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PROGRESS IN THE IMPLEMENTATION OF THE AARCHUS POLICY STATEMENT ON ENVIRONMENTAL MANAGEMENT IN ENTERPRISES IN EECCA

submitted by

the Task Force for the Implementation of the Environmental Action Programme for Central and Eastern Europe (EAP Task Force)/ Organisation for Economic Cooperation and Development

through the Ad Hoc Working Group of Senior Officials

BACKGROUND DOCUMENT

UNITED NATIONS
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1. EXECUTIVE SUMMARY

1. In their Policy Statement on Environmental Management in Enterprises adopted at the Aarhus "Environment for Europe" conference in 1998, ministers invited the EAP Task Force to prepare a report for their next gathering assessing progress in the implementation of the Policy Statement. This report responds to the invitation. It provides a broad-based overview of progress in implementing the Policy Statement since Aarhus. It uses the thematic structure provided in the Policy Statement, focusing on the general framework conditions that enterprises operate under, characterised by (i) the economic and (ii) environmental policy frameworks, as well as on some of the key policies and activities to promote environmental management in enterprises (EME), such as (iii) education and institutional arrangements, and financial mechanisms. The main results from the report are briefly summarised below.

2. **The Aarhus Policy Statement on Environmental Management in Enterprises**, in which environment ministers committed to catalyse, facilitate and strongly support the implementation of effective environmental management in enterprises in CEEC/EECCA, **has not resulted in a notable increase in governmental support for EME**. From the data collected, it is apparent that neither EECCA governments nor donors have significantly increased their efforts following the adoption of the Aarhus Policy Statement.

3. As a result, **EECCA companies still have little incentive to adopt EME**. The **economic framework conditions** for the development of environmental management in enterprises in EECCA **remain broadly unfavourable**, despite some progress achieved, namely in the general economic context in EECCA and enterprise reform. This is overshadowed, however, by a deeply depressed investment climate that prevents the modernisation of productive capital, and a backlog of reforms in the utility sector that prevents the removal of sometimes massive tariff subsidies. Tariffs for gas and electricity in EECCA can be up to ten times lower than the OECD average and provide significant perverse incentives for the efficient use of these resources.

4. **A similarly unsatisfying situation characterises the environmental policy framework**, which does not yet include adequate incentives for enterprises to improve environmental management methods. The weakness of enforcement systems paired with ineffective economic instruments and insufficient measures to support enterprises in achieving compliance tend to discourage EME. As a result, non-compliance strategies in dealing with environmental requirements are frequently the least cost options for EECCA enterprises.

5. **This context considerably reduces the potential of "win-win" EME opportunities**, as the economic benefits of such measures are reduced due to low expenditures on compliance with environmental regulation and subsidised resource prices. Despite this situation, many "win-win" opportunities exist, as documented in a large number of demonstration projects. Especially low and no-cost EME opportunities remain easily accessible, but companies infrequently exploit them as they lack incentives to develop the expertise to identify and implement such measures. The absence of business networks to disseminate EME information, as well as the small number of EECCA enterprises that have introduced certified environmental management systems supports these arguments. Larger EME investments are more difficult to realise as finance is not readily available. This is due to the under-

developed state of the commercial banking sector in EECCA, and the lack of awareness and capacity in financial institutions to evaluate such projects.

6. Despite this adverse situation, most EECCA countries have achieved significant progress since the Aarhus conference toward reaching the basic capacity level for CP. There are now more than 20 Cleaner Production Centres established throughout EECCA, although equipped with varying degrees of capacity and resources. Donor support for various, though often uncoordinated and isolated, training programmes deserves some credit. The initiative to develop CP services, however, mostly came from a number of "CP entrepreneurs" who set up companies to provide these services. Unless support from donors and EECCA governments for these initiatives is increased, their impact will remain limited, and some CP service providers will disappear.

7. **Governments** (including those ministries and agencies responsible for economic and industrial development and environmental protection), **rather than enterprises, have a key responsibility for promoting and sustaining EME**. Unless economic and environmental policy frameworks are improved, there will be little scope for market forces to stimulate "win-win" EME opportunities. Hence, well-targeted government support will remain necessary to continue the build-up of a basic capacity level for cleaner production in EECCA until framework conditions have improved and market forces can play a more important role. Educational and informational EME measures appear to constitute the most appropriate response to the actual situation, as they contribute to improving the basic capacity level in the long-term, and have proved that they can stimulate entrepreneurial CP initiatives in EECCA. In parallel, in a transitional period, support (e.g., through subsidised finance such NEFCO's revolving fund for CP) might be provided for large EME investments with long pay-back periods, especially when this contributes to reducing the environmental pressures in pollution hot spots, and provided they support and do not undermine the emergence of more commercial forms of finance.

2. INTRODUCTION

8. In 1998, at the fourth "Environment for Europe" Conference in Aarhus, ministers adopted the Policy Statement on Environmental Management in Enterprises, in which they expressed their commitment to "facilitate and strongly support the implementation of effective environmental management in enterprises in CEEC/NIS…". The Policy Statement originated from the recognition that progress in the implementation of measures to promote environmental management in enterprises (EME) had been less than hoped for, due to a variety of obstacles in enterprises and in the policy and economic contexts within which they work. Moreover, the low levels of donor support for such activities, despite the potentially high benefit/cost ratios, further hampered progress.

9. In their Policy Statement ministers also invited the EAP Task Force to facilitate the implementation of the Policy Statement and to prepare a report for the next "Environment for Europe" ministerial conference assessing progress in the implementation of the Policy Statement.

10. This report responds to the invitation. It provides a broad-based overview of progress in implementing the Policy Statement since Aarhus. It uses the thematic structure provided in the Statement, focusing on the general framework conditions that enterprises operate under, characterised by (i) the economic and (ii) environmental policy frameworks, as well as on some of the key policies and activities to promote environmental management in enterprises (EME), such as (iii) education and institutional arrangements, and financial mechanisms. A brief introduction to each of these is given below.

(i) First, the report focuses on the **general economic framework conditions** that companies operate under. This includes the signals that companies receive from the market, and which are essentially influenced by general economic policies. Aspects such as macro-economic health, investment climate, progress with enterprise reforms and pricing of natural resources are reviewed, and the relevance of these factors for firm behaviour identified.

(ii) Second, the **signals provided through environmental regulations** are analysed. Environmental regulations play a key role in influencing firm behaviour, as they determine the cost of non-compliance, in addition to the general awareness of environmental matters within enterprise management. The role of economic instruments in setting prices for key resources, the effectiveness of environmental standards, monitoring and enforcement are reviewed.

(iii) Third, the **availability of education and university programmes** for environmental management in enterprises and the **existence of specific institutional arrangements** that can help foster the dissemination of environmental management practices are reviewed. The availability of environmental expertise in cleaner production centres and its expression in the form of access to improved management practices such as ISO 14000 are assessed. These arrangements can play a key role in overcoming one of the most important obstacles to the introduction of better environmental practices in enterprises, which is lack of information.

(iv) Finally, the **availability of financing mechanisms** to support the implementation of environmental measures in enterprises, in addition to the availability of support from donor countries for EME projects, is examined.

11. Each of these areas is reviewed, focusing both on the actual situation and the main improvements achieved by EECCA governments and donors. While the report is mainly based on information available in the literature, a lot of information has been collected through questionnaires. Difficulty accessing information in EECCA implies that some relevant examples of donor and EECCA government projects may have been overlooked, but even in this case, it is believed that the main thrust of the report would still be valid.

3. OVERALL ECONOMIC CONTEXT

12. The general economic context is crucial for the incentive structure that companies operate under. The key prerequisites for the introduction of environmental management in enterprises are that:

- Companies are profit maximisers, actively seeking cost reduction opportunities, through low-cost measures and investment.
- Enterprises dispose of a cash flow (or other forms of finance) for investment and have confidence that the framework conditions for investment will remain stable in the longer term.
- Investment in environmental management measures yields reasonable financial returns, e.g. due to reduction in the costs for inputs or increased competitiveness of products.

13. Hence, important signals for the behaviour of enterprises are sent by the market place. In this respect, the general economic situation, investment climate, progress in enterprise reform, resource pricing and pressure from consumers all indicate the capacity and probable willingness of companies to invest time and money in environmental management projects. In the following, each of these indicators is discussed.

3.1 The general economic context in EECCA has been favourable for the last two years

14. Following a deep recession throughout most of the 1990s as a consequence of the break-up of the Soviet Union and the severe economic crisis in 1998, the macro-economic situation has improved greatly in recent years. After strong growth in 2000, EECCA countries surprised many observers with 2001 growth rates systematically higher than predicted, despite a more difficult global economic context. With the exception of Belarus, all EECCA countries achieved growth rates above 4%, and many came close or surpassed the 10% mark[1]. Growth was particularly strong in agriculture where production grew by 8% on average in 2001, and in the associated food-processing sector with growth rates of 8% in the Russian Federation and 15% in Ukraine. Despite the sustained growth in recent years, EECCA countries have still not recovered to their pre-crisis GDP levels.

15. The growth was strongly driven by domestic demand, leading to soaring enterprise profits. Despite increases of investment by 10% – down from 18% in 2000 – the overall level of investment and its contribution to GDP growth in EECCA remains modest[2].

[1] Armenia, Azerbaijan, Kazakhstan, Tajikistan, Turkmenistan. EBRD Transition Report Update 2002

[2] ibid.

3.2 Despite this positive general economic context, the investment climate in EECCA remains depressed

16. One of the explanations of this insufficient ability of growth to generate investment is the unfavourable investment climate in EECCA. In an assessment of country risks by World Markets, a market intelligence and analysis firm, country risks in EECCA were systematically rated "significant" or "high", which puts some of these countries at the same level as Eritrea or Mozambique. Strikingly, the Russian Federation has one of the weakest scores, with country risk rated "high" (Table 1).

Table 1: Country risk rating

Country	Current overall risk		Political risk	Economic risk	Legal risk	Tax risk
Luxembourg	1.15	insignificant	1.0	1.0	1.0	1.5
Slovenia	1.90	low	1.5	2.5	2.5	2.0
Hungary	2.06	moderate	2.0	2.0	2.0	2.0
Poland	2.06	moderate	2.0	2.0	2.0	2.0
Czech Republic	2.14	moderate	2.0	2.5	2.0	2.0
Slovakia	2.25	moderate	2.0	2.5	2.5	2.5
Estonia	2.38	moderate	2.5	2.5	2.5	2.0
Latvia	2.50	medium	2.5	2.5	2.5	2.5
Kazakhstan	3.01	significant	3.0	3.0	3.0	3.0
The Kyrgyz Republic	3.18	significant	3.0	3.5	3.0	3.0
Ukraine	3.26	significant	3.5	3.5	3.0	3.0
Moldova	3.27	significant	3.5	3.5	3.0	3.0
Armenia	3.31	significant	3.5	3.5	3.0	3.0
Azerbaijan	3.37	significant	3.5	3.0	3.5	3.0
Georgia	3.41	significant	3.5	3.5	3.0	3.0
Russia	3.55	high	3.5	3.5	3.5	3.5
Uzbekistan	3.69	high	3.5	4.0	4.0	3.0
Turkmenistan	3.75	high	4.0	4.0	4.0	3.5
Belarus	3.82	high	3.5	4.0	4.5	4.0
Tajikistan	3.91	high	4.0	3.5	3.5	3.5

Source: World Markets, August 2001.

17. As a consequence of the unfavourable investment climate, the pace of modernisation of productive capital (including toward cleaner techniques) in EECCA is slow. Figures for 1998 indicate that most industries in the Russian Federation invested substantially less in their fixed assets than the annual rate of depreciation[3]. This means that the productive capital is continuously eroded, leading to excessive production costs, pollution and risks for the safety and health of workers. While this might have been attenuated somewhat in the recent upturn, the rate of depreciation is probably high compared to western standards.

[3] Statistical Yearbook 1999, Table 11.41 p. 266. State Committee of the Russian Federation.

3.3 Enterprise reform, despite recent progress, still lags behind other regions, hampering the introduction of EME

18. Operating with soft budget constraints and political connections and free from competition and enforced transparency and accountability, enterprise management faces little pressure to control costs and improve operational efficiency.

19. Despite the large-scale privatisation in most EECCA countries (the vast majority of enterprises now privately owned[4]), enterprise reform has progressed only slowly. Predominant insider (employee) corporate control has been a chronic and critical problem throughout the transition. Many EECCA enterprises inherited Soviet managers who lacked the skills and initiative for restructuring or market competition. The privatisation processes in many EECCA countries tended to reinforce insider control by transferring ownership to employees. In the Russian Federation, the majority of equity belonged to employees in 1998. Although the situation improved in 2000 with less than 35% of stock belonging to outsiders, the figure remains high.

20. In addition to the quality of management, financial constraints are another important determinant of the efficiency of enterprises. Practices such as weak enforcement of bankruptcy legislation, barter and an overhang of arrears, which still play an important role in many EECCA countries, reduce firms' incentives to restructure and limit access to finance for necessary investments. No EECCA country achieved a score of more than 2 on the scale of the EBRD transition indicator (2000) on "enterprise reform"[5]. This put EECCA in a category where "enterprises operate under moderately tight credit and subsidy policy, but with a weak enforcement of bankruptcy legislation and little action to strengthen competition and corporate governance". The Russian Federation stands out with a score of "2-". Hence, a common strategy among EECCA businesses has involved incurring official losses, accumulating arrears, and simultaneously diverting cash profits underground.

21. According to the EBRD[6], important measures have been undertaken recently that should improve enterprise performance in the medium term. Especially in Russia, a number of legislative changes have been introduced in the last few months[7]. Modest reforms have also taken place in Uzbekistan, with a pilot project for the privatisation of co-operative farms, and in Azerbaijan, with the adoption of anti-corruption legislation in December 2001[8].

22. Although recent trends indicate improvement, concerns remain[9]. In the Russian Federation, for instance, barter still represents about 20% of industrial sales, and arrears on payables and receivables represent about 15% of industrial output. Although the situation has much improved from the highs in the aftermath of the monetary crisis in 1999 (more than 50% barter and an average of 30% in arrears), these values remain significant[10]. Some countries have achieved a radical reduction in the use of money surrogates (such as barter and payment obligation certificates), however. For instance, this practice has

[4] In the year 2000, 74% of enterprises in EECCA were privately owned (source: Statistical Yearbook Russian Federation 2000)

[5] EBRD Transition Report, 2000

[6] EBRD Transition Report Update, 2002

[7] An amended company law is now in force, a new corporate governance code has been endorsed by the government, and a new bankruptcy law is under discussion.

[8] EBRD, 2002, op. cit.

[9] OECD Economic Surveys Russian Federation, 2002

[10] ibid.

been prohibited by law in Georgia since January 1st 1999 by a presidential decree. Besides the fact that money surrogates often help to hide the real economic situation of enterprises, they are an important obstacle to EME, severely limiting enterprises' cash flow, and thereby their capacity to invest.

3.4 FDI in EECCA is low, limiting its potentially positive environmental effects

23. The unsatisfactory investment climate in EECCA has contributed to the failure to attract significant amounts of foreign direct investment, especially compared to countries in Central Europe. Hence FDI is playing less of a role in restructuring the old EECCA state enterprises than in the Central European region. EECCA countries have been thus unable to benefit from the positive environmental effects FDI can potentially generate through transfer of modern technology and know-how (Box 1).

Box 1: Foreign Direct Investment in Copper Manufacturing

Kazakhstan's major copper manufacturer is Kazakhmys, located in Zhezkazgan in central Kazakhstan. Samsung has a 40% stake. Kazakhmys is the umbrella company for the country's copper enterprises, the Karaganda open-cast coal mines, three power stations and six refining plants. In 1999, the company produced 362,000 tonnes of refined copper, 96,000 tonnes of zinc concentrate, 410 tonnes of silver and 2.3 tonnes of gold. According to the Kazakhstan stock exchange (KASE), Kazakhmys controls 12 underground and open-cast mines in total.

Since its involvement in Kazakhmys, Samsung "has made large investments in the industry, including equipping the Zhezkazgan mine with state-of-the-art technology at a cost of over US$120 million to turn it from a start-up mine into a producer", according to the EBRD's 2001 Kazakhstan Investment Profile.

In comparison, KASE reports total industrial investment in Kazakhmys during the last five years at US$300 million. As part of this, Kazakhmys launched an environmental management programme costing US$15 million. The programme includes the installation of dust filters in all of the company's production plants and a water recycling and re-use system that saves over 20 million cubic metres of water.

Source: Henzler, 2002.[11]

24. Notable exceptions are Kazakhstan (Box 1) and Azerbaijan with 790 and 620 USD of cumulated FDI per capita since 1996 (Table 2). These countries have benefited from strong investment in the development of their oil and gas reserves. More generally, agriculture, mining and extractive industries have been more successful in attracting foreign investment than other sectors[12]. The enterprise restructuring effect of FDI, especially in the extractive sectors, is lessened somewhat, however, by the fact that most of the foreign investments are repatriated EECCA funds, which tend to exert less pressure on improvements in the management of companies than foreign investors.

[11] Henzler Mikael, Environmental Impacts of Foreign Direct Investment in the Mining Sector: The Russian Federation and Kazakhstan, in OECD, 2002, Foreign Direct Investment and the Environment – Lessons from the Mining Sector, Paris

[12] EBRD, 2002, op. cit.

Table 2: FDI in the CEE and in EECCA for the period 1996-2002

Country	Cumulated FDI (in millions of USD)	Cumulated FDI/cap (in USD)
Czech Republic	28 673	2 783.79
Slovak Republic	8 376	1 551.11
Croatia	6 486	1 441.33
Hungary	12 108	1 210.8
Latvia	2 370	1 030.43
Poland	38 769	1 001.78
Lithuania	3 249	878.11
Kazakhstan	11 689	789.8
Slovenia	1 501	750.50
Azerbaijan	5 052	623.70
Bulgaria	4 515	557.41
Albania	831	244.41
Armenia	689	229.67
FR Yugoslavia	1 410	163.95
Georgia	873	161.67
Belarus	1 419	141.90
Turkmenistan	778	141.45
Moldova	476	110.70
Ukraine	4 396	89.53
Kyrgyz Republic	412.30	85.9
Russia	11 833	81.72
Bosnia and Herzegovina	670	62.04
Tajikistan	139	21.38
Uzbekistan	737	29.02

Source: EBRD Transition Report Update 2002.

3.5 The lack of reforms in the utility sectors contributes to continued heavy subsidisation of key resources

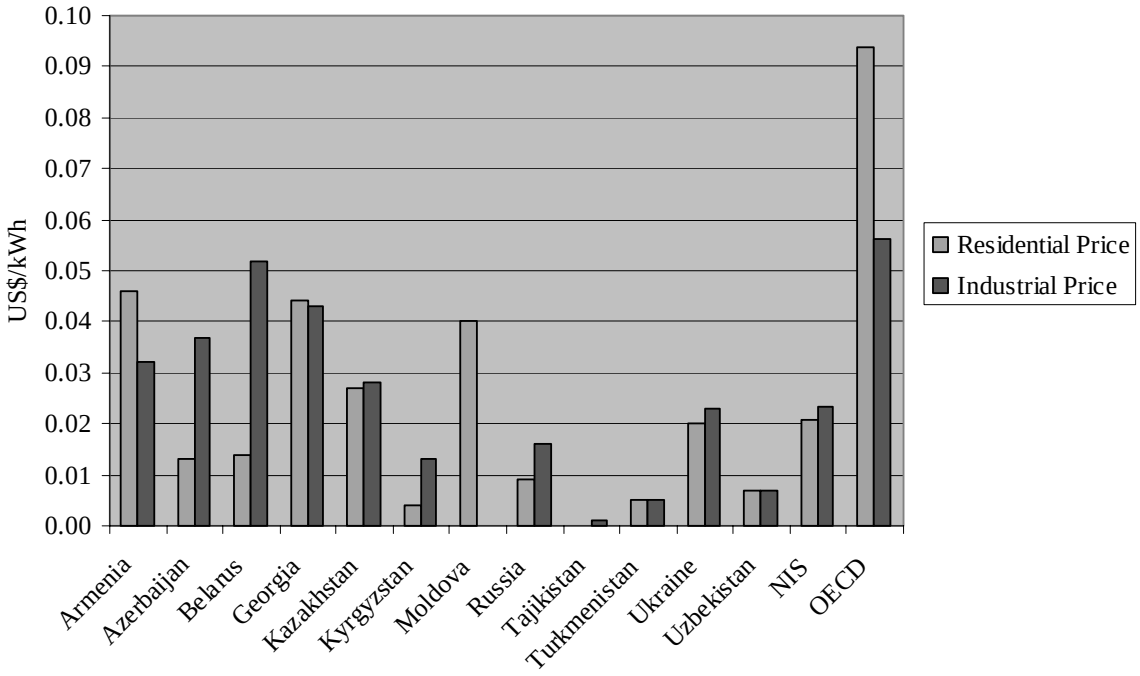
25. EECCA countries inherited from the Soviet Union a system of state owned monopolies for the provision of key utility services such as gas, electricity and water, with tariffs hugely subsidised from the central state budget. Industrial enterprises and consumers thus had no incentives to save energy and water, which contributed to the Soviet economy being by far the most resource intensive in the world. In many EECCA countries, highly subsidised utility services persist, with governments unable or unwilling to undertake unpopular reforms.

26. On average, EECCA electricity tariffs are about 25% of the OECD average levels for residential consumers and 35% of the average for industrial consumers. The discrepancy between gas prices in the Russian Federation and OECD countries is even wider, with tariffs in OECD countries at more than ten times the levels for industrial consumers[13]. Similar discrepancies between the OECD and EECCA average prices exist in the water sector. This situation is exacerbated by the frequent absence of consumption meters in apartments and industrial facilities. Most frequently consumers are charged a flat rate based upon a calculated average level of consumption.

