UNITED NATIONS DEVELOPMENT PROGRAMME
Regional Project with participation from the governments of:
Bulgaria, Croatia, Hungary, Romania, Slovak Republic

Project Document Number: RER/00/G35/A/1G/37
Project Title: Transfer of Environmentally Sound Technology (TEST) In the Danube River Basin
Project Short Title: TEST

Executing Agent: UNIDO/UNDP
Implementing Agent: UNIDO
GEF Implementing Agency: UNDP
Project site:

Beneficiary Countries:
Bulgaria, Croatia, Hungary, Romania, Slovak Republic

UNDP and Cost Sharing:	
UNDP/GEF	**$900,000**
AOS:	**$90,000**
UNDP Total	**$990,000**
Parallel Financing	**$1,380,000**
Total:	**$2,370,000**

Estimated Start Date: January 2001

Estimated End Date: December 2003

Programme Officer: Mr. Christopher Briggs

Classification Information

ACC sector & sub-sector: Environment enhancement and management (203).

DCAS sector &sub-sector: Natural Resources: Environmental preservation and rehabilitation.

Primary area of focus/ sub-focus: Environmental Resources and Security (C.2.3).
Secondary area of focus/ sub-focus: Promotion of Sustainable Resources Management.

Primary type of intervention: Institution building (E.1).
Secondary type of intervention: Pilot and Demonstration (E.4).

Primary target beneficiaries: Target organization (D2): Civil Society Organization (cleaner production centres).
Secondary target beneficiaries: Lakes and rivers (D.3).

Brief Description

The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients and/or persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms while still maintaining or perhaps enhancing their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention while at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.

On behalf of the Governments of:	**Signature**	**Date**	**Name/Title**
Bulgaria	_____	_____	_____
Croatia	_____	_____	_____
Hungary	_____	_____	_____
Romania	_____	_____	_____
Slovak Republic	_____	_____	_____

See ANNEX VI

On behalf of:			
UNDP GEF	_____	_____	_____
UNIDO	_____	_____	_____

ACRONYMS

CIC	Clean Industry Centre of Bulgaria
CPCs	Country Programme Coordinators for the Convention
CP	Cleaner Production
Cro CPC	Croatian National Cleaner Production Centre
DRPC	Convention on Cooperation for the Protection and Sustainable Use of the Danube River
EMS	Environmental Management Systems
EST	Environmentally Sound Technology
HCPC	National Cleaner Production Centre of Hungary
ICPDR	International Commission for the Protection of the Danube River
PCU	Programme Coordination Unit
PMTF	Programme Management Task Force
PPC	Pollution Prevention Centre of Romania
PRP	Pollution Reduction Programme for the Danube River; funded by GEF
SCPC	Slovak Cleaner Production Centre
TDA	Transboundary Diagnostic Analysis; part of PRP
TEST	Transfer of Environmentally Sound Technology

I. CONTEXT

A. Pollution in the Danube River Basin and Industrial Contribution

The Danube River Basin

The Danube River basin is the heartland of central Europe. The main river is 2,857 km long and drains 817,000 sq. km including all of Hungary; most parts of Romania, Austria, Slovenia, Croatia, and Slovakia; and significant parts of Bulgaria, Germany, the Czech Republic, Moldova and Ukraine. Territories of FR Yugoslavia, Bosnia and Herzegovina and small parts of Italy, Switzerland, Albania and Poland are also included in the basin (Figure 1). The Danube River discharges into the Black Sea through a delta which is the second largest natural wetland area in Europe.

