by enterprises is, inter alia, dependent on enterprises' acceptance of the economic instruments, proper implementation as well as on credible and consistent control and enforcement, including appropriate means of sanctions.

41. Acceptance by enterprises of economic instrument such as environmental taxes and charges may be promoted through the wider involvement of industry in designing the instruments. Furthermore, the return of collected revenue to the sector, e.g. through earmarking, to finance well-defined environmental activities, may enhance acceptance of taxes and charges by industry. However, several other problems have to be addressed in connection with earmarking to ensure transparent and proper use of funds.

The scope for discretion in implementation of environmental taxes and charges should be reduced

42. The environmental authorities have today, in many cases, wide discretionary powers to waive charges, to accept non-monetary settlements, including barter arrangements and offsets, and to abstain from executing claims. As mentioned previously, apart from the undermining of the effectiveness of the economic instruments, such practises may induce enterprises to engage in rent-seeking behaviour and stimulate corruption.

43. The present system of too strict environmental performance requirements practically necessitates that environmental authorities grant discretionary exemptions. The first requirement for reducing discretion in implementation is therefore the establishment of realistically achievable environmental targets and policy instruments developed in accordance herewith. The reduction of discretion in implementation does not imply that all groups of polluters must be treated identically. There may be perfectly legitimate reasons for differentiation in the use of economic instruments, e.g. to avoid negative impact on industrial competitiveness. This has been applied extensively in the OECD countries. However, the main issue is that such exemptions are mainly determined at the time of designing the policy instruments rather than by the implementing and controlling agencies.

Programmes for systematic monitoring and evaluation of economic instruments should be launched

44. Systematic monitoring and evaluation of the effects of the use of various policy instruments and comparisons with the assumed or expected outcomes is central for improving the use and effectiveness of economic instruments. Although quantitative assessment seems not to be feasible in the short term in the NIS, more general qualitative evaluation of impacts of economic instruments should be undertaken.