[13] IEA 2001, Key World Energy Statistics, International Energy Agency, Paris and OECD 2001, Reforming Russian Infrastructure for Competition and Efficiency, Paris

27. Hence, utilities are forced to sell energy and water below cost recovery levels, which, in the absence of state subsidies, deprives them of urgently needed investment and contributes to continued deterioration in services to final consumers. Business companies in EECCA have to cope with frequent interruptions in service provision and deteriorating quality of water and electricity. This directly hampers economic development, reduces competitiveness and dissuades foreign investors.

Figure 1: Electricity tariffs in EECCA and OECD for the year 2000

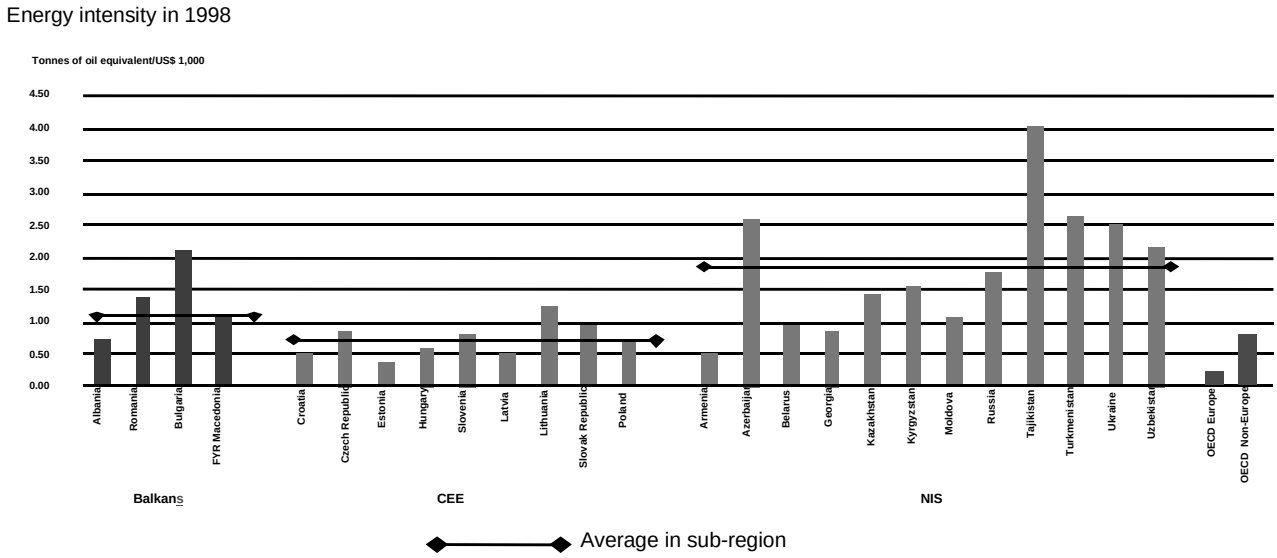


Note: Prices are country-wide averages.
Industrial tariffs for Moldova and residential tariffs for Tajikistan are not known.
Source: EBRD Transition Report 2001 and IEA 2001, Key World Energy Statistics, own visualisation.

28. Because of these massive subsidies in utility services, many EECCA economies remain comparatively resource intensive, with companies investing little in resource conservation. It has been shown empirically that high energy prices tend to reduce the energy intensity of the economy[14]. Figure 2 shows that the energy intensity of EECCA economies is roughly eight times as high as in the European OECD countries, and still more than twice as high as in Central Europe, where reforms are more advanced than in EECCA.

[14] EBRD, 2001, Transition Report 2001 – Energy in Transition, European Bank for Reconstruction and Development, London.

Figure 2: Energy intensity in EECCA, CEE and OECD in 1998



Sources: EBRD, IEA, OECD and World Bank.

29. The potential to improve the environment through the introduction of more resource efficient techniques in EECCA is, therefore, enormous. Whether this can be exploited depends on the success of reforms in the utility sectors, which have been slow, despite recent signs of progress. For instance, most EECCA countries have adopted policy statements to achieve cost recovery for water in the mid-term future (2003-2005), and subsequently increased utility tariffs. This was the case in Moldova, the Kyrgyz Republic and Tajikistan, which have all significantly increased power sector, and sometimes water prices[15]. In the Russian Federation, the trend has been the opposite since the sizeable inflation that occurred between 1995 and 2000 was not factored into utility tariffs. The real gas and electricity prices today are, therefore, back at 1992 levels[16].

3.6 Pressure from consumer markets is weak or non-existent

30. The pressure from domestic markets on enterprises to improve their environmental performance remains weak, largely due to the weakness of civil societies (i.e. low capacity to participate in policy-making in many EECCA countries). Although environmental NGOs exist in virtually all EECCA countries, their numbers, membership and resources are limited. As a consequence, NGO activities are mostly driven by the availability of donor financing which appears to involve a focus on educational programmes rather than full blown political and media campaigns[17]. Often NGOs lack sufficient capacity or resources to influence decision-making. Compliance monitoring is generally carried out through simple visual observation with little follow-up to improve compliance. An indication of the relative weakness of domestic pressures is also documented in the very low numbers of ISO 14000 certifications in EECCA (Table 4). Similarly, consumers often lack information or willingness-to-pay for "green" products.

[15] EBRD, Transition Report Update 2001 and 2002.

[16] OECD, 2002, op. cit.

[17] These impressions have been gathered from recent UNECE Environmental Performance Reviews for Ukraine (1999), Uzbekistan (2001), Armenia (2000), Kyrgyzstan (2000) and Kazakhstan (2000).

31. In some regions export markets can compensate for the lack of domestic pressure, but that is not the case in EECCA[18]. In this region exports are concentrated on commodities from extractive industries. For instance, 90% of exports from Azerbaijan in 2001 were oil and oil products, 67% of exports from Kazakhstan were in oil, gas, and a number of refined or unrefined ferrous and non-ferrous metals (2001); 54% of Ukraine's exports were energy and wood products, ferrous and non-ferrous metals (2000); and 50% of Armenia's exports were in precious stones, metals and agricultural products[19]. Consumer markets traditionally exert little pressure on producers of commodities to improve environmental performance. This is because commodities are not directly used by final consumers (who are the main drivers for environmental market pressure)[20]. Commodity goods such as copper, wood or steel are bought by industrial companies who transform them into final consumer goods, such as cars or electrical appliances, in which each of the commodity inputs represents only a small part of a complex product. While consumers recognise the final products and may have preferences about their environmental performance (for a car this may be fuel efficiency or recyclability), they generally do not have such preferences concerning the commodity inputs of which they are composed.

[18] In some sectors such as steel, where enterprises benefit from enormous direct and indirect state subsidies, and production is highly polluting, demand from export markets has sometimes exacerbated the environmental situation in EECCA by generating extra production.

[19] IMF, 2002, Country Reports, Azerbaijan Republic: Selected Issues and Statistical Appendix; IMF, 2002, Country Reports, Republic of Kazakhstan: Selected Issues and Statistical Appendix; IMF, 2001, Country Reports, Ukraine: Statistical Appendix; IMF, 2001, Country Reports, Republic of Armenia: Recent Economic Developments and Selected Issues.

[20] Neil Gunningham, Voluntary Approaches to Environmental Protection: Lessons from the Mining and Forestry Sectors, in OECD, 2002, Proceedings from a conference on FDI and environment – lessons learned from mining, Paris

4. ENVIRONMENTAL POLICY FRAMEWORK

32. Major signals for the incentive structure under which companies are making decisions to optimise production processes are also provided through the environmental policy framework. Several factors influence enterprise response to environmental regulation:

33. The economic and technical feasibility of environmental requirements. When the implementation of environmental requirements imposes an excessive cost (e.g., it threatens the profitability or competitiveness of the enterprise) or it can not be achieved technically, companies are strongly deterred from complying with environmental regulation and from introducing environmental management measures.

- Coherence of the requirements. When environmental requirements are unclear, contradictory or change frequently, companies are often reluctant to adopt compliance measures, due to the perceived uncertainty and risk that these measures may quickly become inadequate.
- Incentives, both positive and negative. The level of environmental charges/taxes/fines and the probability of their collection are key determinants of enterprise behaviour with respect to environmental requirements. Whether enterprises comply with environmental regulation and give the environment a priority in their decision-making depends upon the relative costs of compliance versus non-compliance. When the probability of being caught out of compliance is small, and/or fines for non-compliance are low, it pays to violate the law. When this is the case, it discourages the adoption of effective environmental management. Similarly, positive incentives encourage EME, as they may lead to reduction of costs and increased profits.
- Compliance information that is available to firms. Information on environmental requirements and the means available to achieve them is often lacking, or difficult to access. This is particularly true for small and medium-sized enterprises, where capacity to deal with environmental regulation is normally weak. Making such information easily available encourages companies to develop effective environmental management.

34. This section highlights the key weaknesses of actual environmental policy frameworks in EECCA with respect to their incentive effect on companies to carry out environmental management measures and seeks to identify major trends since the "Environment for Europe" Conference in Aarhus in 1998.

4.1 Contradictory secondary environmental regulation paralyses enterprise decision-making

35. When regulatory requirements are unclear, or even contradictory, they may generate a "wait-and-see" attitude in enterprises and paralyse decision-making. This is particularly the case when contradicting or differing regulations require different technological or organisational solutions. The often expensive and long-term nature of environmental investments means they will only be undertaken if there is certainty about what the actual requirement is and predictability about its future evolution (so as to avoid environmental investments becoming obsolete after a short time period)[21]. Similarly, the excessive cost

[21] The business community has frequently identified clarity, predictability, and economic realism as its key requirements for environmental regulation.

that may be involved in understanding regulatory requirements and translating them into measures may dissuade compliance.

36. Since their independence, EECCA countries have put considerable effort into reforming and enacting new environmental laws and regulations in the main sectors of environmental protection. The most noticeable achievements include the framework laws on environment, media-specific and some other relevant laws that were developed or updated in most countries of the region. These laws establish the overall principles and framework for environmental protection activities.

37. However, the regulatory reform is far from complete. The ambitious (and often overwhelming for EECCA executive institutions) lawmaking process has been largely unsystematic and resulted in many gaps and contradictions between new laws, decrees, and regulations. Many Soviet regulatory documents are still in force. As a consequence, it is not always clear which regulations apply in a specific case. Many important sections of the legal framework still need to be redefined and brought into accordance with national legislation in other fields of activities.

38. The main legal acts rarely define procedures for their implementation, and have no direct effect. The regulatory system in EECCA countries relies extensively on a large body of subordinate ("secondary") legislation—decrees, resolutions, regulations, administrative orders, decisions, etc. For example, the implementation of the Water Law of Georgia required the promulgation of 37 regulations (the vast majority of which are not in place)[22]. The development of such implementing regulations has been slower and even more inconsistent than the adoption of framework acts. Numerous instructions, resolutions and directives issued by ministries and committees in addition to decisions of local governments specify framework law provisions and are meant to guide regional and local environmental managers. This bulky and bureaucratic system has left legal voids, overlaps and unclear division of responsibilities between national and sub-national levels of environmental authorities, as in other sectoral agencies.

39. The failure of the regulated community to understand requirements due to incomprehensible legalistic language and the complexity of the regulatory system has undermined its effectiveness. In many cases, implementing regulations are inadequately published and disseminated, leading to unawareness of requirements among enterprises.

4.2 Overly stringent standards discourage compliance

40. Comprehensive and ambitious, the system of environmental quality (ambient) standards in EECCA countries covers hundreds of pollutants, and mandates very low concentrations of contaminants. EECCA countries apply risk assessment as a standard setting methodology, contrary to the risk management approach used in OECD countries. Ambient standards are determined exclusively on the basis of zero human exposure. In determining the standard, consideration is not given to the technical or economic feasibility of meeting the quality standard, i.e., risk management factors. Since any risk level is considered unacceptable, the maximum number of pollutants is regulated for the maximum number of people, without setting any priorities[23]. Devoid of any inputs from the regulated community and public, standard setting has remained a routine scientific exercise rather than a policy process.

41. The result is a set of environmental standards, many of which are technically or economically unachievable. There are examples of effluent limits more stringent for some parameters than standards for

[22] *Environmental Regulatory Reform in the NIS: The Case of the Water Sector*, EAP Task Force Secretariat, CCNM/ENV/EAP(2000)86, OECD, Paris, 2000.

[23] At the same time, some key hazardous contaminants such as carcinogens have remained unregulated in EECCA.

drinking water, and many significantly exceed EU norms. As a result, "temporary" (higher level) discharge limits are used in practice (even though they are prohibited by law in some countries, as in Ukraine). These limits are negotiable between the enterprise and regional environmental authorities on a case-by-case basis as part of the permitting process. Environmental agencies have wide discretionary powers and few guidelines for negotiating the temporary limits, which creates space for corruption. The system of temporary limits has not served its purpose of providing a step-by-step approach to the attainment of environmental quality standards. In many cases, the temporary (but routinely renewed) limits have been set at values close to actual pollution levels, yielding no incentive to enterprises for pollution reduction.

42. The unfeasibility (technical or economical) of requirements creates an adverse regulatory climate, as enterprises are almost always in breach of the law. The complexity of regulations along with unfeasible standards foster a general disbelief in the fairness of regulatory requirements and hamper the willingness and ability of enterprises to comply. The current application of "temporary" discharge limits reinforces the view that not only it is impossible to comply with requirements, but that there is also no need to do so. Consequently, belief in the regulatory system has been greatly undermined and a regulatory culture of non-compliance has been perpetuated in both enterprises and environmental enforcement agencies.

4.3 The incentive function of economic instruments is limited, due to the modest levels at which they are set and widespread non-payment

43. In most EECCA countries environmental policy uses emission charges and fines to control pollution. When judiciously applied, these payments can significantly influence the environmental behaviour of enterprises, because they increase the cost of pollution and reward efforts to reduce emissions. However, the existing economic instruments in EECCA countries are frequently ineffective and do not correspond to the polluter pays principle, as the actual level of charges and fines is extremely low and payment is sporadic at best.

44. In the Russian Federation, for instance, all polluting sources are subject to a base fee proportional to their emissions or discharges. Multipliers or "ecological coefficients" raise the per-unit charges under specific conditions, designated as environmental emergencies or disaster zones. When emissions exceed Maximum Permissible Emissions (MPEs) but are below Temporarily Permitted Emissions (TPEs), the base charge is multiplied by five; when they exceed TPEs, the multiplier is 25.

45. Despite the sophistication of the pollution charge system, its incentive impact on polluters' behaviour has been close to zero across EECCA countries. With few exceptions, the level of pollution charges in EECCA countries is so low (partly because the rates have been eroded by high inflation) that the charges provide no incentive for reducing pollution (it is cheaper for enterprises to pay the charge than to invest in pollution prevention and control). The system covers a very large number of pollutants (for example, 214 air pollutants and 197 water pollutants in Russia), making it difficult to administer. Monitoring of actual discharges takes place only for very few substances, and in many of the countries discharges are only estimated (as a function of the employed technology, input of materials, level of production, or similar parameters). This, too, lowers the incentive impact of pollution charges, because polluters get no financial reward for environmental management improvements.

46. Despite great differences in collection rates among countries (from negligible to around 80%), revenue collection is a problem throughout EECCA. The rates have recently increased in countries where responsibility for collection has been transferred from environmental to tax authorities (e.g., in Russia), but

still are far below 100%[24]. Several factors contribute to low collection rates: poor financial condition of enterprises (particularly heavy industries); lack of strong sanctions against non-payment; limited enforcement capabilities; and excessive administrative discretion (and resulting abuses) on waivers and offsets of charge payments for environmental investments by enterprises. Waivers and offsets in practice were often granted to those enterprises, which did not pay the charges anyway, eliminating the incentive intended by the pollution charge program.

4.4 Poor compliance monitoring and enforcement of environmental standards contributes to frequent non-compliance

47. Compliance monitoring and enforcement are key determinants of enterprise strategies to cope with the environmental policy framework as they directly impact the costs of compliance/non-compliance (in other words, the cost of effective/ineffective resource usage) that enterprises use in their decision-making. While the monitoring system determines the probability of a regulatory offence being identified, the enforcement tools determine the probability that an offence will be sanctioned and the level of sanction. Both compliance monitoring and enforcement systems are weak in EECCA, which lowers non-compliance costs and discourages EME.

48. Inefficiency and lack of resources plague the existing compliance monitoring systems in EECCA. While the countries of Eastern Europe had relatively extensive monitoring systems as a legacy of the Soviet Union, countries in Central Asia and the Caucasus had weaker systems to begin with, which budget cutbacks pushed close to collapse. Monitoring functions for different pollutants are dispersed between different agencies. Often, different institutions have to gather the same data, because they are not exchangeable, as their databanks are incompatible. The problems are aggravated by the low quality of laboratories and monitoring equipment. Some of them are in a critical state. Many laboratories lack basic equipment and reagents, as financing and technical support to monitoring systems of all EECCA countries have declined dramatically during transition.

49. Moreover, only a small fraction of the number of polluting substances regulated is actually monitored. There is no continuous monitoring even for the contaminants that can be measured, and the main responsibility for monitoring and subsequent reporting lies with enterprises. Discharges are calculated on the basis of the technological specifications of the facility (which in many cases do not reflect the operational realities of installations), and reported values are checked sporadically by regulators. In practice, even such limited self-monitoring and reporting is done only at larger industrial facilities.

50. Sanctions (mostly fines) are more frequently used in cases of small offences than for major violations, particularly if powerful economic or social interests are involved. One reason for this is that environmental laws often do not explicitly refer to other acts (Administrative Codes, the Criminal Code, etc.) for relevant sanctions against violators, leaving too much discretion in the hands of local enforcement agencies. Fines, even when applied, are too low to deter non-compliance. Since environmental inspectorates usually have a weak standing vis-à-vis local governments and industry, this undermines the basic principle of equality before the law, leads to corruption, and perpetuates the already existing general disrespect for the law.

51. The lack of support from the court system also undermines the authority and influence of environmental enforcement institutions in EECCA. Judges are inexperienced in environmental issues (in Russia, at some point, there were specially designated judges for environmental cases, but this practice was abolished several years ago) and often impose unacceptable burdens of proof on environmental inspectors. As

[24] In Georgia the collection rate has progressively fallen during recent years and is now at little more than 5%.

a result, environmental authorities often lose cases and are reluctant to go to court at all. A further hindrance is the lack of specific procedures in courts to deal with environmental offences. The length of time for cases to be heard can be significant. Overall, these problems reflect the generally inadequate state of judicial systems in EECCA.

4.5 Lack of compliance promotion and other support for companies

52. Despite this situation, there are few compliance promotion activities in EECCA, which are undertaken with varying frequency and effectiveness. NGOs and cleaner production centres usually conduct them outside environmental inspectorates, in the form of general information provision. Examples of provision of compliance information are the exception rather than the rule. In a survey, only the Baku City Committee on the Environment, Azerbaijan, the Ministries in the Kyrgyz Republic and Moldova and local and central agencies of State Environmental Inspectorates in the Ukraine reported publication and dissemination of such information through mass media. Enforcement authorities have not been active in encouraging pollution prevention and environmental management in enterprises, with only isolated cases of in-country activities in this area, mainly with donor assistance. Further, absence of publicly available, environmental information through pollution release and transfer registers (PRTRs) and other means helps to avoid informal pressure from local communities and environmental NGOs. Indeed, industrialists are often unaware of preventive strategies and feel they have nothing to gain from them.

5. INFORMATION, EDUCATION, TRAINING AND CAPACITY BUILDING

53. Provision of information, education, training and capacity building on environmental management in enterprises are key for promotion of EME. Often win-win opportunities (where environmental and economic benefits can be realised simultaneously) go unnoticed by companies, which lack information or expertise to identify these opportunities and their potential benefits. OECD governments have long recognised this and developed tools to help overcome this obstacle to EME. Many OECD countries have developed telephone hotlines, web-sites and technical brochures to advise companies on regulatory requirements and on best available technologies to comply with them.

54. Higher education that incorporates environmental management aspects into industrial training programmes lays the foundation for spreading knowledge and skills to a wider group of future professionals and decision-makers. Additionally, introduction of EME courses into a variety of faculties and specialities can spread the idea of preventive approaches to groups that would not otherwise attend environmental training programmes. While the result from such efforts will only show over the long term, they constitute an indispensable element of strategies to promote EME.

55. A recent EAP Task Force survey of information, education and training programmes in EECCA[25] reveals that such programmes are still undeveloped, and that little progress has been achieved since the Aarhus Conference in 1998. While efforts to build capacity in industry and universities have been sustained in EECCA countries of the Baltic rim (mainly Russia's north-west, Belarus and some parts of Ukraine) due to significant support from Nordic donors, very little has been achieved in other parts of EECCA.

56. The most prominent programmes in the Baltic region in terms of number of trained professionals and students are the Russian-Norwegian Cleaner Production Programme and the Baltic University Programme. The former is described in more detail in the next section. The Baltic University is an initiative based at Uppsala University in Sweden. The Baltic University aims to join all the universities in the Baltic Sea basin[26] in organising courses and educational activities broadly related to environmental issues. Today, more than 100 universities are, or have been, active in organising courses developed by the Baltic University. Originally, all courses were developed and held in English, using satellite sent lectures as an important teaching tool; today course materials are also translated into Russian. The Baltic University has in the past included elements of Cleaner Production in one course, but is now developing more comprehensive courses addressing various aspects of Cleaner Production and Environmental Management Systems. More than 1,000 students from 24 different institutes took the course in 2001 in Belarus, about 200 in Ukraine and approximately 100 in the Russian Federation. The programme has been substantially funded by, in particular, the Swedish International Development Agency (SIDA).