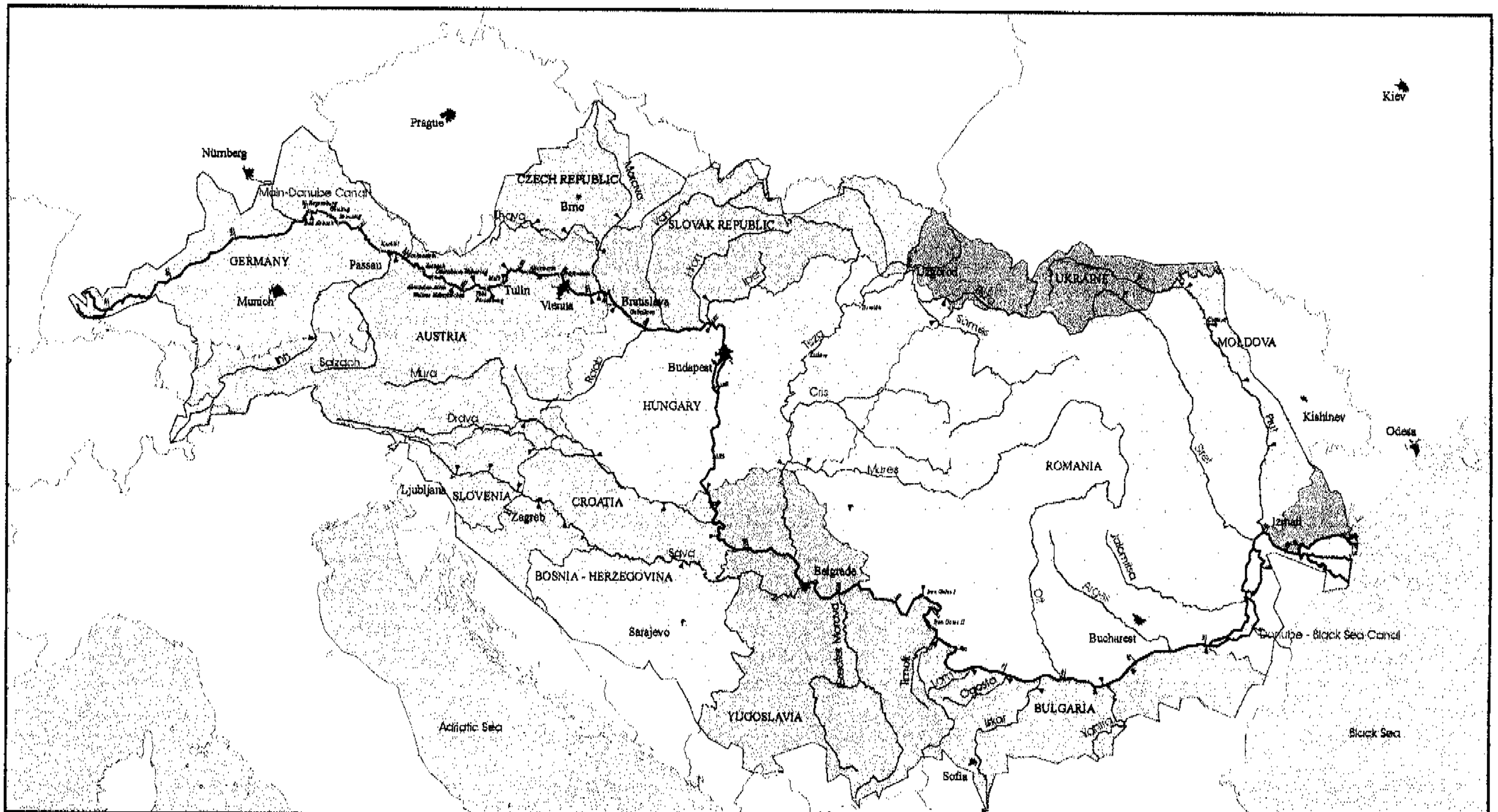
Water Quality Problems in the Danube

The Transboundary Analysis (TDA) for the Danube River Basin (1999) identified the following main problems that affect water quality use: high load of nutrients and eutrophication; contamination with hazardous substances, including oils; microbiological contamination; contamination with substances causing heterotrophic growth and oxygen depletion and competition for available water. The human activities contributing significantly to these problems are human settlements, agriculture and industry.

Industry, atmospheric deposition, etc. cause about 20-30 per cent of the problem of excessive nitrogen and phosphorus in the Danube Basin. Old-fashioned fertilizer factories are major dischargers of nitrogen and their outdoor piles and lagoons of phosphor-gypsum are a special case of pollution by nutrients. Even if production on these sites is reduced or stopped, the gypsum stores will continue to be serious pollution sources in the future.

Industry and mining are responsible for most of the direct and indirect discharges of hazardous substances into the Danube Basin. Depending on the type of industry, the effluent might contain heavy metals (smelting, electroplating, chlorine production, tanneries, metal processing, etc.), organic micro-pollutants (pulp and paper, chemical, pharmaceuticals, etc.) or oil products and solvents (machine production, oil refineries, etc.). Mining activities result in drainage water from the mines, run off from tailings and from process water containing metals and sometimes organic solvents. Data on loadings of hazardous pollutants are available from only a few individual enterprises. Sewage is a main source of ammonia.

Organic materials discharged by human settlements and industry consume available dissolved oxygen. The impact is dependent on the total load, the type of organic substances, the water temperature, the dilution capacity and the initial oxygen concentration of the recipient. Serious oxygen deficiencies are most likely to occur in slow-flowing and stagnant waters. Downstream of major outlets, the oxygen concentration may drop below the level that can support aquatic life forms including fish populations and render the receiving waters unsuitable for drinking water supply and recreation. Such situations are occurring in the Danube tributaries: for example, the Vit River in Bulgaria is unable to support fish downstream of the city of Plevin, primarily due to discharges from a sugar factory, and discharges from the pulp and paper factory in Pietra Neamt have made one of the Siret tributaries unfit for most uses. The main stream of the Danube, however, has a very large dilution and oxygen mixing capacity that enables it to cope with heavy loads of organic materials.



Danube Basin Map

- Catchment boundary
- State boundary
- City
- River
- Water level measuring station
- Hydropower dams

0 100 200 km

Date: January 1996

Prepared by: delft hydraulics

Industrial Polluters

In the frame of the UNDP/GEF Pollution Reduction Programme (PRP) in 1998/1999, country expert teams under the guidance of the respective country programme coordinators undertook a new, comprehensive review of the sources of pollution and their effects in the Danube River Basin and the Black Sea. Each national team developed a national review for their respective countries based on a common methodology. The results were then compiled and analyzed at the regional level in the TDA. Based on the TDA and the ICPDR Emission Expert Group, 130 industrial enterprises of concern (known as hot spots) were identified within the Danube River Basin (Table 1).

Table 1. Major Manufacturing Discharges identified by the GEF Danube River Basin Pollution Reduction Programme, 1998

ISIC Code	Bosnia Herzegov.	Bulgaria	Croatia	Czech Rep.	Hungary	Romania	Slovak. Rep.	Slovenia	Ukraine	Yugo-slavia	Total
311 Food & 313 Beverages		5	14		2	5		5			31
321 Textiles						2	1				3
323 Leather	1	2		1	1		1				6
331 Wood processing					1		1		2	1	5
332 Furniture						1					1
341 Paper	1		1		3	3	2	5	2	1	18
351 Ind. Chem. & Fertilizers		2	2	1	3	23	6			2	39
352 Other chemicals		2	2			3					7
353 Petrol. ref.					1	1					2
371 Iron	1	1			2	5					9
372 Non-ferrous		1	1			1					3
381 Metals		2									2
Oth. major ind.	1	1		1			1				4
Grand Total	**Bosnia-H. 4**	**Bulgaria 16**	**Croatia 20**	**Czech R. 3**	**Hungary 13**	**Romania 44**	**Slovakia. 12**	**Slovenia 10**	**Ukraine 4**	**Yugo. 4**	**G.T. 130**

Note: This table summarizes major manufacturing discharges; agricultural and mining activities are not included. No industrial discharges are reported for Moldova.
Source: Danube PRP, "Transboundary Analysis Report", (June 1999).

The specifics of the transboundary pollution problems in the Danube River Basin and Black Sea originating from the industrial plants in the five countries selected to participate in the TEST program are described in Annex I. Briefly summarized: Bulgaria -- 8 plants contributing to nutrient loadings of 50 tons/year or greater ; Croatia-- 3 plants contributing to nutrient loadings of 50 tons/year or greater and 2 plants with other pollutant loading affecting a SIA in a neighboring country; Hungary -- 4 plants contributing to nutrient loadings of 50 tons/year or greater and 2 plants with other pollutant loadings affecting a SIA in a neighboring country; Romania--33 plants contributing to nutrient loadings of 50 tons/year and 5 plants with other pollutant loadings affecting a SIA in a neighboring country and Slovakia-- 2 plants contributing to nutrient loadings of 50 tons/year or greater and 9 plants with other pollutant loadings affecting a SIA in a neighboring country.

The major polluting industrial sub-sectors in terms of numbers of enterprises are food; paper, chemicals, and iron. Together these four sub-sectors account for about 75 per cent of the major industrial pollutant dischargers.

Thus despite the period of transition in most of Central and Eastern Europe that has lead to serious changes in the level of industrial and agricultural activity, industrial pollution still remains a significant problem to be addressed by Danube Countries. Moreover, it can be expected that as economies in the region recover and industrial production increases, industrial pollution will also increase unless the source of pollution is adequately addressed Table 1.