[25] EAP Task Force, 2002, Training and Capacity Building efforts for environmental management in enterprises in Universities, Business and other institutions in the New Independent States, Paris

[26] For EECCA, this means several regions of Northwest Russia, the major part of Belarus and some regions in Northwest Ukraine, including Lviv.

57. Besides the Baltic University programme, several EECCA universities have developed their own environmental management courses[27]. Also, several institutions and NGOs have developed programmes providing training to professionals. For instance, the Belarusian "Industry Personnel" (Kadry Industrii) Educational Centre for Representatives of Enterprises provides a three-stage course on environmental management. Similarly, the Russian NGO ECOLINE provides professional training courses.

58. Important educational opportunities are also provided through programmes that provide training opportunities for students and university teachers abroad. While it is difficult to estimate the real extent of this type of activity, its impact is probably significant. Such Master programmes exist (and accept students from EECCA) in Sweden, the Netherlands, and at the Central European University in Budapest.

59. While some educational EME activities are carried out through universities and institutions for professional training, an almost complete absence of business networks from these activities needs to be noted. Similarly, the survey did not identify any forums for dialogue between enterprises on environmental management. This situation reflects the unfavourable framework conditions for the implementation of EME, resulting in low demand of government and business decision-makers for educational EME measures.

[27] E.g., Moscow State University, International University of Moscow, Kaliningrad State Technical University, Kaliningrad State University, National Ukrainian Technical University, Belarusian National Technical University, The International Sakharov Environmental University.

6. INSTITUTIONAL ARRANGEMENTS AND DONOR SUPPORT

6.1 Cleaner production centres

60. Institutions like cleaner production centres and business networks for environmental management can play a key operational role in supporting environmental management in enterprises. In particular cleaner production (CP) centres can provide a mechanism for involving stakeholders and for organising some of the information, education and training functions described above. CP centres may also play a role in the identification and preparation of small CP investment projects.

61. The 2002 EAP Task Force survey[28] indicates important progress since the previous cleaner production (CP) surveys, carried out in 1997 and 2000, in achieving the basic capacity level for cleaner production (Box 2) in EECCA. While only the Russian Federation was able to achieve the basic capacity level for CP in 1997, a majority of EECCA countries have undertaken important steps in that direction since. According to the survey, there are now 20 cleaner production centres in EECCA, up from 14 in the 2000 survey. They employ an average of seven to eight staff and operate with an annual average budget of about 100,000 USD (even though differences are large with figures within a range of 10,000-500,000 USD). According to the figures reported, several thousand professionals have been trained and about 1,000 companies have received CP services (Table 3).

Box 2. Basic Capacity Level for CP (BCL)

Basic Capacity Level is the level thought to be needed for further dissemination of the CP concept and principles throughout industry and society by the host country. Specifically, it involves creating:

- *An active core of CP advisors and trainers.*
- *A set of CP case studies, demonstration projects and model business plans.*
- *A functioning CP Centre or Centres.*
- *Training materials in the local language.*
- *Cleaner production principles included in university course curriculum, such as business administration, engineering and economics.*

62. This has been achieved despite the general disinterest in EME promotion in most EECCA governments, and the absence of co-ordinated and focused CP support from donor agencies (see the donor survey in annex 1). Donor assistance for EME has been scattered across countries in the region and across industrial sectors. The focus has frequently been on the implementation of isolated demonstration projects, with very little means allocated for the dissemination of the achieved results. Hence, many centres were

[28] The survey was carried out in May/June 2002. More than 40 CP experts and officials throughout EECCA were contacted.

established at the grass-roots level by independent experts, who managed to secure small, project-specific donor and business financing to carry out their activities.

63. Kazakhstan on the EECCA side and Norway on donor side are notable exceptions. While Norway has systematically developed its CP activities in the north-western part of the Russian Federation, implementing CP projects in an important share of the most polluting enterprises of the region, Kazakhstan has developed a CP programme using domestic means. In Kazakhstan there are now seven institutions devoted to the promotion of cleaner production and cleaner technologies, most of them established to cover a specific region or sector[29]. The Russian-Norwegian experience shows that in some enterprises (namely the large conglomerates established in the 1940s and 50s) there is an important potential for cost savings through environmental management, despite the currently unfavourable framework conditions under which EECCA companies operate. In such companies, rates of return are not infrequently well above 50%. To help exploit this potential, the Russian-Norwegian CP programme has trained about 150 certified CP advisers yearly, since its inception in 1994. The economic benefit of the programme is estimated to amount to several tens of millions of USD[30]. The recent economic recovery in the Russian Federation has significantly increased the demand for cleaner production services provided through the Russian-Norwegian programme, including from more remote places of the Russian Federation or other EECCA countries, with many companies seeking to improve their capacity to compete on international markets or to attract foreign investment. If EECCA industries continue on their growth path and the economies become more open, significantly more capacity will be needed to respond to the demand for EME services beyond the limited geographic scope of north-western Russia.

[29] CAREC, (2002), Review of Cleaner Production Policies in Kazakhstan, working paper.

[30] Norwegian Ministry of Environment, (2001), The Norwegian-Russian Cleaner Production Programme – Seven Years in the Service of the Northern Environment, Oslo

Table 3: CP Centres in EECCA

CP Centre	Country	Date of Establishment	Legal Status, Host Institution	Budget since 1995 or since creation (US$)	Financing Sources	Number of clients	Staff (full-time)
Apsheron Regional Joint-Stock Water Company "Sukanal" Scientific Research and Design Enterprise, Baku	Azerbaijan	2000	NGO linked to an industry organisation.	50,000 USD since establishment	Grants and agreements with international organisations.	25 people trained, six enterprises in the water supply and sanitation sector received services.	7
Clean Production RTC, Minsk	Belarus	2000	Regional specialised CP centre within the framework of the UNDP-GEF Dnieper Basin Environmental Rehabilitation Programme.	69,000US$ for 2002	Funds of the State Nature Protection Fund and the UNDP-GEF Programme.	30 companies from the metallurgy, food-processing, light industry and oil-processing sector.	21
CP Centre at the Belorussian State University	Belarus	-	BSU is a structural entity within the Ministry of Education of Belarus; it is a state organisation authorised to carry out commercial activities.	-	Government funding and fees for services.	3000 people trained, 50 enterprises covered.	-
Belarussian Environmental Management Association (BEAM), Minsk	Belarus	1999	Non-profit NGO, Belarussian State Polytechnical Academy.	100,000 US$	Grant support; fees for training; implementation of projects.	200 people and 120 enterprises in a broad range of sectors.	14
The Greens Movement of Georgia/Friends of the Earth, Tbilisi	Georgia	1993	Specialised group within the NGO.	220,000 US$	Donors' funds	More than 200 enterprises with an emphasis on woodworking, extractive and processing industries, producers of foodstuff, major polluters.	10
Cleaner Production Laboratory, Almaty	Kazakhstan	1998	Part of the National Centre of Complex Processing of Mineral Resources of the Republic of Kazakhstan which is a structural unit of the Ministry of Power Engineering and Mineral Resources.	252,200 US$	Funds allocated by the state, fees paid by enterprises and donor support.	Three enterprises	15
Scientific Research Centre of Environmental Friendly Technologies for East Kazakhstan, Ust-Kamenogorsk	Kazakhstan	1999	Non-profit organisation, structural unit of the Research Centre for Non-Ferrous Metals.	-	Contracts with mining and metallurgical plants.	One enterprise	Institute staff is carrying out the tasks
Cleaner Production Centre, Pavlodar	Kazakhstan	1998	Private profit making company.	137,000 US$ since creation	Fees for services rendered by the Centre to enterprises and organisations are the only source of funding for the Centre's activities.	About 20 enterprises from 9 industries received services.	8
Georisk Public Research Centre, Bishkek	The Kyrgyz Republic	2000	Non-governmental, non-profit association.	-	Voluntary sponsor contributions, fees for research, monitoring and consulting services	64 enterprises received services (2 sugar refineries, 8 mining and 4 fuel companies, 50 heating plants). 10 graduate students were trained to date.	3
Cleaner Production and Energy Efficiency Centre	Moldova	1999	NGO	34,500 US$ since creation	- Norwegian Government. - Moldovan Environmental Fund.	100 enterprises from 12 different sectors, 50 people trained.	6

CP Centre	Country	Date of Establishment	Legal Status, Host Institution	Budget since 1995 or since creation (US$)	Financing Sources	Number of clients	Staff (full-time)
(CPEE Centre, former CPPI), Chisinau					- Fees for services to enterprises.		
Moscow Cleaner Production Centre, Moscow	Russia	1996	Private commercial company	100,000 US$	Fees for services and donors funds.	65 enterprises.	5
Russian-Norwegian CP Centre, Moscow	Russia	1994	Autonomous non-commercial organisation, working in contact with the Ministry of nature resources and the Ministry of Foreign Affairs of Russia.	-	- Government of Norway. -International Projects. - Payment for services by industrial enterprises.	About 500 enterprises of different branches of the region, mainly from northwestern Russia; about 1500 persons have been trained; an investment and credit line is available.	5
KEEC – Kola Energy Efficiency Centre, Kirovsk and Apatity City	Russia	1996	Autonomous Non- Commercial Organisation	100,000 US$ for 2001	Fees for services and membership contributions.	12 enterprises from the mining industry, power industry, district heating; 100 people.	10
MOEEC – Murmansk Oblast Energy Efficiency Centre, Murmansk	Russia	1998	Autonomous Non- Commercial Organisation	-	Fees for services and donors funds.	-	5
KAEEC – Karelia Energy Efficiency Centre, Petrozavodsk City	Russia	1999	Autonomous Non- Commercial Organisation	-	Fees for services and donors funds.	-	5
AOEEC – Arkhangelsk Oblast Energy Efficiency Centre, Arkhangelsk City	Russia	1999	Autonomous Non- Commercial Organisation	-	Fees for services and donors funds.	-	4
Ecoline RPO, Moscow	Russia	1996	Regional Public Organisation	880,000 US$ for the last five years	- Grant funds. - Contracts with international agencies for the organisation of training programmes. - Fees for services rendered to enterprises and organisations.	600 people trained, 30 enterprises received direct assistance, over 100 obtained consultative support.	7
National Centre of Cleaner Production for the Oil and Gas Industry	Russia	1999	Specialised non-profit organisation, linked to the Gubkin State University for Oil and Gas.	300,000 US$ since creation	Donor funds and fees from selling services.	About 100 experts and about 25 enterprises from the oil and gas industry.	4
Cleaner Technology Centre, Kiev	Ukraine	2001	Private Company	538,000 US$ since creation	Selling services including support services for international grant projects.	45 people trained, 50 enterprises from the machine building, food, power generation and agriculture have received services.	6
Uzbek Centre of Cleaner Production, Tashkent	Uzbekistan	2001	Independent, non-profit NGO in partnership with the State Committee on Nature Protection.	769,530 US$ until 2006 from UNIDO, 6,500 US$ for one year from Uzbek Govt.	Funds provided by donors and the government.	65 people trained, 25 enterprises.	3

6.2 Environmental management systems and other voluntary approaches

64. There is a large array of tools for environmental management in enterprises available, including benchmarking, performance indicators, environmental management accounting, environmental reporting and various certified or non-certified environmental management systems. Data on the extent to which these tools are being utilised in EECCA is generally not available. It is likely that the usage of environmental management tools in EECCA enterprises is still at very low levels, however.

65. One indicator that tends to confirm this assumption, though imperfectly, is the number of companies certified according to the ISO 14000 series standard. So far there are only 16 companies throughout EECCA who have acquired this certificate, most of them (12) located in the Russian Federation (Table 4). Even though these figures are likely to be incomplete (as they rely upon voluntary reporting by companies to the International Standards Organisation), the order of magnitude should be correct. The figure can be compared to those in the Baltic countries, that, despite their much smaller population, have about 50 certified companies, or the top runner in the CEEC, Hungary, where 340 enterprises are certified.

66. There is undeniably some progress in the adoption of modern management methodologies in EECCA, however. Numbers of companies certified according to ISO 9000 (a standard for quality management), which can be considered a potential precursor to the ISO 14000 series, as it necessitates the implementation of a number of similar management procedures, have been multiplied by a factor of more than three in the last couple of years. Throughout EECCA countries, more than 2,000 enterprises now have ISO 9000 series certificates; the Russian Federation alone has more than 1,500. In Central Asia, Kazakhstan is the only country where the standard has been applied, with 41 certificates. This compares to slightly less than 500 in the Baltic countries and more than 6,000 in Hungary.

Table 4. Number of sites certified according to ISO 9000 and 14000 in transition countries

Country	Number of ISO 9000 certificates, December 1999	Number of ISO 9000 certificates, December 2001	Number of ISO 14000 certificates, December 1999	Number of ISO 14000 certificates, December 2001
Armenia	4	3	0	0
Azerbaijan	1	1	0	0
Belarus	14	78	0	2
Georgia	2	260	0	0
Kazakhstan	1	41	0	1
Moldova	14	7	0	0
Russia	541	1517	0	12
Ukraine	82	269	0	1
Estonia	77	202	4	24
Latvia	39	67	0	4
Lithuania	91	202	1	21
Czech Republic	1500	5627	60	174
Hungary	3282	6362	121	340
Poland	1012	2622	72	294
Slovakia	560	827	36	73

Source: International Organisation for Standardisation, 11th Cycle, 2002.

67. Although ISO 9000 constitutes in principle a good basis for the implementation of the ISO 14000 series, it would be overly optimistic to assume that all ISO 9000 companies will soon apply for certification to the environmental management standard. The reasons are that a) ISO 14000 is still much less widespread in the western market economies than is ISO 9000 (only about 7% of ISO 9000

companies have adopted ISO 14000 series), and hence less frequently is a business requirement, and b) the openness of EECCA economies (in terms of the magnitude of EECCA trade with the rest of the world) is still limited and concentrated on commodities (e.g., oil, gas, minerals, agricultural products) where market pressure on environmental quality is weak. Therefore, unless the domestic pressures for the adoption of better environmental management practices increase, the proliferation of ISO 14000 certificates will essentially depend upon the pace of further integration of EECCA economies into world markets and a reduction of the reliance on commodities for its exports. Under present conditions, the adoption of ISO 14000 certificates will be concentrated in a limited number of export-oriented companies.

68. Only few donor programmes have sought to promote certified environmental management systems in EECCA companies, most of them focusing on the north-western part of the Russian Federation. The most ambitious project in terms of numbers has been carried out in the Saint Petersburg region in the Russian Federation with support from Sweden. Since the inception in 1998, more than 90 large Russian companies participated in the scheme, of which 35 are currently initiating the process of gradual adoption of ISO 14000. Similar work is also being carried out in the framework of the Russian-Norwegian Cleaner Production Programme mentioned earlier. A project to promote environmental management systems in enterprises has recently been launched in the Ukraine with support from TACIS.

6.3 Twinning arrangements and other partnerships

69. Supporting the implementation of environmental management in enterprises through the establishment of business partnerships has been practised by some donors. The underlying idea is that partnerships will lead to the transfer of technological and management know-how and that partnerships, once established, will last in the longer term.

70. With a budget of USD 20 million over five years for the CEEC/EECCA region, the USAID Ecolinks programme is probably the largest such initiative. It allows for partnerships between EECCA companies and municipalities, and US or CEEC/EECCA companies and municipalities. Possible funding includes costs for travel and site visits, feasibility studies and investment on a cost sharing basis. To date 45 “challenge” grants (up to 50.000 USD) have been allocated to partnerships in Ukraine, Kazakhstan and Russia’s Far East. “Challenge” grants topics include: Cleaner Production, Environmental Management Systems, Water Quality Management and Global Climate Change. By the end of 2001, according to the data covering both EECCA and CEE, grantees had obtained more than $30 million in additional funds for projects in which EcoLinks was engaged (representing a multiplier factor of 3.9 for every grant dollar awarded.)

71. The experience gained from twinning projects in EECCA suggests that the establishment of partnerships needs to be supported financially by donors (Ecolinks “challenge” grants fund up to 75% of the project cost), unless western partners are unwilling to engage (Box 3). In fact, in the present context, the commercial and investment opportunities alone generate insufficient incentives for western business partners to get involved. The Aarhus Business and Environment Initiative, a public-private partnership to involve western business in the promotion of EME in the CEEC/EECCA, provides an example of this situation. While western business was ready to become involved in the accession countries in Central Europe, it showed little interest in the countries further east. Hence, to generate results twinning projects need to incorporate at least some financial support for western business partners. Whether the goal of achieving lasting partnerships beyond donor-funded project support will be achieved remains to be seen.

Box 3: German Federal Environmental Agency (UBA) project to promote twinning arrangements "Possibilities of Promoting Environment-Oriented Management in the Ukraine by Partnerships Between Enterprises of the Target Region and German Enterprises".

The central target of the project was to initiate and establish environmental partnerships between enterprises in Ukraine and Germany. The expertise of German enterprises on profitable use of environmental management systems was transferred to Ukrainian partner-enterprises in selected sectors (two water/waste water enterprises and one food-processing facility). The first phase of the project included assessments, evaluation of the data and fixing of environmental targets (short-, medium-, long-term) for three Ukrainian enterprises. In the second phase, the management of the Ukrainian partner-enterprises was trained in environmental management and qualified for carrying out respective independent project work. Furthermore, specific projects for implementing selected environmental targets were prepared. While it proved difficult to find partner companies in Germany, mainly due to the unfavourable investment climate in Ukraine, there was tremendous interest among Ukrainian companies. It is expected that the involvement of the State Technical University in Rovno will ensure a wider dissemination of the methodology and lessons learned.

Source: Umweltbundesamt, (2001), Möglichkeiten der Förderung von umweltorientierter Unternehmensführung in der Ukraine durch Partnerschaften von Unternehmen der Zielregion mit deutschen Unternehmen, Berlin.

7. FINANCIAL MECHANISMS TO SUPPORT EME

72. Many CP opportunities in EECCA are either no or low cost projects. They should normally be financed out of the cash flow generated by an enterprise's normal activity. Once these good housekeeping measures have been exhausted, major productivity and environmental gains will come through technology investment. Generally enterprises should use commercial financing to cover environmental investments.

73. However, several reasons severely constrain the financing of enterprise investments in EECCA in general and of CP/EME in particular. *First*, there are obstacles in capital markets: financial institutions in EECCA are weak, they lack environmental expertise and offer unattractive loan terms to enterprises. Additionally, currently complex and costly administrative requirements for extending small loans encourage financial institutions to favour large loans, which makes it difficult to obtain financing for generally small CP/EME projects (Box 4). *Second*, the fact that many enterprises in EECCA do not operate with cash, but use money surrogates such as payment obligation certificates constitutes a further severe limitation to the financing of CP/EME. Even though this has become less of a problem in recent years, it remains a current practice in some EECCA countries. It reduces the possibility of investments made out of the cash flow and limits chances of obtaining commercial financing. *Third*, the overall negative investment climate in EECCA has led to massive capital flight of those resources that would otherwise be available for financing of investments at the domestic level[31] and severely limited inflows of foreign capital (see previous sections).

Box 4: EBRD's pilot project on Financing Cleaner Production

From May to September 1996, the Bank undertook a study to help understand the factors constraining financial institutions (FIs) from financing CP project. A questionnaire survey was sent to FIs and cleaner production centres/ pollution prevention centres. In all, the survey results indicated that demand for CP financing in the countries of study is generally low. Most commonly perceived constraints to the financing of CP initiatives by FIs were:

– difficulty in identifying potential CP projects; and
– the financial evaluation/inadequacy of business planning techniques.

The Bank subsequently initiated a technical co-operation programme to address the issues raised and produce a number of demonstration projects. The programme showed that FI's in the transition countries are still developing and may not yet be subject to competitive pressures that would force them to pay more attention to new products and better customer service. At the company level, there is a need to further develop the ability to appraise new investments and package them in such a way as to convince FIs that there is something worth financing.

As an outcome of the programme, a manual entitled "It Pays to Invest in Cleaner Technology" was published in September 2002.

Source: EAP¨Task Force, (2002), EME's donor overview in EECCA (see Annex).

74. Finally, it seems that there are only a very limited number of financing options for cleaner production available in EECCA. According to a UNEP survey[32], securing investment funds remains a major constraint in making CP widely practised. In fact, no systematic effort has yet been made to persuade development banks and the private financial sector to channel funding towards cleaner production as opposed to "end-of-pipe" solutions. Most financial flows towards cleaner production still originate from a very limited number of special credit lines or revolving funds set up by multilateral or bilateral development finance institutions for selected countries or regions. In EECCA, the most

[31] In Russia, total capital flight since 1991 is estimated at some USD 120-130 bn, compared to accumulated total FDI of some USD 12 bn (OECD, 2000, in Private sector Development, Journal No. 11).

[32] UNEP, 2000, Cleaner Production: Institutions Promoting Investment and Financing, Paris

important of such initiatives originated at the Nordic Environment Finance Corporation (NEFCO) which has set up a revolving facility for financing of priority CP investments, targeted at the Baltic Countries and north-western Russia. So far, one project has been completed in the Russian Federation, and six have been approved, the signature of loan agreements for these is still pending, however (Box 5). Other financial institutions providing loans for CP are either not active in EECCA or at a low level of activity. The EBRD, for instance, has an energy efficiency programme through which it finances a number of energy services companies (ESCOs). However, the only EECCA country to be included in the geographical scope of the project is Ukraine. Similarly, Norway has established an energy efficiency programme for north-western Russia[33].

75. Demand for these programmes is generally at a high level, despite the fact that companies often lack incentives to carry out measures for environmental management. The reason is that CP finance is often cheaper than other sources, which makes it particularly attractive. While specific CP finance mechanisms are useful tools to develop demonstration projects to boost awareness of the potential benefits of environmental management in enterprises, it is unlikely that sufficient amounts of such finance will be available to service the market in EECCA. Hence, to increase the scale of CP financing it is crucial to undertake action that will help to enable the commercial financial sector to service these needs. As EBRD's experience suggests (Box 4), developing this will require time, so that in the meanwhile donor supported finance mechanisms will remain a crucial instrument to develop EME in the EECCA.

Box 5: NEFCO Facility for Cleaner Production

The **Facility For Cleaner Production** is part of the Nordic Environmental Development Fund which was established in 1995 by the Nordic Ministers of Environment for financing environmental projects in the neighbouring region in Eastern Europe. In the first trial period the fund was provided with a total capital of DKK 100 million, in 1999 it was decided to continue the activities until 2003.

The Facility for Cleaner Production is a revolving facility for financing priority cleaner production investments targeted at a specific region in its area of operation, in the first instance the Baltic countries (Estonia, Latvia and Lithuania) and north-western Russia. Its objective is to finance (on favourable terms) implementation of high-priority cleaner production investments with rapid payback (not more than three years) that yield environmental and economical benefits. The basis for providing a loan is the cash flow of the cleaner production investment and the ability of the enterprise to repay the loan over the agreed period. The maximum loan amount is EUR 200,000. The borrower is expected to finance at least 10 per cent of the total investment with their own financial resources. Priority will be given to projects that have environmental effects for the Nordic region, that is projects leading to reduction of pollution in the Baltic Sea and the Barents Sea or reduction of transboundary and global air pollution. The total amount of the facility is as per today Danish crowns (DKK) 50 million, corresponding to approx. EUR 6.7 million.

NEFCO has so far approved 20 loans to Lithuanian enterprises, out of which two have been fully repaid and 14 are completed and repaying the loan according to schedule. In Estonia and Latvia activities were started only recently, two projects have been approved and one is under consideration. In Russia one project is completed, and six more projects have been approved but loan agreements have not yet been signed. Out of all applications received, a few have been rejected, mainly because of unclear environmental effects or the borrower's weak financial situation.

The distribution per industrial sector (number of projects) is as follows: engineering 44%, wood working 22%, textile 17%, infrastructure 11%, other 6%. As comes to the environmental effects and reduced emissions, 24% of the projects have positive effects on climate, 20% on acidification, 20% on eutrofication, 10% on waste, 8% on VOC, 4% on heavy metals and 14% on other.

NEFCO's revolving facility is closely linked to CP centres in the region. Their task is to act as intermediaries between NEFCO and enterprises applying for loans, and to identify and screen projects proposals. CP centres also play an important role in capacity building, as well as in monitoring project implementation.

Source: EAP¨Task Force, (2002), EME's donor overview in EECCA (see Annex).

[33] EAP Task Force, (2002), EME donor overview in EECCA, see annex

ANNEX 1 OVERVIEW OF DONOR ACTIVITIES TO PROMOTE EME IN EECCA

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
UNEP	Ari Huhtala Project Manager, CP Financing UNEP Division of Technology, Industry and Economics (DTIE), Production and Consumption Unit Tour Mirabeau 39-43 quai André Citroën 75739 Paris Cedex 15 France Phone: +33 1 4437 1431 Fax:+33 1 44 37 1474 Email: ari.huhtala@unep.fr http://www.uneptie.org/Cp2/home.html	will include CEE/NIS in the future	– **Financing Cleaner Production:** Funded by Norway. Five demonstration countries, not including EECCA. DTIE is in the process of promoting spin-off and follow-up projects in the CEE/EECCA. – UNEP RET/EE Investment Advisory Facility. With GEF funding, UNEP is running a service that helps financial institutions evaluate renewable energy technology (RET) and energy efficiency (EE) projects in developing countries and transition economies. This is a quick turn-around facility providing in-house or consultant support to analyse such area as financial risk, legal review, project or company valuation, O & M cost review and independent project assessment. – In addition, a GEF-funded UNEP project supporting NCPCs in gaining better capacity in providing services and training in energy efficiency issues is currently being piloted in the Czech Republic, Hungary and Slovakia.
UNIDO	Valentin Ishchenko Programme Manager UNIDO NCPC Programme office, Sectoral Support and Environmental Sustainability Division (SES), Cleaner Production and Environmental Management Branch (PEM) P.O. Box 300 A-1400 Vienna, Austria Phone: +43 1 26026 3858	CEE, Russia, Uzbekistan	– Support in establishing **National Cleaner Production Centres (NCP Centres)**, Objectives: Capacity/Building, Transfer of know how. Today 21centres altogether (of these, ten are fully established and receive no further funding from UNIDO), including three in the CEE. In the EECCA COUNTRIES UNIDO established Centres in Russia (a cross-sectoral Centre in St. Petersburg and a CP+EM Centre for oil and gas in Moscow) and in Uzbekistan (cross-sectoral). These Centres have been established partly with UNIDO contribution, partly as self-financing. CPCs are funded mainly by UNIDO, UNEP, UNDP, Switzerland, Austria, Netherlands, Italy. The average total annual budget provided to each NCPC is approximately US$ 200,000 to US$ 250,000. – Assisting technology transfer. – Training on information management and dissemination.

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
	Fax:+43 1 26026 6819 Email: ncpc@unido.org; vishchenko@unido.org http://www.unido.org/		– Raising awareness through seminars, conferences and workshops; through media campaigns and demonstration projects.
UNECE	Frederic Romig Division for Sustainable Energy UNECE Palais des Nations CH-1211 Geneva 10 Switzerland Phone: +41 22 917 41 40 Fax: +41 22 917 02 27 Email: frederic.romig@unece.org www.unece.org & www.ee-21.net	EECCA, Balkan	The **Energy Efficiency 21 Project**, launched in 2000 as a follow-up to EE 2000, is assisting the ECE member states to implement greenhouse gas mitigation strategies and to develop related energy efficiency investment projects. The project aims at supporting economies in transition to mobilise market forces and private sector lending and investment in energy efficiency. It is financed by a United Nations trust fund, with support of France, Norway, Italy, EU SAVE Programme, US Dept. of Energy, USAID, Alliance to save Energy MUNEE Project. Focus on energy efficiency investment project development, capacity building, involvement of the private sector, government policy and institutional reforms, standards and labels. A EE-21 website was developed to permit multi-lingual information distribution and exchange and online training (www.ee-21.net). The Project Plan (2000-2003) features three sub-projects in selected countries of the CIS, south-eastern Europe and Central Asia. 1. RENEUR- Regional Network for the Efficient Use of Energy Resources (Balkan) 2. Rational and Efficient Use of Energy and Water Resources in Central Asia *Duration:* 3 years (2000 – 2002, prolonged to 2003). *Status*: Activities have reached the halfway mark with project completion anticipated by end of 2003. *Countries:* Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan. *Executing Agency:* UNECE and Social Commission for Asia and the Pacific. *Co-operating Agencies:* UNDP, UN Resident Co-ordinators; the project will be implemented in co-ordination with the relevant activities under the UNFCCC. *National Counterpart Institutions:* Ministries of Energy, Environment and Natural Resources, State Energy Agencies, Municipal authorities. *Co-operation in Associated Agencies:* European Union (TACIS Programme); EBRD; ADB; USAID; IFC; GEF, European Energy Charter. *Government Inputs:* (in kind) US$ 300,000. *Funding from the United Nations GA Development Account:* US$ 1.75 million. *Brief Description:* The project is to foster co-operation on energy and water resources related issues and to enhance rational and effective use of energy and water resources in the economies of Central Asia. It is to ease the energy and water supply constraints of economic transition to meet international environmental treaty

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
			obligations under the UN FCCC and the UN ECE. It will establish a new network of selected municipalities linked by advanced Internet communication of partners for value added information transfers on policy reforms, financing and energy and water management. The project will: (a) find regional solutions to common priority problems in the fields that hinder economic and social development; (b) promote region-wide economic and technical co-operation among the participating states and their integration into the world economy, and (c) strengthen institutional capacity of the States and their public administrations by using available human and technical resources from the region. The project is to assist the participating countries in implementing provisions of the Energy Charter Treaty and Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects, to which all five Central Asian countries are signatories. 3. UNF/UNFIP "Energy Efficiency Investment Project Development for Climate Change Mitigation" *Duration:* 3 years (2000 – 2002, has been prolonged to 2003). *Status*: Most activities have now been successfully launched and the project is halfway through its implementation phase. Project completion is anticipated by end of 2003. *ACC/UNDP Sector:* Energy, energy planning and conservation. *National Implementing Agency:* Municipal authorities, Ministries of Energy, Ministries of Environment, Energy Conservation Agencies . *Executing Agency:* UN ECE. *UN Associated Agencies:* UN ESCAP, UN FCCC. *Government Inputs:* (in kind) US$ 1 million. *UNFIP Co-Financing Inputs*: US$ 750,000 on 1:1 matching fund basis. *Co-financing Partner Inputs:* US$ 750,000, Up to US$ 2 million: US$ 500,000. *Support Costs:* US$ 100,000. *Brief Description:* The project is to accelerate energy efficiency market formation activities for the greater participation of private sector investments, products and services in three key areas: municipal lighting, hospitals and district heating. It will establish a new network of selected municipalities linked by advanced Internet communications with international partners for value added information transfers on policy reforms, financing and energy management. The project will (a) Develop the skills of the private and public sectors at the local level to identify, develop and implement energy efficiency investment projects. (b) Provide assistance to municipal authorities and national administrations to introduce economic, institutional and regulatory reforms needed to support investment projects.

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
			(c) Provide opportunities for the commercial banks and companies to invest in these projects through existing investment funds, or if warranted, through a new fund managed by an international financial services company, assisted by commercial banks in the region. The project is to promote a self-sustaining investment environment for cost-effective energy efficiency projects advancing local city-scale participation in the objectives of UN FCCC and UN ECE environmental accords. In the framework of the project ***Energy Efficiency Demonstration Zones*** are established**.** These are city-scale projects, a town, district, or limited area, in which favourable conditions in are established to stimulate enterprise and initiative in market approaches to energy efficiency. It demonstrates, on a city-wide scale, the combined effect of energy-efficient technology; energy pricing policy; favourable tariff structures; advisory services; information campaigns; metering, monitoring and controls; measurement of changes in emission levels; energy audits; tax incentives, grants and government-guaranteed loan schemes; international technical assistance and trade development programmes. The intention is to copy successful measures nationally once proven on a limited scale. There are currently 20 demonstration zones in the 5 participating countries Belarus, Bulgaria, Kazakhstan, Russia and Ukraine. UNDP is providing policy development and capacity building in the EE demonstration zones. The GEF grants implemented through the UNDP support the EE demonstration zones.
EU	Anna Bramwell Head of the Environmental Programmes Team European Commission DG External Relations: Tacis Rue de la Loi/Wetstraat 200 B - 1049 Bruxelles/Brussels Phone: +32 2 29 56367 Email: Anna.Bramwell@cec.eu.int	EECCA	**Tacis Programme:** - Ukraine Environmental Management Standards for Enterprises - covers ISO 14001 and EMAS: tender evaluation May 2002, 1.5m EUR. The overall objective of the project is to support the reform of the relevant Ukrainian legislative/regulatory framework, to establish training programmes on international standards of environmental management systems (ISO 9000, 14000), to support pilot initiatives and disseminate international environment management standards of enterprises to the Ukrainian business community. - Russia harmonisation of Environmental Standards. Focuses on industry, regulations and compliance and harmonisation (thus included EMAS). 2.0 m, currently being tendered. The overall objective is to support the alignment of Russia's national environmental legislation and regulations with the requirements of the EU environmental acquis in the context of approximation, and to recommend appropriate implementation and enforcement structures and mechanisms to guarantee that the developed legislation is properly put into practice.

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
			- 1.5mEUR Cleaner Production pilot regional programme for selected countries in EECCA (Armenia, Georgia, Moldova, Belarus, Azerbaijan). Terms of reference to be prepared (consultant chosen), due April 2002. The project will finance demonstration projects in cleaner production in industry, and technical assistance for better understanding of the technology necessary. It will examine the regulatory framework and enforcement capacities and identify areas for legal and administrative reform: assist in establishing access to data bases on cleaner production technologies: prepare guidelines for industry including for foreign direct investment, assess impact of the demonstration projects, work with international institutions active in this field such as OECD and UNEP. - Environmental Management in Enterprises; project fiche to be prepared for 2002 end October management committee: tendering for 2003: multi million Euro programme in all countries - EME might also come in to projects where the main thrust is elsewhere (e.g. it is mentioned in the terms of reference for the 2.0mEUR Donetsk, Ukraine, environmental management pilot project on waste management. Its focus is on solid domestic waste, but industrial waste management will also be included). To be tendered in May 2002. - Support to the Implementation of Environmental Policies and NEAPs in EECCA: Proposed Work Programme Azerbaijan (March 2002). One of the project objectives is to provide training and awareness of CP and EMS (ISO 140001) especially in SMEs in conjunction with BP.
Worldbank	David Hanrahan Program Team Leader for Urban, Industry and Energy Worldbank 1818 H Street, N.W. Washington, D.C. 20433 – USA Phone: +1 202 4585686 Fax: +1 202 4770565 Email: Dhanrahan@worldbank.org	EECCA	According to the Bank it does not do much lending to EECCA for CP and related activities. Projects often promote eco-efficiency or CP principles and certain activities are included in various Bank operations but they are not usually monitored separately.
European Investment Bank (EIB)	Peter Carter Head of Environmental Co-ordination		No relevant activities.

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
	EIB 100 Boulevard Konrad Adenauer Luxembourg-Kirchberg L-2950 LUXEMBOURG Phone: +352 4379 2769 Fax: +352 4379 2860 Email: p.carter@eib.org		
Dexia-Fondelec Energy Efficiency And Emissions Reduction Fund	Karen McClellan (see EBRD for adress)	CEE and EECCA	Founded in 1999, joint fund of the EBRD and Dexia, aims to reduce energy consumption and greenhouse gas emissions in the CEE/EECCA. EBRD and Dexia initially invested each 20 million EUR. A further 21 million EUR was provided by other private sector investors. Up to now only two projects: Hungary and Poland; Croatia and Slovakia are in the pipeline. In principle also funding for EECCA, but no partner institutions found so far for implementing.
European Bank for Reconstruction and Development (EBRD)	Karen McClellan Principal banker in the Energy Efficiency Area EBRD One Exchange Square, London, EC2A 2JN - UNITED KINGDOM Phone: +44-20-73387177 Fax: +171 338 6848 Email: Mcclellk@ebrd.com	EECCA	The Bank has approx. spent 0.5 billion EUR on projects dealing directly with energy efficiency altogether. The vast majority of EME activities is however part of larger restructuring projects. Therefore it is hard to say how much money goes into EME on the whole. In its "Review of 2000 operations - Energy Efficiency" the Bank states that its commitments during the year totalled €17 million, bringing the EBRD's cumulative commitments in this sector to €188 million. The Energy Efficiency Dept. deals primarily with: – ESCO Financing. – District heating renovation. – Public Sector Energy Management Programmes - through ESCOs or not. – Industrial co-generation projects. – Renewables. – Lead-role in Climate Change initiatives. The EBRD is currently financing 11 private ESCOs (all funded under Multi-Project Facilities involving large sponsors) and one state-owned ESCO. – Aggregate commitment of EUR 88 million, of which 68 million in debt and 20 million in equity, and total projects costs around EUR 250 million. – Covering seven countries: Hungary, Poland, Czech Republic, Slovakia, Lithuania, Romania, Ukraine.

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
Nordic Environment Finance Corporation (NEFCO)	Elisabet Paulig-Tönnes Senior Manager, Project Administration NEFCO Fabianinkatu 34 P.O. Box 249 Fin-00171 Helsinki Finland Phone: +358 9 1800349 Fax: +358 9 630976 Email: elisabet.paulig-tonnes@nefco.fi	north-western Russia and Baltic States	The **Facility For Cleaner Production** is part of the Nordic Environmental Development Fund which was established in 1995 by the Nordic Ministers of Environment for financing environmental projects in the neighbouring region in Eastern Europe. In the first trial period the fund was provided with a total capital of DKK 100 million, in 1999 it was decided to continue the activities until and including 2003. Annual contributions expected to be approx. DKK 35 million. Support can be provided as grants for the procurement of goods or services (cash subsidies) or to reduce the borrower's debt service costs. The maximum grant is one-third of the total project cost. The Facility for Cleaner Production is a revolving facility for financing of priority cleaner production investments targeted at a specific region in its area of operation, in the first instance the Baltic countries (Estonia, Latvia and Lithuania) and north-western Russia. Its objective is to finance on favourable terms' implementation of high-priority cleaner production investments with rapid payback (not more than three years) that yield environmental and economical benefits. The basis for providing a loan is the cash flow of the cleaner production investment and the ability of the enterprise to repay the loan over the agreed period. The maximum loan amount is EUR 200,000. The borrower is expected to finance at least 10 per cent of the total investment with their own financial resources. Priority will be given to projects that have environmental effects for the Nordic region, that is projects leading to reduction of pollution in the Baltic Sea and the Barents Sea or reduction of transboundary and global air pollution. The total amount of the facility is as per today Danish crowns (DKK) 50 million, corresponding to approx. EUR 6.7 million. The facility was first established in 1997 with DKK 15 million, in 1999 it was increased with DKK 15 million, and again in 2001 increased with DKK 20 million. NEFCO's experiences: NEFCO has so far approved 20 loans to Lithuanian enterprises, out of which two have been fully repaid and 14 are completed and repaying the loan according to schedule. In Estonia and Latvia activities were just started, two projects have been approved and one is under consideration. In Russia one project is completed, and six more projects have been approved but loan agreements have not yet been signed. Out of all applications received, a few have been rejected, mainly because of unclear environmental effects or the borrower's weak financial situation. The distribution per industrial sector (number of projects) is as follows: Engineering 44%, Wood working 22%, Textile 17%, Infrastructure 11%, Other 6%. As comes to the environmental effects and reduced emissions, 24% of the projects have positive effects on climate, 20% on acidification, 20% on eutrofication, 10% on waste, 8% on VOC, 4%

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
			on heavy metals and 14% on other. The role of CP centres: For the purpose of identifying CP-projects NEFCO has established agreements with Cleaner Production Centres in each country, i.e. in Russia, Lithuania, Latvia and Estonia. The role of the CP centres is considered very central. Their task is to act as intermediary between NEFCO and the enterprises applying for loans. Identifying and screening of projects is thus mainly made by the CP centres. Seminars and workshops for industrial enterprises have been arranged in co-operation with CP centres in Russia and Lithuania, funded by bilateral grants. The CP centres also have an important role as Project Monitors, providing NEFCO with follow up reports in connection with each disbursement, and a Completion Report after completion of the project implementation. The costs for the project monitoring are carried by NEFCO through the CP-Facility (which is intended to be self-sustaining through the interest payments on the loans). A training programme initiated by NEFCO with the aim of opening up business opportunities to a selection of project developers/advisors/consultants for identification, development, implementation and monitoring of Cleaner Production Projects in all three Baltic countries is going on this spring. This programme is being financed by bilateral grants from Nordic countries. In addition, NEFCO has established a special facility of EUR 1 million for CP-investments in the Moravia Region of the Czech Republic. One project has so far been approved and another is under consideration.
FMO - Netherlands Development Finance Company	Bregje Hamelynck Co-ordinator Environmental & Social Unit FMO P.O. Box 93060 2509 AB The Hague – NETHERLANDS Phone: +31 70 314 9734 Fax: +31 70 314 9764 Email: b.hamelynck@fmo.nl Internet: www.fmo.nl	Developing and Transition Countries	FMO organises annual Environmental Management Course for Financial Institutions. There it trains representatives of financial institutions from developing & transition countries, including participants from Eastern Europe, in how to manage environmental and social issues with their clients. All clients need to comply with the World Bank Environmental Policies & Guidelines. If not FMO would work out an Environmental Action Plan with them to develop the company within a defined timeframe to the required World Bank level. In the companies where it considers a real environmental risk it would require the company to have an Environmental Management System. With a technical assistance programme FMO can help the companies to develop this. At the moment the company does not require more than that. It does encounter opportunities for CP and energy-efficiency but at the moment it does not have any extra means to spend time and effort on developing those opportunities. FMO is at the moment trying to find some funds to start this work.