B. Host Country Strategies

Recognizing the growing regional and transboundary character of the water management and related environmental problems, the Danubian countries together with the interested members of the international community met in Sofia in September 1991 to consider a new regional initiative to support and enhance the national actions that would be required. The countries agreed to develop and implement a programme of priority actions and studies in support of a new Environmental Programme for the Danube River Basin (EPDRB). The countries also agreed to form a Task Force to oversee the EPDRB. The Commission of the European Communities (CEC), in its role as G-24 Coordinator, agreed to provide support and coordination for the Task Force. The main objective of the EPDRB has been to strengthen the operational basis for environmental management in the Danube River Basin.

To secure the legal basis for protecting water resources, the Danube River Basin countries and the European Union signed the Convention on Cooperation for the Protection and Sustainable Use of the Danube River (DRPC) in Sofia, on 29th of June 1994. The main objective of the Convention is that all parties cooperate by taking all appropriate legal, administrative and technical measures to maintain and improve the current environmental and water quality conditions of the Danube River and of the waters in its catchment's area. This includes, among others, the improvement and rational use of surface and ground water, pollution reduction from point and non-point sources and loads to the Black Sea, as well as accidental prevention and response measures.

The Convention entered into force on 22 of October 1998. It is ratified by eleven parties: ten Danubian countries (Austria, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Moldavia, Romania, Slovakia and Slovenia) and the European Union.

C. Prior or on-going Assistance directed at the same Sub-sector

EU/PHARE

The EU Phare Multi-Country Programme for Environment supported the following activities during the 1992-2000 period: implementation of Strategic Action Plan projects, development of the Accident Emergency Warning System (AEWS), development of Monitoring, Laboratory and Information Management (MLIM), execution of an Applied Research Programme, and the

parallel projects to the Phare Programme, especially AEWS and MLIM actions, for the benefit of Moldova and Ukraine.

Of direct relevance to the TEST project is the ongoing Clean Technology and Industrial Waste Treatment project (SIP/CH/01/96) (US$ 300,000; 1997-2000) This project is supporting three interventions. One is a feasibility study for a combined wastewater treatment plant for a tannery and municipal waste in Sevlievo, Bulgaria. The second intervention is an evaluation of improved process technology and waste treatment to reduce pollutant loads from the Senica and Myajavou viscose and polyester factory in Slovakia. The third intervention is the evaluation and selection of technology for resource recycling in Leta-Bacau Paper/pulp factory in Romania. In addition, Tacis started in 1999 similar projects for two wood processing plants in the up-stream reach of the Tisza River (Karpathians, Ukraine).

GEF

The UNDP/GEF Danube River Pollution Reduction Programme (PRP), funded by the Global Environmental Facility (GEF) (1997-1999) under the guidance of UNDP and UNOPS (US$ 7.5 million; 1997-1999), created a framework for a long-term solution to the problem of pollution in the Danube River Basin. The programme developed national reviews consisting of: socio-economic analysis of effects of water pollution, analysis of financing mechanisms, water quality and water engineering measures and project files for identified projects. The national reviews identified hot spots in the municipal, industrial and agricultural sectors and proposed projects to remediate the hot spots. The TDA evaluated the pollution problems from a regional perspective and worked to identify the important cause and effect relationships of transboundary pollution. Besides the effects of pollution on the Black Sea, significant impact areas (SIAs) of pollution were identified. The TEST project in the Danube River Basin is a follow-up to the PRP in that it will build capacity in five Danubian country institutions to advise major industrial discharges on appropriate pollutant reduction measures.

USAID

The USAID Danube Pollution Reduction Programme (US$ 8.5 million; 1996-2000) aimed to reduce emission of toxic compounds and pathogens into international waters in selected areas where potential pathways of human exposure cross national boundaries. Implementation of activities under this programme helps to reduce discharges of pollution to the three tributary basins of the Danube River (the Hornad/Hernad, the Bodrog/Upper Tisza, and the Cris/Koros) that potentially affect downstream uses for potable water, irrigation, fishing, and recreation especially in Hungary while ultimately affecting the Black Sea.

The focus of one group of tasks was to help industry, primarily in Romania, reduce the quantity of waste discharged to surface waters. Assistance was given to industrial facilities in methods of waste minimization, wastewater pretreatment, and containment of contaminated runoff. The focus was mainly on low-cost/no-cost opportunities.

Six plants have received assistance in waste minimization and pre-treatment methods. A variety of industries were represented, including petrochemicals, pigments, pharmaceuticals, metalworking, uranium mining, and metals mining. Overall, implementation of pollutant reduction options under this group of tasks will significantly reduce radiological contamination and discharges of oils, phenols, zinc, cyanide, and heavy metals, while helping local industries reduce operating costs. Waste management assessments have been completed and implementation of pollutant reduction options is now underway.