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
SWEDEN **NUTEK - Swedish agency for business development, Baltic 21 Industry**	Birgitta Naumburg Project leader Baltic 21 Industry NUTEK 117 86 Stockholm Phone: +468 681 93 74 Fax: +46 8 681 94 45 Email: birgitta.naumburg@nutek.se www.nutek.se/baltic21.	Baltic region (north-western Russia, Est, Lat, Lit and Poland)	MSEK 20 have been reserved for the **Programme "Sustainable Growth in Industry in the Baltic Sea region"**, which was published on 1 March 2002. The purpose of this program is to promote sustainable growth in the Baltic States, Poland and north-western Russia, by improving the environment and the working environment through preventive actions. At the same time, new business opportunities should be created for Swedish small and mediums sized enterprises as well as companies in the new democracies. Here, collaboration projects between industry in Sweden and in the East Baltic Sea region can apply for co-funding for projects promoting sustainable growth by using preventive actions. Ongoing Baltic 21 Industry projects with focus on Action II "Eco-efficiency in Industry" are: **Eco Forum Baltica** (see below) **Forum Environmental Technology north-western Russia** The aim is to promote environmental technology - e.g. cleaner production, resource efficiency and waste minimisation - in industrial companies in north-western Russia, facilitate for Swedish environmental technology companies to find a market in Russia for their products and services, and to promote co-operation between Russian and Swedish companies. Project owner: IVL Svenska Miljöinstitutet Contact: Mr Östen Ekengren, phone +46-8-598 563 43 **Best Practices** Collection of Best Practises regarding sustainable development and eco-efficiency in industry in the Baltic Sea region have started in Latvia, Poland and Sweden, www.ee/baltic21. **Baltic 21 Institute for Sustainable Industry** The Baltic 21 Institute for Sustainable Industry was established to catalyse sustainable development of the industrial sector in the Baltic Sea Region and to bridge gaps between countries. The Institute is a virtual network of which the core consists of research institutes and universities in the Baltic Sea Region that have a broad knowledge of and experience in applied research and consulting in the field of industry, environment, resource efficiency and environmental management. National networks are presently being formed in Estonia, Latvia, Lithuania, Poland, north-western Russia and Sweden. Other countries in the region are expected to join the

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
			network. The Baltic 21 Institute offers companies that wish to improve their environmental performance and resource efficiency help in finding suitable expertise. Its web-site is an integral part of the institute. Contact: Mr Uwe Fortkamp +46-8-598 563 04; www.baltic21institute.org. **Procurement of Technologies for Sustainable Development** One of the joint actions of the Baltic 21 Action programme is about Procurement of Technologies for Sustainable Development" in order to reduce regional market barriers. It helps companies with product development by creating a demand for technologies with better performance. Further, it helps buyer groups (e.g. municipalities) to put demand on new technologies by using product specifications and the tendering process. The aims of the joint action are: – Transfer of knowledge of the tool procurement. – Perform regional procurement of sustainable technologies. A pre-feasibility study of procurement of technologies in the bio mass field is ongoing which is co-financed by the Nordic Council of Ministers and NUTEK. Furthermore, a project idea on procurement of technologies within the biomass field has been developed with the aim of having seminars is to build capacity and spread experiences of already performed procurements. Contact: Ms Cecilia Persson, NUTEK +46-8-681 6489
The Stockholm County Administration, the Stockholm County Council and the City of Stockholm, RusNoRD (NGO)	Carl Bäcklund Stockholm County Administration Box 22067 104 22 Stockholm Phone: + 46 8 785 50 73 Fax: + 64 8 654 70 63 Email: Carl.Backlund@ab.lst.se	Baltic region (north-western Russia, Est, Lat, Lit and Poland)	The **Eco Forum Baltica** is the successor to the Eco Forum St. Petersburg project (1998-2000) that assisted in EMS integration in enterprises according to ISO 14000 standards. The predecessor which focused on Russia exclusively is considered very successful in responding to demand in the region: over 90 mostly large Russian industrial companies participated, 35 of which (with a total of over 68.000 employees) have initiated the process of environmental adoption and implementation of EMS according to ISO 14000. The experiences are being disseminated through the commercial Eco Forum company created as a result of the project and the Eco Forum network of environmental managers. The new program Eco Forum Baltica aims to: • Help companies in the Baltic region lessen their negative effects on the environment and improve their competitiveness trough the use of Environmental Management Systems (EMS) EMAS /ISO 14001. • Increase co-operation between authorities and organisations around the Baltic-sea, exchange experiences and improve the infrastructure for supporting the EMAS/EMS development.

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
			• Establish co-operation between local/regional authorities on how to use EMS as a tool in waste management and spatial planning. • Support trade and investments in cleaner technology in companies. • Create national networks for environmental managers in co-operation with NMC and INEM. • BUDGET: - Phase 1: 169,200 EUR (2002) - Phase 2: 740,000 EUR (2002-2004)
Swedish International Development Co-operation Agency (SIDA)	Helen Holm Programme Manager, Division for Environment and Energy, Dept. of CEE SIDA S- 105 25 Stockholm tel. + 46 8 773 2055 fax. + 46 8 21 45 29 e-mail: helen.holm@sida.se http://www.sida.se/ostersjon www.sida.se/balticsea	Baltic region (north-western Russia, Est, Lat, Lit and Poland)	SIDA East has given substantial assistance in the area. The emphasis on support for investment has been on wastewater, but projects with a focus on waste management and energy efficiency have been given greater priority in recent years. Through the programmes there have been cleaner production seminars, training of environmental inspectors etc. carried out. Sida also allocates funds to the Swedish Environmental Protection Agency for co-operation with CEECs and Russia. **Demonstration programmes for the environment and energy sectors:** Sida implements a pilot project for the demonstration of equipment for the environment and energy sectors. The programme is funded from the Baltic Billion Fund 2. Hitherto the Government has made SEK 40 million available for the demonstration programmes. The overall aim of the Baltic Billion Fund 2 is to stimulate the development of industry and trade in the Baltic Sea region from a Swedish perspective. The specific aim of the demonstration programmes (DemoEast) is to make it possible for purchasers in the Baltic States, Poland and north-western Russia to test and gain experience of Swedish equipment in the environment and energy sectors. DemoEast funds can finance up to 50 per cent of the costs of equipment and a small training programme when the equipment is taken into operation. The financing can amount to between SEK 100,000 and SEK 3 million for an individual programme. Countries eligible: Estonia, Latvia, Lithuania and Poland and, in Russia, of Petersburg and Karelia, and the counties of Arkhangelsk, Kaliningrad, Leningrad, Murmansk, Novogrod, Pskov.
Norwegian Ministry of Environment	1. Per Antonssen Project Manager Norwegian Ministry Of Environment Voldenveien2 Klokkarstua, N – 3490 Norway	Russia	The **Norwegian Russian Cleaner Production Programme (NRCPR)** has been running in Russia since 1994. Government funding of the programme adds upt to 600.000 USD per year. In total, approx. 5 million $ was spent on CP and EMS training in Russia. From Norway, the programme activities in Russia are being led by the Norwegian Society for Chartered Engineers (NIF) in co-operation with the World Cleaner Production Society (WCPS). The financing of the Norwegian contribution to the programme is granted by the Norwegian Ministry of Environment under the Norwegian-Russian Environmental Co-operation Programme. The practical implementation of the

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
	Tel. +47 97 74 39 39 Fax + 47 95 40 50 37 Peanto@Online.No 2. Arild Nordby Programme Director NIF P.O. Box: 2312 Solli, N-0201 Oslo Phone/Fax: +47 22 94 75 00 +47 22 94 75 01 e-mail: arild.nordby@nif.no		programme is now fully managed by the Russian-Norwegian Centre for Cleaner Production in Moscow. Financing of the Russian programme activities is made by contributions from the participating companies. The Russian network supporting Norwegian programme activities in Russia is financially supported from Norway. The complete CP-programme consists of the basic, Level 1, CP methodology training programme, and an additional training course, Level 2, on financial, economic and management disciplines. The Programme has concentrated on a general offer of assistance to all interested companies and public utilities in Northwest Russia in their efforts to improve their economic and ecological performance. Through the first seven years of the programme, approximately 1100 Russian engineers from more than 300 companies have taken part in the programme (Level 1).
Governments of Norway and the Russian Federation	Hans Borchsenius Programme Manager The Norwegian Energy Efficiency Group Hoffsveien 38 N-0571 Oslo, Norway Phone: +47 22 04 06 20 Fax: +47 22 04 06 50 Email: hans.borchsenius@energi.no	Northwest Russia	In 1996, a Collaboration Arrangement on Energy Efficiency was signed between Norway and the Russian Federation. The aim of the project "**Energy Efficiency In north-western Russia**" is to contribute to increased energy efficiency in industry and buildings in north-western Russia, and to increase the co-operation between relevant Norwegian and Russian companies through exchange of know-how and demonstration projects. The project is implemented under the umbrella of the UN ECE EE-21 Project. RUSDEM (The Russian Energy Efficiency Demonstration Zones Association) is the implementing unit at the Russian side. NEEG, The Norwegian Energy Efficiency Group, is preparing and implementing the various activities from the Norwegian side. Activities focus on: - Development of *Energy Efficiency Demo-zones* in Northwest Russia, including solving of technical and financial problems (Establishment of Regional Energy Efficiency Centres, demo-projects and commercial projects, policy, financing, training, information, trade, etc.). - Development of energy efficiency *information, training and education* schemes in the Russian Federation. First results: the newsletter "Energy Efficiency in Russia"; the web site www.barentsenergy.org; the web site www.energy-links.com is a portal and database demonstration project. - Development of Energy Efficiency and renewable energy *projects* also outside the demo-zones in the north-western part of Russia. - Stimulate *co-operation* between Russian and Norwegian organisations and companies. Today four Regional Energy Efficiency Centres have been established:

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
			KEEC – Kola Energy Efficiency Centre, 1996 MOEEC – Murmansk Oblast Energy Efficiency Centre, 1998 AOEEC – Arkhangelsk Oblast Energy Efficiency Centre, 1999 KAEEC – Karelia Energy Efficiency Centre, 1999 Since 2000 the four Regional Energy Efficiency Centres are recognised as Barents Energy Focal Points by the Barents Euro-Arctic Council. Future Plans: - Further development of the Barents Energy Focal Points (increased self financing, increased multinational activities). - Development and Implementation of Commercial Projects (NEFCO, etc.). - Development of Int. Programmes (funded by GEF, EU, UN, etc.). - Utilisation of biomass, "JI" projects. - University Education Programmes (GEF).
Danish EPA (Danish Environmental Protection Agency)	Peter Petersen DANCEE Ministry of Environment and Energy Strandgade 29 1401 København K Denmark Phone: +45 32 66 0235 Fax: +45 32 66 04 79 Email: pep@mst.dk	North-western Russian Federation, Moldova, the Ukraine and Belarus (and CEE)	Danish environmental assistance for EECCA is channelled through the DANCEE programme (Danish Cooperation for Environment in Eastern Europe) of the Ministry of Environment and Energy. From 1991-1999 DANCEE implemented approx. 800 projects. Activity areas focus on air and water quality, waste, administration of natural resources and control of pollution caused by chemicals. More emphasis will be laid on institutional strengthening, public participation and involvement of the private sector in the future. Out of 48 projects in the four countries supported in the region (Russian Federation, Moldova, the Ukraine and Belarus) 8 were dealing directly or indirectly with EME/CP issues in the year 2000 - 3 in Russia and 5 in the Ukraine: - Reduction of Air Pollution from Metalworking Industries in the city of St. Petersburg and Leningrad oblast (DKK 6,980,083). - Financial Feasibility Study for Petroffskoye Boiler Plant, Russia (DKK 5,224,270). - Energy Efficiency, Water Saving and Productivity Gains in the St. Petersburg South Water Supply Network (DKK 6,018,500). - Demonstration of Water Saving Possibilities in the Industry of Zaparizhzhia, Ukraine (DKK 8,895,204). - Reduction of Energy Losses in Ventilation Systems of Public and Industrial Buildings. Phase I, Ukraine (DKK 1,199,750). - Exploitation of Geothermal Energy in Ukraine, Phase I (DKK 423,399). - Demoproject for Rehabilitation by PE Pipes in Kyiv (DKK 9,002,552).

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
			- Training and Education or Experts from the Energy Sector of Ukraine (DKK 2,452,125).
Canadian International Development Agency (CIDA)	Catherine Pelletier-Hardy Program Officer Caucasus, Central Asia, Climate Change; Central and Eastern Europe Branch CIDA 200 Promenade du Portage Hull, Quebec K1A 0G4 Canada Tel.: 819-956-7109 Fax : 819-994-3669 CATHERINE_PELLETIERHARDY@acdi-cida.gc.ca	Central Asia, Russia	**1. Caspian Basin GHG Emissions Reduction Training Program** Duration: March 2002 - March 2005. CIDA contribution: CAD $4,000,000. The Caspian Basin Greenhouse Gas Emissions Reduction Training Program's goal is to develop the management and operational capacity within key sectors to identify and develop high quality greenhouse gas emission reduction projects that would meet the rules of ,and could be funded under, the Kyoto Protocol's Clean Development Mechanism (CDM) or Joint Implementation (depending upon country). The project will also strengthen Canada-Caspian Basin linkages in the private sector, as well as enhance Canadian awareness of greenhouse gas emission reduction opportunities in the region. **2. Solar Preheating Plant (Almaty, Kazakhstan)** Total budget: CAD $66, 830 (CIDA contribution: CAD$45,000). Duration : January 2002- April 2003. The goal of the proposed project paper is to install a solar preheating plant on the roof of a district heating boiler house of ATKE's (Almatyteplocommunenergo) district heating system, a small, privately owned utility company in Almaty, Kazakhstan. It is a pilot project under CIDA's Climate Change Fund and GEF's (Global Environmental Facility) greenhouse gas mitigation efforts "Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply". **3. Promotion Of Energy Efficiency In Russia** The project aims to develop capacity at the municipal level to implement energy efficiency policies and programs in participating regions, and to demonstrate Canadian expertise and technology in the process. The Canadian partner is NYD International of Winnipeg who will work with Natural Resources Canada and the Russian Association of Energy Efficiency Demonstration Zones (RUSDEM), to assess policies and programs, to provide policy and technical training, and to implement demonstration projects. The ultimate goal is to improve energy efficiency in the participating regions and elsewhere in Russia through practical training and demonstration, and to foster commercial linkages with Canadian energy savings companies. The project has focused its work on the following areas : a) Policy training - program in Russia and Canada for municipal and regional decision

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
			makers in developing policies and programs in energy efficiency and energy savings. b) Project development training - interactive training for engineers and project developers in energy/environmental audit, financial engineering (business planning), and project development. c) Conferences and study tours - Canadian participation at the International Energy Efficiency Fair in Moscow in March 2000; Russian delegation to the Office of Energy Efficiency Annual Conference for the life of the project; presentation at Globe 2000 Conference (March 2000, Vancouver) of Russian energy efficiency business plans; Russian engineers visit Canadian laboratories focusing on energy efficiency research. d) Regional Energy Efficiency Training Centres (REECs) -establishment of new REECs or support to existing ones in the participating regions/oblasts. e) Technical training - detailed training/workshops in Canada or Russia in energy efficient and environmentally friendly design and construction techniques.
US Agency for International Development (US AID)	Jerry Gold Bureau For Europe And Eurasia – Office Of Environment, Energy And Social Transition - Environment And Natural Resources Division, "Environmental Assistance In Central & Eastern Europe And The Former Soviet Union" USAID 1300 Pennsylvania Avenue NW Washington, Dc 20523-5601 Phone: 202-712-0263 Fax: 202-216-3014 Email: Ggold@Usaid.Gov	EECCA	• **EcoLinks** is an USAID funded program (started in 1998) which promotes market-based solutions to urban and industrial environmental problems in CEE and the NIS (Eurasia). EcoLinks functions by providing financial assistance and by facilitating trade and investment partnering. The Grants Program identifies, facilitates, and supports cross-border partnerships either within the region or between the region and the US. EcoLinks has Grants Program Officers based in Kazakhstan, Russia, Ukraine and the United States. Besides the United States, the Balkan and CEE countries 8 EECCA COUNTRIES are eligible for the program (Armenia, Georgia, Kazakhstan, the Kyrgyz Republic, Republic of Moldova, Russia, Turkmenistan, Ukraine, Uzbekistan). There are two types of grants: - *Quick Response Awards (QRA),* are up to $5,000 and are designed to meet the immediate and small-scale needs of organisations exploring potential partnerships. Activities must either facilitate partner matching for a Challenge Grant or promote environmental trade and investment. QRAs typically provide travel funds to an organisation to visit their potential partner in the country where they are located. They may be awarded in a matter of one to two weeks. While the majority of QRAs support travel between the US and the Region approximately 12% of the awards are used to support intra-regional travel. Since program inception, a total of $7.3 million in added investment has resulted from partnerships developed through QRAs in the CEE & EECCA (the equivalent of $5.62 of additional investment for every grant dollar spent).

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
			Quick Response awarded in EECCA (1999 – 2001): Georgia 3 Kazakhstan 26 Moldova 1 Russia Far East 34 Turkmenistan 1 Ukraine 26 - *Challenge Grants (CG)*, are up to $50,000 grants supporting one-year partnership projects or activities that address specific urban and industrial environmental problems. Recipients are responsible for providing matching resources of 25 percent of the grant value. Former Challenge Grants topics were: Cleaner Production, Environmental Management Systems, Water Quality Management and Global Climate Change. CG projects include mainly pre-investment activities: feasibility studies, pilot projects, ecological and economical analysis of possible solutions, the completion of project documentation intended for further financing/ investment etc. By the end of 2001, for data covering both EECCA and CEE, grantees had obtained more than $30 million in additional funds for projects in which EcoLinks contributed (representing a multiplier factor of 3.9 for every grant dollar awarded). Challenge Grants awarded in EECCA (1999 – 2001): Kazakhstan 10 Russia Far East 12 Ukraine 23 • The **EcoLinks Trade & Investment** component involves an interagency agreement between USAID and the U.S. Department of Commerce (USDOC) that places EcoLinks Technology Representatives in selected Commercial Service offices in the region. These "Tech Reps" identify business opportunities in the environmental sector, to link U.S. environmental technology firms with partners in the region and to assist in financing the associated environmental projects (e.g. a new database and website, which allows for the improved tracking of technology transfer opportunities).These Trade & Investment activities complement the EcoLinks Grants Program, in that the Grants Program assists the Tech Reps in forming trade partners and the Tech Reps in turn facilitate follow-on financing of projects developed in the Grants Program. • The US **Environmental Action Program (EAP) Support Program**, was initiated in 1995, and ran for six years. Focus was on Central and Eastern Europe ($17

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
			million), in EECCA the EAPS Russia program ran from late 1998 to late 1999 and involved a USAID obligation of $450,000. As part of its ongoing role in the US/Russia Regional Investment Initiative (RII), which was established to promote investments in selected regions of Russia, USAID (under its EAP Support Program) conducted a series of educational seminars in Environmental Management Systems (EMS) for local enterprises as well as pollution prevention audits. • **Global Technology Network (GTN)** is a USAID program that promotes business transactions and strategic alliances between U.S. and European firms through the transfer of U.S. technology to CEE and EECCA. It began operating in 1993. Focus: Environmental & Energy Technology sector. Countries covered: Albania, Bosnia & Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, Kazakhstan, Macedonia, Montenegro, Poland, Romania. • The **US Clean Technology Exchange** (http://www.ecolinks.org), developed through a partnership with the Global Environment &Technology Foundation in 2001, is an Internet-based tool to facilitate the exchange of information on innovative environmental technologies and practices, and to stimulate environmental technology partnerships among CEE/EECCA countries and the US. • The **EnviroDialogue** is sponsored by the Environment and Natural Resources Division of the Bureau for Europe and Eurasia USAID. EnviroDialogue is implemented by DevTech Systems, Inc. The EnviroDialogue topic for 2001 was: *The Financial Aspect of Cleaner Production: The What, Why and How of Finance in Cleaner Production as Applied to Central and Eastern Europe and the Newly Independent States.* • Through its new **Municipal Networks for Energy Efficiency (MUNEE)** program (created in 2001), USAID is seeking a relatively low-cost way to disseminate positive energy efficiency experiences in the CEE and EECCA (regional approach but country-specific activities in Armenia and Moldavia). The Alliance to Save Energy is providing assistance and management for the MUNEE program. MUNEE is aiming at strengthening the capacity of regional and municipal stakeholders to develop and attract financing for energy efficiency projects.
German Federal Environmental Agency (UBA)	Ms. Inken Giza UBA Bismarckplatz 1 14103 Berlin Germany Phone: +49 30 89 03 21 40	Currently: Kazakhstan/Azerbaijan and Ukraine	1. "Opportunities of Promoting Environmentally Oriented Business Management in the selected CIS States of Kazakhstan and Azerbaijan". The Environmental Research Plan (UFOPLAN) project began in July 2000 and was finished in July 2002. Budget: 170,516 EUR. It was divided into two phases: Phase 1: Creation, initiation, supervision and evaluation of company partnerships.

DONORS/PARTNERS	CONTACT	COUNTRY FOCUS	MAIN ACTIVITIES
	Fax: +49 30 89 03 21 06 Email: Inken.Giza@uba.de		In Azerbaijan the focus was on the water supply system for the Apsheron Peninsula Region, partner companies were: Apsheron Regional Stock Water Company (ARWC)/Djeyran-Batan water treatment plant, and Azspetsprominvest Baku. In Kazakhstan the project supported ecological management for the oil and gas industry, partnerships were created with the joint venture Kazgermunai Kyzylorda, and Montazspets stroj Kyzylorda. Phase 2 consisted of operational checks, further training seminars, guidelines, workshop. The project aimed to: • Create national networks for environmental managers in EECCA. • Analyse and evaluate the environmental situation and legislation in Azerbaijan and Kazakhstan. • Identification of weak points of the enterprises selected in the two countries and derivation of initial measures for improving the eco-balance. • Qualify and help experts of the companies in the field of environmental/ecological management systems by means of seminars/workshops in Germany and EECCA. • Elaborate manuals and guidelines for the environmentally oriented leadership of companies in EECCA (especially Azerbaijan and Kazakhstan). "Possibilities of Promoting Environment-Oriented Management in the Ukraine by Partnerships Between Enterprises of the Target Region and German Enterprises". The central target of the project (the first phase was from 2000-2001) is to initiate and establish environmental partnerships between enterprises in the Ukraine and Germany. The expertise of German enterprises on a profitable use of environmental management systems shall be transferred to Ukrainian partner-enterprises in selected sectors (two water/waste water enterprises and one from the food-processing industry). This transfer of know-how is also to help counteracting distortions of competition originating in different environmental standards in the two states. The first phase of the project included first assessments, an evaluation of the data and the fixing of environmental targets (short-, medium-, long-term) for the three Ukrainian enterprises. In the second phase, the management of the Ukrainian partner-enterprises will be instructed on environmental management and qualified for carrying out respective independent project work. Furthermore, specific projects for implementing selected environmental targets will be prepared. Phase 1: 59.300 EUR (UBA contribution: 44.500 EUR) Phase 2: 90.600 EUR (UBA contribution: 69.200 EUR)

ANNEX 2 SECOND SURVEY OF CLEANER PRODUCTION CENTRES IN EECCA

1 Summary of findings

Methodology

In February 2002 the EAP Task Force launched a survey to collect data on activities for the promotion of EME in the New Independent States. Fifty-five questionnaires were sent to Cleaner Production Centres and ministries of environment in the region. The following results are based on the 20 responses received, complemented by information from telephone interviews.

Business Development, Financial Situation

The evaluation of the 2002 survey indicates that there has been some progress, although slow, in promoting EME in the New Independent States since the last OECD survey in 2000.

New centres New centres continue to evolve: the Uzbek Centre of Cleaner Production in Tashkent was established in September 2001. Negotiations about the possibility of creating a CP Centre in Azerbaijan are currently underway with Norway and UNIDO. Other newly established centres had already existed in another form, like the Clean Production RTC in Minsk (set up in 2000) or the Cleaner Technology Centre in Kiev (2001). There are only a few countries with no CP centres, including Tajikistan.

Staff All previous centres continue to operate and sell services. The number of staff has generally increased; the Russian Norwegian CP Centre, for example, more than doubled its number of employees from four to nine. The Belarus Clean Production RTC has by far the largest staff (21 employees), while the number in other centres is as low as three (Uzbek Centre of Cleaner Production).

Activities Some centres broadened their areas of activities. While the CP activities of the Greens Movement in Georgia used to be limited to lobbying political parties and NGOs and education at schools, today the centre mainly works with industry: more than 200 companies have received services so far. Still, the centre is financed exclusively by donors.

Customers All CP centres in EECCA grew in terms of number of customers. In two years: CPPE in Chisinau doubled its enterprise clients from 47 to 100, and BAEM from Belarus, already serving 25 companies in 2000, attracted an additional 95. While the number of clients stayed constant at other centres, the number of people trained increased: once convinced by the CP concept, enterprises were willing to invest in training more of their employees. However, CP centres had difficulty reaching out to new companies and industry branches.

Sectors Activities seemed to focus on specific branches of industry, indicating that some sectors are more prone to introducing environmental management mechanisms than others. These are: above all energy enterprises (heat and power engineering, oil processing, light industry, petrochemical industry), the manufacturing, extractive and processing industries, mining and metallurgy, water utilities, machine building, timber, pulp and paper, woodworking industries as well as the agricultural complex and food processing enterprises. Some centres even deal exclusively with some of

these sectors, as in the case of the Kazakh National Centre for Complex Processing of Mineral Resources, the Russian National CP Centre for the Oil and Gas Industry and the Azerbaijan Sukanal research company for the water sector.

Services

Services provided by the centres cover a broad spectrum. They often include:

- Information dissemination and training courses.
- Organising, co-ordinating and implementing projects at enterprises (including pilot projects).
- Consulting services related to the introduction of new technologies.

Activities and services can include EME/CP issues, environmental impact assessment, energy efficiency, pollution minimisation and waste utilisation programmes. Training programmes can also include Financial Engineering, Project Development, Project Management and Quality Assurance. The Pavlodar CP Centre in Kazakhstan and the Moscow CP Centre in Russia are the only not to offer training services; they focus on consultant services for firms, support for government bodies, audits, certification, or technology development. Around half of CP centres offer no certification services. Most provide on-site assistance (audits), except for the Norwegian-Russian CP Centre and the Sukanal Research Company in Azerbaijan. The Scientific Research Centre of Environment Friendly Technologies in Kazakhstan is exceptional in this regard, since it focuses exclusively on the development of clean technologies. The majority of centres also provides reference books on environmental technologies, training kits, or disseminates relevant information, some even via the Internet (e.g. CPEE in Moldova). Only few, however, make an effort to introduce CP/EME issues into academic curriculums. Belarus seems well advanced in this respect: BAEM and Clean Production RTC offer specialised university courses in environmental management, environmental audit, environmental certification, product lifecycle, cleaner production, etc.

Budgets

Budgets differ widely: while some centres have 30,000 to 70,000 US$ per year at their disposal, Ecoline in Russia holds an annual budget of about 170,000 US$ and the Uzbek Centre of Cleaner Production, mainly funded by UNIDO, has 160,000 US$ available. The annual budget of the CPEE centre in Moldova has tripled since inception from 3,000 US$ to over 10,000 US$, a possible consequence of its change in institutional set up from private company to NGO. In contrast, the Cleaner Technology Centre in Kiev seems to struggle with the shift from a non-profit organisation with major funding from Danish EPA to a private company without financial support. Its annual budget has fallen from around 100,000 US$ to not more than 25,000 US$.

Financial Sources

Financing sources have changed little over two years: the vast majority of the CP centres in EECCA are financed by a mixture of national/ international funds and fees for the services they deliver to enterprises. The clean production activities of the Georgian Greens Movement, financed exclusively by donors, are the exception. Only two centres seem fully self-financed: the Cleaner Production Centre in Pavlodar, Kazakhstan and the Cleaner Technology Centre in Kiev, Ukraine. The fact that most CP centres are commercially non self-sustaining is reflected in their legal status: the majority of them is organised as non-profit NGOs. While not supported by donors, the Scientific Research Centre of Environment Friendly Technologies in Kazakhstan is an affiliate of the “Mining & Metallurgical Research Institute for Non-Ferrous Metals” in Almaty, and expenditures are generally covered by the institute. This integration of the CP centres under a host institution, either in an industry, an academic or a state organisation, is common in EECCA. Most centres do not expect their services to be self-financing in the near future. Some activities might achieve independence from donor support, such as environmental auditing, information dissemination, certification or consulting services, but in general national or international funding seems irreplaceable.

Role of the government

As to the role of the government: its support (financial or other) is mostly either weak or non-existent. Major exceptions are the Moldovan and the Kazakh governments. The Moldovan Ministry for Environment actively supports cleaner production in the country through declarations, information dissemination, workshops, etc., however, it allocates no subsidies for CP activities. Kazakhstan has incorporated Cleaner Production into a National Environmental Action Programme (NEAP), which led to a national CP programme. In addition, the Ministry of Environment facilitated the creation of regional CP Centres in the Akimats (provinces). In Russia, Uzbekistan and Ukraine, government provides moral or informational support; the Uzbek Ministry of Environment pays for the premises and utilities of the CP centre. The support of other countries' governments is close to zero. It comes as no surprise that EECCA centres expressed a desire for a much more active government approach. Besides an increase in financial support, which is considered urgently needed, the centres would like assistance gaining access to information related to CP/EME practices in western enterprises, as well as training/ methodological material and more information on best practices. Another major aspect relates to the question of how to motivate enterprises to introduce environmental management systems: for this purpose, government is expected to employ economic incentives, such as tax concessions, soft credits from state banks, state funds for enterprises implementing CP projects, etc.

(See Annex X1 for further details)

Lessons Learned

Although the centres that have promoted environmental management in enterprises in the New Independent States have had different experiences in the past, they seem to share some common problems. These include weak economic incentives for enterprises to introduce environmental management, lack of government commitment, a weak regulatory framework and sparse financial resources.

Main obstacles

The main conclusion drawn by the centres is that if the government does not actively support EME, no relevant progress will be achieved. Among others, government should conduct training and information dissemination, encourage enterprises to introduce EME, develop stringent laws and improve the regulatory framework, as well as provide financial support for the establishment of CP centres. But above all, it should develop economic incentive schemes targeted at industry, including charges for the use of natural resources or the creation of favourable financing and taxation conditions for EME/ CP implementation. Stronger financial support is also widely considered crucial to improve the operations of the centres. While most centres would want more state financial aid, others stress the importance of international donors. Obviously only a few consider growing market demand and general improvement of the economy as financial solutions. This reflects the finding that the centres in general are still not well connected to industry and largely depend on financial support.

Incentives for Industry

According to the experience of the CP centres in the region, industry seems interested in EME mainly for economic reasons, e.g. a reduction in resources and thus in production costs, enhanced export opportunities, or an improved (environmental) image. In contrast, laws on environmental protection are not perceived as having a major impact on the willingness of industry to introduce EME mechanisms. There seem to be two groups of enterprises interested in EME: the first contains companies, which date back to the pre-transition period, have managed to survive and are now trying to attract investors, and the second contains newly emerging enterprises with a strong market position and modern management. The first group shows great potential for more efficient use of natural resources. These

enterprises are especially interested in EME when they wish to export their products. The second group is interested in the best available technological solutions, as well as in the positive imageEME can offer.

(See following sections for further details)

2 FINANCIAL SITUATION, COOPERATION

Organisation	Legal Status	Financial Situation		Relations with other		Partners
		Present Financing Sources	Potential sources for future financing; possible self-financed activities	Present support (financial or other) from the government and other partners	Which support from government and other partners would be needed and for what sort of (additional) activities?	What other activities to promote EME in your country do you know of?
Apsheron Regional Water Company "Sukanal" Scientific Research and Design Enterprise, Azerbaijan	NGO linked to an industry organisation.	Grants and agreements with international organisations.	Development of projects related to maximum permissible discharges and emissions, information services.	No support.	Financial support.	None.
Association of Environmental Management (BAEM), Belarus	Non-profit NGO, linked to the Belorussian State Polytechnical Academy.	Grant support; fees for training; implementation of projects.	Funds of enterprises, grant projects; self-financing (partial) through providing consulting services and research-related activities.	From the government (Ministry of Environment): - Moral support. - Assignments for the implementation of projects.	- Assistance in obtaining access to the information related to the implementation of CP/EME projects from western enterprises. - Assistance in adapting training and information materials developed in Europe.	- No facilitation of permitting for ISO 14001. certified companies yet. - No subsidies for implementation of cleaner technologies or EMS yet. - Information subsidies are at the inception stage. - There are very few activities involving ministries in charge of the private sector.
Clean Production RTC, Belarus	-	Funds of the State Nature Protection Fund and the UNDP-GEF Environmental Rehabilitation Programme.	Services related to carrying out environmental audits and CP training of industrial enterprises' personnel.	The centre is supported by the Ministry of Natural Resources and Environment and UNDP-GEF.	- Financial support for the training of industrial enterprises' specialists and environmental auditors. - Information on the experience related to the introduction of CP elements and clean technologies.	A regulatory basis is under development in Belarus to assist enterprises with ISO 14001 certification. Joint seminars are organised with the participation of enterprises' management and local environmental

Organisation	Legal Status	Financial Situation		Relations with other		Partners
		Present Financing Sources	Potential sources for future financing; possible self-financed activities	Present support (financial or other) from the government and other partners	Which support from government and other partners would be needed and for what sort of (additional) activities?	What other activities to promote EME in your country do you know of?
					- Methodological materials on CP and EMS.	committees.
CP centre at the Belorussian State University	BSU is a structural entity within the Ministry of Education of Belarus; it is a state organisation authorised to carry out commercial activities.	Government funding and fees for services.	Implementation of projects related to the introduction of new technologies developed at BSU.	The government provides financial support for educational activities.	- For education: information support. - For project activities: investors' funds.	All kinds of activities take place.
The Greens Movement of Georgia/Friends of the Earth, Georgia	A specialised group within an NGO.	Donors' funds.	The new woodworking department can be self-financing.	No support.	No support.	Due to the high level of corruption many promotion activities are not relevant for the country. Subsidies are virtually non-existent.
Scientific and Research Centre of Environment Friendly Technologies for East Kazakhstan Region, Kazakhstan	Non-profit organisation, State Affiliate to the Mining & Metallurgical Research Institute for Non-Ferrous Metals.	Contracts with mining and metallurgical plants.	Commercial information.	No support.	Financial support from international science and technology centres.	No information.
Cleaner Production Centre, Kazakhstan		Fees for services rendered by the	Fees for the services rendered by the centre to enterprises	None.	Financial and material (e. g. instrumentation)	No information.

Organisation	Legal Status	Financial	Situation	Relations	with other	Partners
		Present Financing Sources	Potential sources for future financing; possible self-financed activities	Present support (financial or other) from the government and other partners	Which support from government and other partners would be needed and for what sort of (additional) activities?	What other activities to promote EME in your country do you know of?
		centre to enterprises and organisations are the only source of funding for the centre's activities.	and organisations are and will be the only stable source of financing the centre's activities.		support from the state, IFIs and other partners to develop and implement waste minimisation and pollution prevention projects, cover the centre's administrative expenses, organise training, promote CP/EME and publish related materials.	
***Georisk* Public Research Centre, the Kyrgyz Republic**	Non-governmental, non-profit association.	Voluntary sponsor contributions, proceeds from public and business activities, revenues from the centre's property.	-	Information support, experience sharing.	Additional donor support is required from such institutions as the World Bank, ABD, UNDP, etc. for joint projects in the field of the development and implementation of cleaner production technologies.	As a rule, enterprises proposing cleaner production technologies do not receive any benefits. At best, they conclude general agreements on tax privileges (for 1-5 years). Recently public environmental evaluations have become widespread resulting in technological changes (use of ready made semi-finished products) at the paper factory under construction and a ban on the construction of a waste incineration plant in Bishkek.
Cleaner Production and Energy	Non-profit NGO.	- Norwegian Government.	Donor funding, fees for consulting and audit services,	- National Environmental Fund.	- Government policy orientated toward CP and	The Environment Ministry is doing a

Organisation	Legal Status	Financial Situation		Relations with other		Partners
		Present Financing Sources	Potential sources for future financing; possible self-financed activities	Present support (financial or other) from the government and other partners	Which support from government and other partners would be needed and for what sort of (additional) activities?	What other activities to promote EME in your country do you know of?
Efficiency Centre (CPEE Centre), Moldova		- Moldovan Environmental Fund. - Fees for services to enterprises.	practical assistance in project design and implementation.	- Norwegian Government. - Industrial Enterprises.	EE. - Co-financing of CP projects.	programme jointly with Cleaner Production Centre of the Czech Republic.
Russian-Norwegian Cleaner Production Centre, Russia	Autonomous non-commercial organisation, working in contact with the Ministry of Nature Resources and the Ministry of Foreign Affairs of Russia.	- Government of Norway. -International Projects. - Payment for services by industrial enterprises.	- Funds from enterprises. - Funds from international foundations. - Consulting services with regard to preparing projects and identifying investors.	The government has not provided any financial support. Organisational support has been provided by the Ministry of Environment and the Ministry of Foreign Affairs.	Financial support is needed to facilitate the development of regional CP branches.	None.
Moscow Cleaner Production Center, Russia		All the services are provided on the basis of self-financing.	- Self-financing. - Governmental programmes or funds.	-	Funding needed for: - Scientific work & developing methodology and text-books. - Developing the foundations of anti-terrorist audit at industrial enterprises.	-
ECOLINE Regional Public Organisation Project Manager, Russia	Regional public organisation.	- Grant funds. - Contracts with international agencies for the organisation of training	International grant programmes and services provided within the framework of international assistance programmes.	Limited informational support.	Active support for introduction of environmental management systems through tax and other benefits.	The only type of activity is training provided by consulting companies.

Organisation	Legal Status	Financial Situation		Relations with other Partners		
		Present Financing Sources	Potential sources for future financing; possible self-financed activities	Present support (financial or other) from the government and other partners	Which support from government and other partners would be needed and for what sort of (additional) activities?	What other activities to promote EME in your country do you know of?
		programmes. - Fees for services rendered to enterprises and organisations.				
KEEC – Kola Energy Efficiency Centre, Russia	Autonomous non-commercial organisation.	Fees for services and membership contributions.	KEEC will remain fully self-financed through rendering services to industrial enterprises and state organisations.	Membership fees from the founding members.	- Orders from federal and regional authorities related to energy, energy-saving and environment. - Legal and administrative measures are necessary to raise interest of enterprises and authorities for environment and energy saving.	The NEFCO Cleaner Production Programme; Training provided by the Council of Ministers of Nordic Countries, Norway.
Russian National Centre of Cleaner Production for the Oil and Gas Industry, Russia	Non-profit organisation, linked to the Russian State University of Oil and Gas.	Donor funds and fees from selling services.	Services rendered by the Centre (technology transfer, specialist training, environmental publications).	- From the Ministry for Science and Technologies of the Russian Federation. - From enterprises at which CP projects are being implemented.	Financial support in implementing technical solutions identified during CP projects' realisation.	There is facilitation of permitting for ISO 14001 certified companies, information subsidies and training dispensed by other organisations than CPCs, but no subsidies for implementation of cleaner technologies or EMS.
Cleaner Technologies Centre, Ukraine	Private company.	Selling services including support services for international grant projects.	- Preparation of Ukrainian enterprises for foreign investment projects and participation in these projects. - Fees for consulting and supporting services. - Possible financial support	Political support by all relevant government bodies for the development of the National Cleaner Production Centre.	Governmental support for motivating industries to implement CP solutions, e.g. state fund for enterprises implementing CP projects, soft credits	None.

Organisation	Legal Status	Financial Situation		Relations with other		Partners
		Present Financing Sources	Potential sources for future financing; possible self-financed activities	Present support (financial or other) from the government and other partners	Which support from government and other partners would be needed and for what sort of (additional) activities?	What other activities to promote EME in your country do you know of?
			from UNIDO/ UNEP. - Ukrainian State Fund for CP Implementation (has to be established). Self-financing activities could include: - Design and engineering support in CP projects. - Certification according to ISO 14000, 9000 and CP Awarding.		from state and commercial banks, tax concessions, etc.	
Uzbek Centre of Cleaner Production, Uzbekistan	Independent, non-profit NGO.	Funds provided by donors and the government.	- Fees for environmental audit. - Conducting chemical analyses at enterprises. - Consultancy services and certification of enterprises (ISO 9000, ISO 14 000). - Distributing information and technical literature.	The government provides premises and pays for utilities, communication and renting the premises.	Assistance in setting up a chemical laboratory through providing premises and purchasing chemical equipment.	Do not know of any.

3 LESSONS LEARNED

A) Responses from CP Centres

Organisation	What lessons have been learned about starting and operating the Centre?	What could help most to improve operations of the centre and promotion of EME in the country?
Apsheron Regional Water Company "Sukanal" Scientific Research and Design Enterprise, Azerbaijan	The government should be a key player in promoting EME systems.	Improvement of the state of the economy and government's care.
Association of Environmental Management (BAEM), Belarus	The main reasons industry is interested in EME are: - Economic interest (potential market). - To reduce production costs. - To encourage promotion activities: i.e. modifying laws and rules is important. The government must be one of the main actors.	- Demand from eastern and western markets. - Demands from the domestic market. - Role of the government (economic, legal and information mechanisms). - Enterprises' initiative.
Clean Production RTC, Belarus	The government should be a key player in promoting EME systems.	Availability of sufficient funds.
The Greens Movement of Georgia/Friends of the Earth, Georgia	If the government itself shows no interest, no actual results can be achieved.	- Influence of the international community on governmental agencies. - Financial support from donors and investors.
Scientific and Research Centre of Environment Friendly Technologies for East Kazakhstan Region, Kazakhstan	-	Improvement of Laws.
RGP National Centre of Complex Processing of Mineral Resources, Kazakhstan	The main problems that CP centres encounter are: - Lack of well-developed approaches to nature use mechanisms. - Imperfection of mining laws, lack of clear relations between mining regulations and the regulatory framework, including environmental, financial and economic parameters of the surrounding environment.	- Government's environmental policy. - Improvement of the regulatory framework.
Cleaner Production Centre, Kazakhstan	There is no demand for the CP/EME-related activities of the centre yet. The most important reasons for this are: - The experience accumulated in the field of economic mechanisms for nature use requires further expansion and optimisation. It will provide for a clearer identification of the role of EME in	- Setting up, developing and facilitating activities of private environmental consulting agencies (including CPCs). - Allocating subsidies for the introduction of

Organisation	What lessons have been learned about starting and operating the Centre?	What could help most to improve operations of the centre and promotion of EME in the country?
	enterprises' integrated management systems in terms of economic efficiency. Then the introduction of EME will result in an increased demand for the development and introduction of CP. - There is a lack of CP/EME specialists at enterprises, especially at smaller ones, resulting from the lack of appropriate training. - As the government should be a key player in promoting EME and CP activities, only its support (economic, etc.) for the introduction of CP/EME in compliance with ISO standards can facilitate the development and strengthening of the CPC network.	CP/EME, in particular, for the development of a special mechanism of supporting CPCs and funding CP/EME projects linked to federal and regional environmental funds. - Developing relevant mechanisms and institutions for the introduction of ISO 14000 and ISO 9000 in enterprises. - Simplifying licensing procedures for enterprises that are certified for ISO compliance.
***Georisk* Public Research Centre, the Kyrgyz Republic**	It is necessary to ensure public involvement at the initial stage of decision-making pertaining to the implementation of new technologies (while preparing feasibility studies). This type of examination is to be conducted by specialised centres that have the necessary experts and experience and that can work independently and actively carrying out intensive information exchange.	At the initial stage it is necessary to create a public database, to equip the centre properly and to implement international projects to share experience.
Cleaner Production and Energy Efficiency Centre (CPEE Centre), Moldova	Industry becomes interested in EME because of improved image and enhanced export opportunities. EME activities could be encouraged through provision of soft loans for CP and EE projects. The government should be a key player.	- Stringent government policy with regard to polluters, unbiased attitude on the part of supervisory authorities. - Involvement of the centre in auditing new projects and environmental assessments.
KEEC – Kola Energy Efficiency Centre, Russia	So far enterprises have not revealed considerable interest in this issue. By all means, the government must play an active role.	Participation in joint projects with foreign partners. Sharing foreign partners' experience related to these issues.
Russian-Norwegian Cleaner Production Centre, Russia	Enterprises are interested as they have to save resources and attract sufficient investments. The government of Russia cannot be a key player in promoting CP.	- Financial support in disseminating CP-related experience. - Creation of favourable financing and taxation conditions for CP implementation.
ECOLINE Regional Public Organisation Project Manager, Russia	For Russia, one of the key factors determining the level of interest toward environmental management systems (apart from the desire to demonstrate environmental priorities) is the level of interest in new approaches in general management and CP techniques related to environmental management systems. This interest can best be maintained through information dissemination and awareness raising among stakeholders. Unfortunately, the government does not seem interested and most information dissemination and training is done by public organisations supported by international assistance agencies and programmes. It is important to approach the development of government support mechanisms for environmental	First and foremost, government support for training and information dissemination activities and, possibly, recognition of documented expenses related to the introduction of environmental management systems as part of tax payments (similarly to the approach used in Oregon, USA).