World Bank

The World Bank has formulated projects for industrial pollution abatement in Romania and

Romania-Industrial Pollution Abatement. The main objectives of the project are: to address industrial pollution with significant impact on human health and productivity; to achieve overall improvements in environmental and natural resource management; and to increase public awareness of environmental issues. A subsidiary objective will be to facilitate privatization by helping industry to deal with environmental liabilities.

EBRD

The European Bank for Reconstruction and Development (EBRD) has put forward a GEF project concept entitled "Danube Pollution Reduction Programme--Financing of Pollution Reduction Projects by Local Financial Intermediaries." If the proposed project is realized, the financial resources it would offer to industrial facilities would be a welcome complement to the TEST project. The TEST project would enhance capacity in host institutions with hands on experience with 20 enterprises to formulate bankable industrial projects according to International Financial Institutions criteria. The last step in the TEST capacity building project is investment negotiation, which would be the starting point for the EBRD project.

D. Institutional Framework

Programme Management for the Convention

The DRPC is being implemented and supported by the following entities: (1) The DRPC consists of the heads of delegation from each signatory country. The ICPDR is the decision-making body of the DRPC; (2) The Secretariat manages the day to day functions of the ICPDR; (3) the Programme Management Task Force (PMTF) is a special supporting body established under the umbrella of the Convention. The key role of the PMTF is to support the practical implementation of action programs, promote priority environmental investments and help secure technical assistance required by the Danubian countries and agreed upon in the Convention. Membership of the PMTF includes contracting parties, donors and international financing institutions, and non-governmental organizations.

The PMTF elects a Chairman from among its members; (4) The Programme Coordination Unit (PCU) supports the activities of the PMTF and provides daily management of implementation activities funded by donors. Two donors, the EU Phare Multi Country Environmental Programme and UNDP/GEF have supported the PCU. The GEF Programme activities, however were completed in December 1999 and the PHARE assistance is scheduled to end in October 2000; (5) Heads of Delegations and Country Programme Coordinators who are nominated by senior officials from Danubian countries are responsible for management of ICPDR activities within their country; and (6) Technical Expert-Groups include the Monitoring, Laboratory and Information Management, the Accident Emergency Warning System and the Emission Expert-Groups.

Bulgaria *Implementation Strategy*

The Bulgarian strategy for reducing industrial pollutant discharge into the Danube is described in the report from a National Planning Workshop held in Sofia (30 June - 4 July 1998) and the "Causal Chain Analysis for the Middle and Lower Danube Countries" [PCU/March 1999]. In brief, the report describes three broad categories of activities: (i) reduction of the impact of past pollution on the environment; (ii) implementation of appropriate measures for limiting the discharge of industrial wastewater and (iii) adoption of sustainable industrial practices. Categories (ii) and (iii) list activities that would be supported by the TEST project. Under category (ii), the activities proposed are introduction of efficient treatment technologies, construction of treatment facilities, updating of manufacturing technologies [mentions TEST project] and improving the maintenance and operation of treatment facilities. Under category (iii), the activities proposed are applying an appropriate public relations strategy for stakeholder involvement, establishing a programme for prevention of the risk of

implementing modern manufacturing technologies.

Croatia *Implementation Strategy*

The Croatian strategy for reducing industrial pollutant discharge into the Danube is described in the report from a National Planning Workshop held in Varazdin (15-18 September 1998) and the "Causal Chain Analysis for the Middle and Lower Danube Countries" [PCU/March 1999]. In brief, the report describes three broad categories of activities: (i) ecological disposal of waste; (ii) adoption of environmentally friendly industrial production and (iii) re-establishment of pre-war environmental conditions. Categories (i) and (ii) list activities that would be supported by the TEST project. Under category (i), these are introduction of adequate wastewater treatment technology and facilitation of favorable conditions for industrial waste management. Under category (ii), this is modernization of technological processes.

Hungary *Implementation Strategy*

The Hungarian strategy for reducing industrial pollutant discharge into the Danube is described in the report from a National Planning Workshop held in Visegard (11-14 May 1998) and the "Causal Chain Analysis for the Middle and Lower Danube Countries" [PCU/March 1999]. In brief, the report describes three broad categories of activities: (i) application of appropriate technologies and pollution reduction measures in the chemical industry; (ii) application of appropriate technologies and pollution reduction measures in the oil industry and (iii) control of water pollution resulting from shipping and harbor activities. The activities in categories (i) and (ii) would be supported by the TEST project; these are development of technology in the chemical and oil industry and promotion of information management systems and consultancy services.

Romania *Implementation Strategy*

The Romanian strategy for reducing industrial pollutant discharge into the Danube is described in the report from a National Planning Workshop held in Constanza (30 September - 3 October 1998) and the "Causal Chain Analysis for the Middle and Lower Danube Countries" [PCU/March 1999]. In brief, the report describes four broad categories of activities: (i) implementation of clean technologies; (ii) ensuring discharge of standard quality treated wastewater; (iii) adoption of proper management of solid wastes and adequate performance of wastes transport. Categories (i) and (ii) list the activities that would be supported by the TEST project. Under category (i), the activities proposed are introduction of a legal and economic framework for implementation of clean technologies, promotion of incentives for Best Available Technology, identification of multiple financing resources, and implementation of measures to minimize losses in existing installations. Under category (ii), the activities proposed are construction of wastewater treatment plants, proper operation of wastewater treatment plants and implementation of measures for the discharge of properly treated wastewater.

Slovakia *Implementation Strategy*

The Slovakian strategy for reducing industrial pollutant discharge into the Danube is described in the report from a National Planning Workshop held in Bratislava (2 - 5 June 1998) and the "Causal Chain Analysis for the Middle and Lower Danube Countries" [PCU/March 1999]. In brief, the report describes three broad categories of activities: (i) application of appropriate technologies; (ii) proper treatment of industrial wastewater and (iii) adequate implementation of legislative and financial mechanisms. All three categories list activities that would be supported by the TEST project. Under category (i), the activities proposed are modernization of industrial processes, promotion of environmental management systems and establishment of an information center for new environmental technologies. Under category (ii), the activities proposed are introduction of chemical and biological treatment technologies and technologies for nutrient removal, increased capacity and efficiency of wastewater treatment plants and establishment of monitoring and warning systems in the frame of water management of enterprises. Under category (iii), the activities proposed are improved

II. PROJECT JUSTIFICATION

A. Problems to be addressed: the present situation

a. In the framework of the UNDP/GEF PRP, the participating countries undertook a review of industrial, municipal and agricultural sources of pollution in 1998/99. The national reviews identified 130 industrial enterprises of concern within the Danube River Basin (Table 1). The findings of the PRP will form the basis for the ICPDR Action Programme. Industrial pollutant reduction will be an important element. It is important to alleviate industrial hot spots as well as to introduce the use of cleaner technologies to ensure that continuous improvement occurs before industrial output begins to rise in the near future as expected.

b. There is a lack of convincing practical demonstrations with enterprises of concern that show it is possible to comply with environmental norms and still remain or perhaps enhance their competitive positions. The international technical cooperation community is supporting only a few demonstrations, which were described in section A.3. Unfortunately, these seem to focus exclusively on environmental issues rather than the integration of economic, social and environmental issues, and they are limited to direct support for a few enterprises. Little effort is being made in these demonstrations to enhance technical capacities in the countries to provide the integrated package of technical services that would be more attractive to and helpful for these enterprises.

c. Although there are capacities in Danubian countries to provide many of the services needed by industry to pursue the simultaneous objectives of competitiveness enhancement, social responsibility and environmental compliance, these capacities remain isolated in separate institutions and companies. These services are not being provided as an integrated service package that is needed by the enterprises to pursue the three objectives simultaneously.

d. There is a lack of appreciation in the professional communities of the synergies to be achieved in the collective provision of services to enterprises. These synergies would result in solutions for enterprises that would actually meet their needs and could be provided at a more reasonable cost than if they were provided as individual services.

e. The year 2000 is the perfect time to address industrial pollutant reduction in the Danube. The main reason is that industrial production has declined over the years and only now has the potential to increase. In this situation, plants would probably be eager to learn about ways to increase production while being able to comply with environmental norms. This project would offer them the opportunity to learn how to do this by using environmentally sound technology. Such a proactive approach to preventing pollution would also serve as a model for other international river basins and water bodies faced with similar industrial pollution problems.