Organisation	What lessons have been learned about starting and operating the Centre?	What could help most to improve operations of the centre and promotion of EME in the country?
	management systems with due discretion: support similar to the assistance provided in the field of quality management systems (preferential treatment of ISO 9001-2 certified companies in the placement of government orders) leads to proliferation of faked certificates. Other benefits based on the presence of the certificate are also likely to devalue the certificate and undermine the trust of stakeholders.	
Russian National Centre of Cleaner Production for the Oil and Gas Industry, Russia	Industry interest: introduction of new technologies reducing the load on ecosystems. Incentives: legislation exempting organisations that implement CP, EME and similar programmes from payments.	Examples of investments in the implementation of technical solutions developed as a result of CP and EME projects.
Cleaner Technologies Centre, Ukraine	Ukrainian industrial companies could be divided now into two groups: - Those that survived the industrial crises, characterised by old, outdated production equipment, inefficient consumption of raw materials and high pollution levels. Some of them (most economically stable) possess great potential for improvements (step-by-step modernisation of production equipment due to limited funds), especially those that export their products, since they have to be certified according to ISO standards series 9000. The most appropriate approach to them is to offer economically feasible CP solutions with short payback periods in addition to environmental monitoring systems that show benefits resulting from stepwise investment in technological and environmental improvements. In this group are those enterprises that want to implement EMS to attract investors. - Another group is composed of newly emerging enterprises that are relatively strong economically (e.g. they have investors) and built as turn key solutions. They generally request the best available equipment and technological solutions and are interested in a good (environmental) image. This group also possesses good potential for EME, however, it requires good knowledge of the market for environmentally friendly equipment and available CP solutions. Because in general industrial enterprises are joint-stock companies, the government should encourage them by implementing various motivating schemes.	- Establishment of EME encouragement mechanisms on the state level. - State financial support for the establishment of the NCPC. - Access to the UNIDO/UNEP CP database. - Demonstration projects for the most promising industrial enterprises that are willing to establish EMS. - Promotion of ISO 14001 alternatives, for example CP Awards.
Uzbek Centre of Cleaner Production, Uzbekistan	Industry is interested in EME due to the current laws on environmental protection. These activities can be encouraged through introducing charges for nature use. Authorities should emphasise the importance of environmental protection.	- Improvement of the economic situation at industrial enterprises. - Wide introduction of the CP concept at enterprises. - Expanding the CP centres' network.

B) Responses by ministries and other organisations

Organisation	Do you think that CP centres can provide a useful contribution to the promotion of EME in your country?	How well do you think the centres are connected to industry?	How could these connections be improved?	What are the major problems these centres encounter in their day to day work?	Which are the sectors where CPC activity seems particularly fruitful?	How do CPCs fit into the policy framework of your country?
Vernadsky Foundation, Russia	Yes.	Well-connected.	They could be improved through developing joint EME programmes and expanding service packages related to certifying enterprises for ISO 14000.	- Attracting financing for projects. - Lack of the regulatory framework that makes EME mandatory.	In the gas industry.	-
Ministry for the Environment, Construction and Territorial Development, Moldova	CP centres can contribute to the promotion of EME if enterprises get involved in the centres' programmes. But the main information policy is to be implemented by the federal ministry.	The CPEE Centre is well connected to industry when enterprises have a clear understanding of CP-related activities, however, in reality, most of the enterprises do not understand the importance of CP activities for their development. The Ministry for Industry cannot always influence private enterprises.	They can be improved through providing information on existing investment funds, best available technologies, costs of these technologies, possibilities of enterprises receiving grants and loans, etc. It can be done through giving enterprises an opportunity to participate in the programme without paying contributions and through developing a federal document that will provide for the mandatory introduction of CP and EM in enterprises.	- Misinterpretation of the CP goals by enterprises. - Lack of enterprises' funds. - Unwillingness of enterprises to work independently in the programme. Enterprises think that these projects must be developed by the staff of the CP Centre.	Industry in general.	CPs do fit well and are in conformity with the Concept of Environmental Policy of Moldova adopted by the Parliament in November, 2001. To promote the introduction of CP and facilitate Centres' activities, the Ministry for Ecology, Construction and Territorial Development has drafted the Declaration on Cleaner Production, which includes the commitments of ministries and departments to participate in promoting CP in their related areas.

Ministry of Environment, Tajikistan	There is no CP centre in our country, however such a centre could provide a useful contribution to the promotion and introduction of EME.	-	-	Lack of technical means, instruments, equipment, portable laboratories, etc.	Food-processing, export-oriented production.	In accordance with the legislation of Tajikistan.

4. Country presentation and contacts

Azerbaijan

CONTEXT: The NEAP of Azerbaijan includes a statement on environmental management in enterprises.

Ministry of the Environment and Natural Resources

The first six-month Cleaner Production Programme in Azerbaijan (with 22 engineers participating) was implemented in 1999 by the Russian-Norwegian Centre of Cleaner Production and co-ordinated by the State Committee for the Environment of the Republic of Azerbaijan. As a result of this initiative, the 22 engineers who participated successfully developed projects, which were then implemented in their respective enterprises. In the same year, a seminar on the Promotion of Cleaner Technologies and Environmental Management in Enterprises in EECCA was held in Baku under the auspices of TACIS.

In 2002 the Ministry of the Environment and Natural Resources, which had meanwhile been established on the basis of the State Committee for the Environment, launched a second programme entitled "Norwegian-Azerbaijani Cleaner Production Programme", again in collaboration with the Russian-Norwegian CP Centre. In addition, the ministry has been working on a project entitled "Support of Environmentally Sound Management at Enterprises" in collaboration with the German Institute of Labour and Social Hygiene (IAS) from July 2000 to June 2002.

Negotiations about the possibility of establishing a CP Centre in Azerbaijan are currently underway with the Norwegian partners and UNIDO.

Contact:
Imran Abdulov
Ministry of the Environment and Natural Resources, Republic of Azerbaijan
Head of the Department of Environmental Policy, Safety and Co-ordination
Co-ordinator for the Cleaner Production Programme
100 A Bakhram Agaev str.
Baku, Azerbaijan
Phone: +994 38-70-73
Fax: +994 92-59-07
Email: rsannarzade@azdata.net

Absheron Regional Water Company "Sukanal" Scientific Research and Design Enterprise

The centre was created by the Absheron Regional Water Company (ARWC) in 2000 with the legal status of a non-governmental organisation. Its main objectives are staff capacity building, promotion of pollution prevention in industrial processes and co-ordinating CP-related activities at ARWC sites. Its services do not include on-site assistance (audits) or certification (e.g. ISO 14000). Twenty-five people have been trained on environmental management programmes, and pollution minimisation and waste utilisation programmes; six enterprises in the water supply and sanitation sectors have so far received services. The centre has had 50,000 US$ at its disposal since establishment. It has obviously received no support from the government, but has grants and agreements with international organisations. Seven permanent staff members work for "Sukanal".

Contact:
Dr. Fazil Abilov
Director
Apsheron Regional Joint-Stock Water Company “Sukanal” Scientific Research and Design Enterprise
67 Tbilisi avenue
Baku citi, 370012, Azerbaijan Republic
Phone: +994 412 30 01 44
Fax: + 994 412 30 01 44
Email: sukanal@bakinter.net

Belarus

CONTEXT: A regulatory basis is being developed in Belarus to assist enterprises with ISO 14001 certification. In 1998 the Ministry of the Environment and the State Committee of Standardisation, Metrology and Certification established a subsystem of environmental certification in the framework of the national system of certification.

CP Centre at the Belarussian State University

The Belarussian State University is a structural entity within the Ministry of Education of Belarus. Though a state organisation, it is authorised to carry out commercial activities. BSU comprises a number of institutions involved in CP activities, in particular, *Unidragmet* (an enterprise specialising in waste processing and precious metals extraction) and *Sertifikatsiya Produktsii (Products Certification)* – a company providing ISO certification of products and management systems.

The main objectives of the centre are education development of new, waste-free technologies and information dissemination. The centre has trained 3,000 people on environmental law, certification systems and new technological solutions related to waste processing. Training covered 50 enterprises. Main clients are the Ministry of Industry, the Ministry of Agriculture, and the Belarussian Railways.

The centre is financed by government funding and fees for services. Budget shares are allocated to:

- Education 40%.
- Projects 40%.
- Consulting 10%.
- Information support 10%.

Future emphasis will be on implementation of projects related to the introduction of new technologies developed at BSU.

Contact:
Igor Vitalyevich Voitov
Belarussian State University
Vice-Rector for Economics and Commercial Activities
4 F. Skorina Pr., Minsk, Belarus 220050
Phone: + 375 (17) 209 5229; + 375 (17) 209 5230
Fax: + 375 (17) 206 6139
Email: voitov@bsu.by

Belarussian Environmental Management Association

The Association was established on the initiative of Belarussian enterprises and the Department of Ecology of the National Technological University of Belarus in December 1999 and is located at the State Polytechnical Academy. It is headed by the Chair of Ecology. The association focuses on training, consultancy, information and administrative support. Activities comprise:

- Informational and educational activities: courses for enterprises, reviews, newsletters, EME/CP university courses and development of textbooks.
- Implementation of EME/CP projects at enterprises.

The association conducts training for enterprises (EME/CP courses - one week long, twice a year) and for students (specialised courses in environmental management, environmental audit, environmental certification, product lifecycle, cleaner production, etc.). The association also participates in the training of auditors for the national system of environmental certification. The association has served 200 people and about 120 enterprises in a broad range of sectors.

The 100,000 US$ budget (for the last 5 years) comes from grant support, fees for training and implementation of projects. There are 14 employees. The Association is an INFM member since 2001 and has a widespread network: it co-operates with ministries (training of auditors, information support organising training courses for enterprises' representatives), local governments (selection of enterprises for the implementation of projects, staff training), NGOs (extension of the access to information and public involvement), industries (implementation of projects, consulting, information dissemination), CP/EME centres in Central Eastern Europe and universities (including IIIEE at Lund University).

Contact:
Sergey Dorozhko
Belarussian Association of Environmental Management (BAEM)
c/o Ecology Department, BSPA
Chairman
Avenue Skoriny 65
220027 Minsk, Belarus
Phone: +375-17-239-9265
Fax: +375-17-231-3049
Email: dorozhko@ecodept.unibel.by

Clean Production RTC

The Clean Production RTC is a regional specialised CP Centre within the framework of a 7 million US$ Dnieper Basin Environmental Rehabilitation Programme by UNDP-GEF launched in 2000. It covers the Dnieper Basin countries, Russia, Belarus and Ukraine. It operates within the "Centre of International Environmental Projects, Certification and Audit *Ecologyinvest*", created by the Belarussian Ministry of Environment in 1996. *Ecologyinvest* participates in international co-operation projects and is mainly responsible for the introduction of environmental certification in the republic.

The centre provides consulting for firms, support for governmental agencies, on-site assistance (audits) and certification (e.g. ISO 14000). Training for industrial enterprises began in the second half of 2002. Joint seminars are organised with the participation of enterprises' management and local environmental committees. Activities include:

- Organisation of training to introduce CP principles with the help of pilot projects.
- Assisting enterprises and organisations in the development of environmental management systems.
- Implementation of pilot projects on introducing EMS at enterprises to reduce the technogenic load on the environment of the Dnieper Basin countries.
- Establishing, with the help of donors, CP centres in all the countries of the Basin, using databases of donors and European CP centres.
- Ensuring participation of the heads of industrial enterprises of the three countries in CP-related on-the-job training and conferences (e.g. annual Round Table on Cleaner Production).
- Facilitating the establishment of organisations specialising in environmental audit in industry and agriculture
- Co-ordinating activities related to the participation of technical experts in cross-border diagnostic analysis and development of the elements of the Strategic CP Action Programme.
- Developing and introducing CP-related mechanisms of environmental assessment and drawing up current reports.

The centre has operated in around 30 companies from the metallurgy, food-processing, light and oil-processing sectors. The 2002 budget was 69,000 US$, mainly funded by the State Nature Protection Fund and the UNDP-GEF Environmental Rehabilitation Programme. The CP Centre has 21 staff members from Russia, Belarus and Ukraine. Surprisingly, 100% of the costs are project related, i.e. no share of the budget is for administrative purposes. Services related to environmental audits and CP training of industrial enterprises' personnel are regarded as possible future financing sources. The centre maintains relationships with a broad range of partners in the field, including government, NGOs, international donors, etc.

Contact:
Nikolay Nikolaevich Tsygankov
Clean Production RTC
Center of International Environmental Projects, Certification and Audit "Ecologyinvest"
Director
k. 16, ul. Komsomolskaya 16
Minsk 220050, Belarus
Phone: (375-17) 220 27 67
Fax: (375-17) 220-72-61, 220-90-03,
Email: ecoinv@home.by

Georgia

CP Centre of the Green Movement of Georgia/ Friends of the Earth Georgia

The centre is a specialised group within the Green Movement of Georgia/ Friends of the Earth Georgia, established in 1993. Introducing and promoting environmentally clean technologies and enhancing public involvement in decision-making are its main objectives. Services include training courses, information dissemination, audits and certifications (e.g. ISO 14000). While in the beginning activities were limited to lobbying political parties and NGOs, and education at schools, today the centre mainly works with industry: more than 200 companies have received services so far, with emphasis on extractive and processing industries, producers of foodstuffs, and major polluters. Still, the centre is financed exclusively by donors and has had a budget of 220,000 US$ since creation, with ten permanent employees. Since 2001 the group has developed activities to assist enterprises in logging and woodworking, the only sectors considered to be self-financing in the near future. Information on donor or government support in the EECCA countries for the promotion of CP or environmental management in enterprises is limited. The

centre receives no support from the government or other partners, and EME subsidies seem to be almost non-existent.

Contact:
Avtandil Geladze
The Greens Movement of Georgia/Friends of the Earth
Wazisubani 12-16, Tbilisi, 380052, Georgia
Phone: (995 32) 799-111
Fax: (995 32) 799-111
Email: avto.gel@posta.ge, gagreens@access.sanet.ge

Kazakhstan

CONTEXT: A federal programme was adopted in Kazakhstan recently with regard to the introduction of ISO 9000 and 14000.

Cleaner Production Centre

The centre was established in 1998 as a limited liability company. It is managed by people who worked for an USAID/WEC cleaner production programme between 1996 and 1997. Today, staff includes eight permanent employees; additional experts are involved in the implementation of specific activities on a contractual basis. The centre relies exclusively on fees from services provided to enterprises and maintains no relations with donors. The total budget for the four years of operations amounts to around 137,000 US$ (KZT 21 mln). Activities aim at:

- Participation in international projects on cross-border management of water resources (at present the centre is representing Kazakhstan in the joint French-Russian-Kazakh project on monitoring, information support, modelling and regulatory frameworks related to the transborder river of Irtysh).
- Conducting activities and rendering services, on enterprises' requests, in environmental impact assessment, development of pollution limits and preparation of justification materials for nature use permits.

The centre offers reports on environmental audits at enterprises; materials on the inventory of air pollution sources at enterprises; projects pertaining to standards of maximum permissible emissions or discharges; reports on the pollution of environmental media resulting from enterprises' solid waste; preparation of "Environmental Protection" sections of industrial construction documentation; justification materials on specialised water use for industrial enterprises; or materials on the development of hi-tech products related to specific aspects of environmental protection and natural resource use. Services do not cover certification or training programmes.

About 20 enterprises (half of which co-operate with the centre on a long-term basis) from nine industries, mainly manufacturing, have received services.

Contact:
Murat Zhanzakov, Director
Cleaner Production Centre
Ul. Lermontova 90-27,
Pavlodar, Kazakhstan 637026
Phone: (3182) 32 26 98
Fax: (3182) 32 36 89
Email: mzhan@nursat.kz

Cleaner Production Laboratory

The CP laboratory was established in 1998 as a public research institution by the National Centre of Complex Processing of Mineral Resources of the Republic of Kazakhstan, which is a structural unit of the Ministry of Power Engineering and Mineral Resources and includes seven daughter enterprises and several laboratories. The CP laboratory focuses on introducing international quality management systems and EME at mining and smelting enterprises and has two offices (one in Ust-Kamenogorsk, the other in Almaty). Sources for financing are state allocated funds, fees paid by enterprises and donor support.

Exact budget and number of staff are not disclosed. However, given that more than half of the staff is engaged in cleaner production aspects of technologies and the processing of mineral raw materials, and given that the National Centre has a staff of 1500 and a budget of 300 Mio US$ since creation, the laboratory seems well equipped.

A federal programme was adopted in Kazakhstan recently with regard to the introduction of ISO 9000 and 14000. The National Centre of Complex Processing of Mineral Resources is the leading organisation in the field of implementing this "Quality" federal programme in mining and smelting enterprises: it has developed and submitted to the Ministry for Energy and Mineral Resources a draft concept of scientific, methodological and metrological support for the implementation of the programme and has prepared metrological guidelines on the instrumentation monitoring of the quality management and EM systems.

Contact:
Ms. Alma Terlikbaeva
RGP "National Centre of Complex Processing of Mineral Resources of the Republic of Kazakhstan"
Deputy Director General
Zhandosova 67,
Almaty, Kazakhstan
Phone: 7 (3272) 590078, 590070
Fax: 7 (3272) 590078
Email: alma_terlikbaeva@rambler.ru, cmrp@itte.kz

Scientific Research Centre of Friendly Environment Technologies for the East Kazakhstan region

The centre was established as a non-profit organisation in 1999 by the Scientific Research Institute "VNIItsvetmet", following an initiative of the local government of the Eastern Kazakhstan oblast (Akimat). "VNIItsvetmet" belongs to a daughter of the National Centre of Complex Processing of Mineral Resources (see above). The Scientific Research Centre is a structural unit of the Research Institute for Non-Ferrous Metals, the staff of which conducts the centre's activities. The centre focuses on scientific research of environment friendly technologies. In addition, it has just developed the regional ecological program "Rational Use and Protection of Natural Resources of the East Kazakhstan Area in 2002-2005".

According to the centre, it is financed through contracts with mining and metallurgical plants. Considering that it has had only one client and receives no government support, however, it seems obvious that expenditures are covered by the Institute's budget.

Contact:
Sedelev Valeriy Aleksandrovich
Scientific and Research Centre of Environmental Friendly Technologies for East Kazakhstan Region
Director
Address 1, Promyshlennaya St.,
492020 Ust-Kamenogorsk, Kazakhstan Republic
Phone: (3232) 49 14 60, (3232) 47 37 73
Fax: (3232) 47 37 73, (3232) 47 37 73
Email: mmi@ukg.kz

The Kyrgyz Republic

CONTEXT: Provisions to create a favourable investment climate to facilitate the implementation of up-to-date cleaner production technologies have recently been included in the "Comprehensive Programme for the Development of the Kyrgyz Republic for the period until 2010", and corresponding amendments have been incorporated into the national "Law on Environmental Protection". However, appropriate financial mechanisms for the provision of tax benefits and methods of determining the levels of pollution charges have yet to be developed.

Georisk Public Research Centre

The centre was established in September 2000, based on voluntary contributions of staff members. It is a non-governmental, non-profit association. Work focuses on:

- Consultative services in the field of risk assessment.
- Economic analysis of environmental impact and preparation of environmental impact assessments.
- Calculation of payments for pollution (damages).
- Performance of independent (public) environmental expert evaluations.
- Environmental audits.
- Preparation of environmental "passports" and documentation on maximal permissible emissions and discharges for enterprises.
- Development of instructions and regulatory documentation in the field of environmental protection
- Provision of public access to decision-making processes.
- Support for the Government of the Kyrgyz Republic in the implementation of obligations under the Aarhus Convention.

The centre has conducted training courses for ten university students in methods of environmental damages evaluation, calculation of concentrations in pollutants, and interpretation of data. Surprisingly no training kits have been developed, however. Sixty-four enterprises have received services, with an emphasis on heating plants (two sugar refineries, eight mining enterprises, fifty heating plants and four fuel companies).

Staff consists of three full-time posts. The budget is not disclosed. Funding stems from voluntary sponsor contributions, and fees for research, monitoring and consulting services. The centre has received limited support from the government in the form of information and experience sharing. At present it is developing links with the Kyrgyz Republic regional office of the International Science and Technology Centre.

Contact:
Elena Ragutskaya
Georisk Public Research Centre
Deputy Director for Environmental Issues
2 Erkindyk
Bishkek, Kyrgyz Republic
Phone: + 996 312 664805
Fax: +996 312 660483
Email: ra_geo_eco@yahoo.com

Moldova

CONTEXT: The introduction of CP technologies in Moldova is also assisted by the Czech CPC, which is implementing a CP training programme for experts of enterprises in Moldova with a grant from the Czech government.

Cleaner Production and Energy Efficiency Centre (CPEE Centre)

The centre was established in 1999 by engineers who had attended a Cleaner Production training programme organised by the Russian-Norwegian CP Centre (Russia) two years earlier. In August 2001 its name was changed from Industrial Pollution Prevention Centre (CPPI) to Centre of Cleaner Production and Energy Efficiency (CPEE). The NGO organises training courses for engineering and technical personnel of Moldovan enterprises in the field of CP, energy efficiency and EME and disseminates information via publications, the media and the Internet (at www.cpee.md and www.iatp.md/cppi). It also provides all consulting services except for certifications. The centre has trained 50 people so far on Cleaner Production and energy efficiency, Financial Engineering, Business Planning, Project Development, Project Management and Quality Assurance/Environmental Management (ISO 9000/14000). The centre has also developed materials on the use of biotechnologies in cleaner production. Around 100 enterprises from 12 different sectors have been covered. Main financial sources are the Norwegian Government, the Moldovan Environmental Fund, and fees from services to enterprises. The largest share of the budget of 34,500 US$ since creation is spent on training programmes (70%). The centre entertains relations with the Russian-Norwegian Cleaner Production Centre in Russia and the Pollution Prevention Centre in Rumania.

Contact:
Yuri Leu
Cleaner Production and Energy Efficiency Centre (CPEE Centre)
Director
124/20 A. Hyzhdeu, Chisinau 2005-MD, Moldova
Phone: (03732) 21 32 33
Fax: (03732) 22 71 14
Email: cpee@cpee.md, cppi@mail.ru

Ministry for the Environment, Construction and Territorial Development

The Moldavian Ministry of Environment has actively supported cleaner production for quite some time. It pursues a policy of waste minimisation through clean technologies, introducing CP at enterprises, and reducing pollution at its source. To promote the introduction of CP and facilitate centres' activities, the

Ministry has drafted a Declaration on Cleaner Production that includes the commitments of ministries and departments to participate in promoting CP in their related areas. When it holds CP-related events and educational seminars, it invites representatives of all related ministries and enterprises to participate. In addition, the ministry promotes CP technologies through organising seminars for enterprises and local authorities, developing guidelines and reference literature on CP, and co-ordinating local CPC activities and activities implemented by the Czech CPC in Moldova in accordance with its three year programme. There are no ISO 14001 certified enterprises in Moldova, therefore the ministry conducts educational activities preparing and urging enterprises to transition from ISO 9000 to ISO 14001.

National legislation provides benefits for those enterprises that introduce clean technologies, waste disposal technologies, etc., but due to the economic and financial crisis the government allocates no subsidies for these activities. Nevertheless, these activities are among the priority issues of the National Environmental Fund. CPC activities are supported to a certain extent. Furthermore, an Environmental Information Centre has been established at the ministry where everyone has access to information, including data on CP/EME. Since July, 1999, the Ministry for Environment and Territorial Development, in collaboration with the CPPI (now CPEE) and the Ministry for Industry and Energy, has implemented an international CP programme at eight Chisinau enterprises (Carmez, Lapte, Fabrica de Drojdii din or. Chisinau, Avicola Roso, Agroconservit, CET-1, Piele).

Contact:
Tamara Guvir
Ministry for the Environment, Construction and Territorial Development
Head of department
ul. Kosmonavtov 9,
Chisinau, Moldova
Phone: 226851
Fax: 220748
Email: guvir@mediu.moldova.md

Russian Federation

CONTEXT: In 2002 a new federal law on environmental protection was adopted that defines the federal strategy regarding the introduction of state-of-the-art EME methods and mandatory ecological certification of goods and services.

Moscow Cleaner Production Centre

The centre was developed in 1996 by the ELMET joint stock company on the basis of self-financing, without support from institutions but in close information co-operation with the Moscow Committee for Nature Protection. During the last two years, the committee was reorganised and obviously no longer supports the idea of CP. Therefore, the centre has stopped operating as a CP centre: it works with a staff of ten in industrial ecology with, for example, heat and power supply plants and electroplating enterprises. Services cover a wide range, but do not include certifications. The centre is also developing procedures for anti-terrorist audits at industrial enterprises. All services are said to be self-financing. However, to allow for scientific work, the development of methodology and text-books or of the anti-terrorist audits, government funding would be needed. The centre has received financial or other support from the Moscow Ecofund (for developing an installation for extracting heavy metals from electroplating production waste); from the Economic Ecology Institute of Lund University Sweden (staff members gave a demonstration of environmental audits); from the OECD, Paris (information from the database on ecotechnologies); and

from the Westfalen Separator Company, Germany (lent a movable decanter for two years to demonstrate environmental benefits at industrial enterprises). Surprisingly, the centre claims to have no relations with donors or the national government.

Contact:
Marina Baturova
Director
Moscow Cleaner Production Centre
ul. Zapovednaya 20a -51
Moscow 129642
Phone/fax: +7 095 186 3259
Email: baturova@mtu-net.ru

Russian-Norwegian CPC

Since 1994, the Russian-Norwegian Cleaner Production Centre (RNC) has been implementing the Norwegian Cleaner Production Programme. The Russian-Norwegian CP Centre is based in Moscow but works mainly in Northwest Russia, mostly with large manufacturing enterprises exporting to the Nordic countries. It is an autonomous non-commercial organisation, working in contact with the Ministry of Nature Resources and the Ministry of Foreign Affairs of Russia. The centre implements six to eight programmes annually. Since 1998, RNC, with the support of the Norwegian Society of Chartered Engineers (NIF), has implemented a second-level programme, "Financial Engineering", to train specialists to develop business plans in compliance with IFI standards. From 1998 to 2001, RNC organised four financial engineering programmes.

Services focus on consulting with regional authorities, assisting industrial entities in attracting investments, developing technology, disseminating information and providing training courses. The centre has reached 500 enterprises and trained 1500 people been trained on "Cleaner Production" and 84 on "Financial Engineering". The centre receives financing from the Government of Norway; international projects; and payment for services by industrial enterprises. There is no information on the budget size. Equal amounts of NIF funds are allocated for each activity, i.e. two programmes per year in the Archangelsk and Murmansk Oblasts and the Republic of Karelia. There are five permanent employees altogether and three offices, in Moscow, Petrozavodsk and Archangelsk.

The RNCPC works with many partners: it issues an annual report on the outcomes of the CP Programme implementation and proposals on CP Programme development for the government; it works on loan agreements with NEFCO; it assists local governments in implementing CP Programmes; and works with Universities regarding CP Programmes' implementation, and teachers and students' involvement. It has also provided training to new CP initiatives in Moldova and Azerbaijan.

Contact:
Alexander Tsygankov
Russian-Norwegian Cleaner Production Centre
Director
off. 405, ul. Selskokhozyaystvennaya 15/1, korp. 2, Moscow
Phone: (+7 095) 189 6526
Fax: (+7 095) 189 5770
Email: edcentcp@deol.ru

ECOLINE

Since 1996, Ecoline, set up as a regional public organisation, provides consultative assistance and supports the introduction of environmental management systems at Russian enterprises, and organises workshops and international conferences devoted to this topic. It has been involved in awareness raising activities among stakeholders and promotion of public participation. Ecoline RPO is a member of the International Network of Environmental Management (INEM). It collaborates with the Ministry of Natural Resources of the Russian Federation and the State Committee for Standards and participates in the work of ISO Technical Committee 207, which is responsible for the development of series ISO 14000 standards. Ecoline also co-operates with the Ministry for Industry to promote environmental management systems and develop an environmental section of the Tax Code, with the private sector on consultations and assistance in the implementation of environmental management systems, and with NGOs for the dissemination of information, etc.

Ecoline holds workshops on the introduction of EME systems, integrated management systems and environmental auditing: 600 people have been reached so far. Various enterprises have been targeted, primarily in the glass industry, chemical industry, oil production sector, metallurgical industry and machine-building industry. Thirty –enterprises received direct assistance and over 100 obtained consultative support. The budget has been 800,000 US$ for the last five years, composed of grant funds, contracts with international agencies for the organisation of training programmes, and fees for services rendered to enterprises and organisations. The organisation has received some informational support from the government. There are nine employees (permanent and students).

Contact:
Sergey Yurievich Daiman
ECOLINE Regional Public Organisation
Project Manager
P.O. Box 7, Moscow 125047, Russia
Phone: (+7 095) 978 9061
Fax: (+7 095) 978 9061
Email: ecoline@ecoline.ru

Russian National Centre of Cleaner Production for the Oil and Gas Industry

The Russian National Centre was founded in November 1999 as a specialised non-profit organisation by UNIDO, the Ministry for Science and Technologies and the Ministry for Fuel and Energy. It is linked with the Gubkin Russian State University for Oil and Gas. The main objectives of the centre are promotion of the CP concept; training of experts in CP, EME, ISO 9000, ISO 14000; and transfer of technologies. Work therefore focuses on:

- Developing and implementing CP demonstration projects.
- Setting up branches of the centre.
- Rendering consulting services related to the introduction of new technologies.
- Organising conferences on environmental problems and publishing related materials.

About 100 experts and 25 enterprises from the oil and gas industry have requested services. Among others, the centre works with the Ministry of Environment and local governments, the private sector (e.g. OAO Gasprom, OAO Lukoil, OAO Transneft), industrial organisations, NGOs and universities.

The Russian National Centre is financed by donor funds and fees from services with a budget of about US$ 300, 000 since creation. Permanent staff includes two CP experts and two assistants , while three to five specialists are hired on a contractual basis.

According to the Vernadsky Foundation, the centre is well-connected to industry, but this could be improved through developing joint EME programmes and expanding service packages related to certifying enterprises for ISO 14000.

Contact:
Mr S. Meshcheriakov
Russian National Centre of Cleaner Production for the Oil and Gas Industry
Director
65, Leninsky Prospekt
119991 Moscow, Russian Federation
Phone: +7095 135 8696
Fax: +7095 135 7496
Email: oso@saog.ac.ru

KEEC – Kola Energy Efficiency Centre

The KEEC was established in September 1996 by the Kirovsk City Administration, Kola Scientific Centre, Association of Pilot High Energy Efficiency Zones of Russia, Ivanov State Energy University, and two enterprises OAO "Apatit" and OAO "Kolenergo". KEEC members include the Norwegian Energy Efficiency Group, authorities and enterprises of the Murmansk Oblast and the "Storvick" company (Norway). The centre operates with ten full-time employees in Kirovsk and Apatity City.

The KEEC develops and implements energy-saving projects for (budget) enterprises and municipalities. It offers the following services: energy audits and assistance in selection and purchase of equipment (heat supply systems, industrial enterprises, apartment and office buildings); development of business plans for energy saving projects; assistance in locating investors; seminars on efficient energy consumption and assistance in legislation. In the demonstration zone, Kirovsk, a number of energy saving projects in different sectors and municipal facilities have been developed and implemented. Furthermore, an educational and exhibition centre for modern energy efficient technologies and energy saving equipment has been created. In collaboration with the Nordic Environment Finance Corporation (NEFCO), a revolving energy-saving fund was established in Kirovsk and an energy service company (ESCO) in the town of Apatity. The KEEC also organises a programme for schoolchildren entitled "Rational Use of Energy and Natural Resources".

The KEEC has served 12 enterprises from mining, power and district heating; 100 people received training. The KEEC has contributed positively to CP, and fees for services and membership from international companies and organisations covered 90 % of total expenses in 2000. In 2001 the budget was US$ 100,000. KEEC is accredited as one of seven official Russian Energy Efficiency Demonstration Zones. It has also been certified as energy auditor by the State Energy Supervision and by RAO EES Russia. Since 2000 KEEC as well as the other three Regional Energy Efficiency Centres (see below) have been recognised as Barents Energy Focal Points by the Barents Euro-Arctic Council.

Contact:
KEEC – Kola Energy Efficiency Centre
Victor Kotomkin, Director
Lenin Avenue 7, Kirovsk
Mailing Address: P.O. box 237, Apatity 9
Murmansk Oblast
The Russian Federation
Phone: +7 815 31 5 47 61
Fax: +7 815 31 944 36
Email: keec@com.mels.ru
www.keec.com

MOEEC – Murmansk Oblast Energy Efficiency Centre

MOEEC was established in September 1998, and operates with five full-time employees in Murmansk City. The general basis for its establishment is the association ROSDEM - "Russian Demonstration Zones for High Energy Efficiency" with its centre in Moscow, and the Russian - Norwegian collaboration agreement in the field of Energy Efficiency signed in 1996.

MOEEC is the official Energy Efficiency Centre representing the interests of the Murmansk Oblast Administration. A co-operation agreement with the Murmansk State Technical University has resulted in a move to permanent offices on the university campus. MOEEC provided 70 % self-financing in 2000. Main activities include: initiating and supporting energy saving projects; advising the regional government in energy policy and energy efficiency; consulting with the industrial sector and private and public institutions; assisting with the implementation of "the Agreement between the Russian Ministry for Fuel and Energy and the Norwegian Ministry for Industry and Energy about technical co-operation in the sphere of Energy Efficiency" from 1996; technology transfer through seminars and demonstration projects; increasing energy efficiency awareness through distribution of newsletters and other publications.

Contact:
MOEEC – Murmansk Oblast Energy Efficiency Centre
Vadim Glukhikh, Director
Sportivnaya St., 13
Murmansk, Russia 183010
Phone: +7 8152 23 93 57
Fax/phone: +7 8152 23 49 82
Email: moeec@online.ru
www.moeec.com

KAEEC – Karelia Energy Efficiency Centre

The KAECC was formally registered in August 1999, in Petrozavodsk City, and now operates with five full-time employees. During the second half of 2000 KAEEC improved its organisation and economy after a difficult first year of operation. During 2001 it had a substantial number of projects, mainly from the active founders, such as Energonadzor, Karelenergo, the Regional Energy Committee and the NEEG. KAEEC moved into permanent offices at the Petrozavodsk State University campus in September 2001. Work focuses on: gathering, analysis and systematisation of information on energy efficient equipment, technologies and materials; non-conventional power engineering in the Republic of Karelia, in particular, and in the North region of Europe as a whole; demonstration projects; exhibitions on best available technology; organisation and conducting of conferences, seminars and short-term training courses;

distributing leaflets and publications; assistance in developing business-plans; and assistance locating financial sources.

Contact:
KAEEC – Karelia Energy Efficiency Centre
Smirnov Alexey, Director
Anohina str 20, office 412
185035 Petrozavodsk
Russia
Phone/fax: +7 8142 769391
Email: kaeec@onego.ru
www.kaeec.com

AOEEC – Arkhangelsk Oblast Energy Efficiency Centre

AOEEC was established in August 1999 in Arkhangelsk City and operates with four full-time and two part-time employees. AOEEC was established in accordance with the Act of the Government of the Russian Federation "About the Establishment of Russian Demonstration Zones for High Energy Efficiency", and it was supported by the European Commission project, "Energy Efficiency 2000".

AOEEC was reorganised during spring and summer of 2001, and now has closer contact with the Arkhangelsk Oblast Department of Fuel & Energy, Arkhenergo, Arkhangelsk and Severodvinsk cities. It co-operates with local and regional administrations, investment and commercial institutions, Severodvinsk Marin Technical University and Arkhangelsk Technical University. Activities are similar to those of the other Regional Energy Efficiency Centres (see above).

Contact:
AOEEC – Arkhangelsk Oblast Energy Efficiency Centre
Oscar Muller, Managing Director
17 Popova St., offices 33-34,
Arkhangelsk, 163061,
Russia
Phone: (8182) 65 39 21
Fax: (8182) 65 71 42
Email: aoeec@dvinaland.ru
www.aoeec.com

Business Association for Sustainable Development - Vernadsky Foundation

The Vernadsky Foundation is a Russian business organisation for the promotion of sustainable development, established in 1995. Among the founding members are Gazprom, Lukoil and EES. The main objective of the association is to organise high-level business conferences on sustainable development, although three more commercial arms have been added to the foundation (InterEcoDialogue, a conference service firm; InterEcoExpertise, a consulting company; and InterEcoInvest, a consulting company for oil and gas investments). The Vernadsky Foundation co-operates with the World Business Council on Sustainable Development (WBCSD) as a partner in their network of national Business Councils for Sustainable Development (BCSD). The activities of the foundation are mainly implemented through organisation and participation in workshops and conferences in the Moscow region and through grant contests for the scholars and publications.

Several projects include aspects of eco-efficiency and EME:

- In association with the Foundation for Business and Sustainable Development (Oslo, Norway) the Vernadsky Foundation is currently creating a Virtual University for Sustainable Development, a training shell, which includes aspects of eco-efficiency and energy-efficiency.
- Under the title "Solid Organic Fuel: Raising the Level of Usage Project" new science and technology projects shall be introduced to review the efficiency of coal use in Russia.
- The foundation has initiated the establishment of a "Centre of Ecological Management, Certification and Auditing", which will among others work on recommendations for gas companies to develop their ecological standards in compliance with existing environmental requirements and international standards ISO 14000. Furthermore, the centre will certify manufacturing plants in compliance with ISO 14000 and train professionals in ecological management.
- The Vernadsky Foundation organises scientific-methodological consultations on introducing EME at gas enterprises, holds seminars on topical issues of conducting environmental impact assessment of projects and environmental audit at enterprises.
- In collaboration with the "Russian National Centre of Cleaner Production for the Oil and Gas Industry" (see above) the Vernadsky Foundation established a non-profit organisation "EnergoEcoTest" with the main aim of certifying enterprises in accordance with Russian and international environmental standards.

Contact:
Roman Starkov
Programme Director
Non-governmental Ecological Vernadsky Foundation
ul. Obrucheva 23,
Moscow, Russia 117630
Phone: (095) 334-1820
Fax: (095) 334-1709
Email: starkov@vernadsky.ru

Tajikistan

Ministry of Environment of Tajikistan

There are no CP centres and hardly any EME related activities in Tajikistan. However, the Tajik Parliament is about to pass a law on licensing, and the ministry of environment hopes that a CP centre will be established soon. The ministry closely co-operates with "Tajikstandard", an independent institution founded in 1935 in the field of CP implementation and licensing. In accordance with the laws on environmental protection and standardisation of Tajikistan, the ministry has the right to inspect CP, develop CP standards and license CP. Besides, quality monitoring equipment is registered with "Tajikstandard" and an expert statement is issued. According to the law on environmental protection the State Environmental Examination Body of the Ministry of Environment (founded in 1988) is authorised to grant permission for CP implementation.

Contact:
Rakhmatullo Khajrulloev
Ministry of Environment of Tajikistan
Department of Environmental and Economic Standards of Nature Use
Head of Department
Ajni-44
734025 Dushanbe, Tajikistan
Phone: (372992) 274490; (372992) 218978
Fax: (372992) 218978
Email: biodiv@biodiv.tojikiston.com

Ukraine

The CT Centre Ukraine

The CT Centre Ukraine was established in 2001 as a follow-up to the Danish-Ukrainian project, "Cleaner Technologies in Machine Building Industry in Ukraine" (financed by the Danish Environmental Protection Agency with the Danish Technological Institute as its main contractor), which started in 1996. Besides demonstrating the potential for the use of cleaner technologies in the machine building industry, the project aimed at establishing a local capacity on cleaner technology audits and efficient management of industrial enterprises.

Today, the CT Centre is a private company providing different types of assistance and consulting services in environment and energy, comprising two main departments (environmental and energy). The centre has six permanent employees. In addition, it has a network of specific industry experts in the country for specialised tasks in the different regions.

Main objectives are to disseminate experience gained on Cleaner Technologies Implementation at Ukrainian enterprises and CP methodology; to support the implementation of environmental management systems, CP Awards and ISO 14001 at Ukrainian enterprises; to implement demonstration projects using environment friendly equipment to prove in practice ecological and economic benefits of CT principles and methods; and to co-ordinate research and development activities in the field of cleaner technologies. In addition, the centre plans to establish a National Cleaner Production Centre, a project which is supported by the government. Among priority concerns are: protection of water resources, disposal and elimination of industrial wastes, atmospheric air protection, biological protection and protection of the Dnieper river basin and its bank zones, environmental and energy management, energy conservation and energy efficiency.

Approximately 45 people have been trained, mostly through on-site training of operational staff during the implementation of projects. Around 50 enterprises from the machine building, food, power generation and agricultural sectors have made use of the centre.

Funds come from selling services including support services for international grant projects, and add up to US $ 538,000 since establishment. According to the centre additional sources will come from:

– Possible financial support from UNIDO/UNEP.
– Ukrainian State Fund for CP Implementation (has to be established).

– Preparation of Ukrainian enterprises for foreign investment projects and participation in these projects.

Certification according to ISO 14000, 9000 and CP awarding are considered major sources of self-financing in the future. Currently the centre is participating in the bid for two EU TACIS projects as a partner of Danish consulting companies.

Contact:
Irina Souproun, Director
Cleaner Technologies Centre, Ukraine (CT Centre, Ukraine)
office 98, 10/2 Mechnikova St., Kyiv, 01023, Ukraine
Phone: (+380 44) 234 28 69
Fax: (+380 44) 234 78 10
Email: irs@dansupport.kiev.ua

Uzbekistan

Uzbek Centre of Cleaner Production

The centre was established by the Government of Uzbekistan and the State Committee on Nature Protection of Uzbekistan in September 2001. It is an independent, non-profit, non-governmental organisation in partnership with the State Committee on Nature Protection. Surprisingly, the centre maintains no relations with other centres in the country. is the centre has three employees. Its main objectives are to ensure compliance with environmental requirements and to promote cost-effective industrial production in the country. The centre offers a broad range of services, from information dissemination, translation of documents, a library/reference centre, consultant services for firms, support for governmental agencies, on-site assistance (audits) and certification (e.g. ISO 14000) to technology development. Training focuses on:

- Demonstration seminars.
- Training seminars for industrial specialists to develop projects reducing environmental pollution.CP information and training seminars seem more demanded by industry (25 enterprises so far) then consultation services (four clients). In total, 65 people have been trained. Funds are provided by donors and the government: UNIDO provides 769,530 US$ for 5 years; the Government of Uzbekistan funds 6,500 US$ for one year. It also pays for utilities, communication and rent. Assistance in setting up a chemical laboratory is wanted. According to the centre, potential sources for future financing lie mainly with:
- Fees for environmental audit.
- Conducting out chemical analyses at enterprises.
- Consulting and certification of enterprises (ISO 9000, ISO 14 000).
- Distributing information and technical literature.

Contact:
Nazir Abidzhanov, Director
Uzbek Centre of Cleaner Production
pr. Druzhby Narodov, block I, bld. 7,
Tashkent, Uzbekistan
Phone: (99871) 173 8661
Fax: (99871) 173 8661
Email: mlobar@mail.ru