B. End-of-project situation

a. All participating enterprises would have prepared a Sustainable Enterprise Strategy (SES) that combines the essential elements of business plans, social action commitments and negotiated environmental compliance schedules. The SESs would explain how the enterprises, as required by the Convention, would implement best available techniques and best environmental practices needed to integrate successfully ESTs into their production processes[1];

b. EST options (some combination of advanced process, pretreatment and final pollution control technologies) successfully identified for three-quarters of the 20 enterprises at the end of the project. These options would bring these enterprises into compliance with environmental norms of the EU and of the Danube Convention;

c. Significant pollutant reductions (at least 30 per cent), with an emphasis on nutrients, in at least one-half of the participating enterprises and some pollutant reduction in the one-half as a result of implementing only cleaner production (process change) measures;

d. As a result of training courses provided by international experts, hands on experience working with international experts when they advise the 20 enterprises and a study tour (s), capacity is built in networks of national institutions to advise the remaining 74 enterprises in the five participating countries on how to implement the TEST approach;

e. TEST management toolkit (technical manuals on enterprise viability, cleaner production, industrial management, environmentally sound technology assessment, sustainable enterprise strategy, environmental management systems and investment negotiations as well as 20 case studies and information sources on sub-sector specific ESTs tailored for the needs of Danube River Basin enterprises) would be available for teams of national experts in working with the remaining 74 enterprises to identify and install the most appropriate of ESTs at least cost; and

f. The TEST project and Toolkit disseminated to the other six Danubian countries with polluting industrial enterprises identified by the TDA. A project document will be prepared if warranted for a full-scale technical cooperation project with these countries.

[1] The TEST programme, which is being designed for application in different parts of world, uses the terms cleaner production (preventive actions within the production process) and pollution control technology (both pre-treatment before pollutants are discharged into municipal wastewater treatment plants and final treatment/end-of pipe). The DRPC requires individual industrial sectors or industries to apply best available techniques (BAT) and best available practices (BEP). BAT includes process changes (cleaner production), pretreatment and final treatment. It is equivalent to EST as defined both by UNIDO and the UN Commission on Sustainable Development. “Environmentally sound technologies in the context of pollution are “process and product technologies that generate low or no waste for prevention of pollution. They also cover “end of the pipe” technologies for treatment of pollution after it has been generated. Environmentally sound technologies are just not individual technologies, but total systems which include know-how, procedures, goods, and services, and equipment as well as organizational and management procedures”(Agenda 21, Chapter 34, Transfer of Environmentally Sound Technology, Cooperation and Capacity Building). BEP means the application of the most appropriate combination of sectoral environmental controls and strategies. The introduction of Environmental Management Systems as part of the TEST programme is an effort to encourage industry to adopt many of the considerations that constitute BEP, such as the precautionary principle, principle of responsibility, principle of minimizing, etc.

C. Target beneficiaries

UNIDO will assist national institutions and independent experts (counterparts) to enhance their understanding of the need for and their abilities to provide enterprises the integrated package of services that constitute the TEST programme. Perhaps the most important skill developed will be the realization of the necessity to work in teams to be able to provide the diverse services needed by enterprises to be able to incorporate ESTs in their production operations.

The target beneficiaries will be the 20 enterprises that will be advised on how to reduce their pollutant discharge at the same time they improve their production efficiency. These beneficiaries also include the workers in the enterprises who would have the prospects of a more secure economic future.

The ultimate beneficiaries will be those who are adversely affected by the national as well as transboundary pollution in the Danube River. The Danube River as well as the Black Sea, which is the ultimate sink for wastes discharged in the Danube, provides vital services such as drinking water supply and recreation, as well as sustaining aquatic life forms that can survive only in a clean environment.

D. Project strategy and institutional arrangements

The project strategy is based on UNIDO's substantial experience in implementing industrial environmental projects. Some of the lessons learned from these projects that were relevant for developing the project strategy are:

1. Due to the political and economic transformation that has taken place in the former centrally planned Central and Eastern European countries, product driven former state owned enterprises have to be privatized in order to become competitive in the emerged or emerging market economy. The individual enterprises need tailor made support to do this. The enterprises need to identify their competitive strengths and prepare a strategy to take advantage of them. At the same time, the enterprise management functions have to be upgraded so as to ensure improvements in quality, reductions in costs and enhanced delivery capability.

2. The successful, widespread transfer of environmentally sound technology is dependent upon two factors. First, the technological feasibility as well as the financial and environmental benefits of the technology must be demonstrated in an enterprise in the country and that experience must be accessible to other enterprises in the same country. Second, at least one institution (could be a project counterpart, a private enterprise research institution etc.) has to market the new technology to other enterprises. Without an organized effort to disseminate results, the successful technological innovations usually remain confined to the demonstration plants.

3. Despite the limited evidence, the notion that costs of prospective environmental control measures are often over estimated is being recognized (Anderson, 1999 and Luken, 1997)[2]. Goldstein and Hodges (1997) claim that the costs of proposed environmental regulations in the United States have been substantially overestimated in several cases, including asbestos, benzene, coke ovens,

[2]Anderson, Dennis (1999), "Technical progress and pollution abatement: an economic view of selected technologies and practices," draft report, Imperial College of Science, Technology and Medicine; Goldstein, Eban and Hart Hodges (1997), "Polluted data: overestimating environmental costs," *The American Prospect,* volume 35; Jaffe, Adam, Steven Peterson, Paul Portney, and Robert Stavins (1995), "Environmental regulation and the competitiveness of US manufacturing: what does the evidence tell us?", *Journal of Economic Literature,* Vol.33*;* Luken, Ralph (1997) "The effect of environmental regulations on industrial competitiveness of selected industries in developing countries," *Greener Management International*, Issue 19; Palmer, Karen, Wallace Oates, and Paul Portney (1995), "Tightening environmental standards: the benefit-cost or the no-cost paradigm?", *Journal of Economic Perspectives*, Vol. 9; Porter, Michael (1991), "America's green strategy" *Scientific American*, Vol. 264; and Porter, Michael and Klaus van der Linde (1995), "Toward a new conception of the environmental-competitiveness relationship," *Journal of Economic*

cotton dust, strip mining, and vinyl chloride. An extreme form of the cost-overestimate argument is the Porter hypothesis [Porter (1991) and Porter and van der Linde (1995)] which asserts that environmental regulation generally triggers innovation sufficient to more than offset compliance costs, which implies that any positive cost estimate is too high. The hypothesis is disputed by Jaffe et al. (1995) and Palmer et al.(1995).

4. Technical cooperation projects that enhance capacity within an existing institution rather than create a new institution have a greater chance of being sustained. A comparison of the UNIDO/UNEP National Cleaner Production Programme, which established CP capacities in existing institutions, and the USAID Environmental Pollution Prevention Programme (EP3), which established CP capacities in new institutions, showed that all of the NCPCs are continuing to function after the end of UNIDO/UNEP support and virtually none of the EP3 centres have continued after the end of USAID support.

5. Any successful effort that addresses the technological transformation of enterprises based on EST also needs to take into account economic and social considerations. Failing to take into account these two factors usually prevents the implementation of the transformation. In particular, failure to deal with employees both in the design and implementation of the technology transformation and the most likely negative effects on employment will prevent significant technology transformations.

The strategy to achieve the project objectives, taking into account the above five points, consists of three elements: establishing a TEST focal point/network in each of the five countries, applying the TEST approach to a selected set of enterprises in the five countries and initiating the TEST approach in other enterprises in the five countries and in the other countries that are signatories to the Convention.

1. Identification of TEST focal point is immediate objective one of the project and includes the following outputs:

(a) Setting up TEST focal points in the NCPCs/PPCs. These units are already functioning and have the necessary management and office support facilities to carry out the project (See section B.8 Counterpart Support Capacity for detailed information about the history and achievements of each centre);
(b) Identifying the most appropriate institutions/experts to support the NCPC/PPCs in carrying out the project based on advice from the PCU, country counterparts for the Convention, UNIDO national focal points and UNIDO staff;
(c) Introducing the focal points to the TEST programme, installing an information management system; and
(d) Preparing an implementation schedule for application of TEST to selected enterprises.

2. Application of the TEST approach to 20 enterprises (four in each country) is immediate objective two of the project and includes the following outputs:

(a) Selecting enterprises and securing their commitment to participate in the TEST project;
(b) Training of the TEST teams in the analytical techniques (enterprise viability survey, cleaner production, industrial management, EST selection, sustainable enterprise strategy, environmental management systems and investment promotion);
(c) Applying the TEST approach to 20 enterprises in order to identify the least cost solution for complying not only with water related environmental norms, but also with other environmental norms as required by EU Directive on Integrated Pollution Prevention and Control. The TEST approach introduces enterprises to a sequential series of analytical techniques for two reasons. One is that the sequential application of these techniques has the greatest potential for identifying the least cost path to compliance with environmental norms. The other is that application of cleaner production and industrial management

compliance with environmental norms. The change is usually a less costly configuration of EST than originally envisaged before the application of the TEST approach.

The TEST approach starts with the enterprise viability assessment, which determines whether the enterprise has the potential to remain in business for more than five years given its market position and costs of production (Figure 2). If the answer is negative, an enterprise would no longer be included in the project because new investment in the plant, which would include investment in EST, would not be warranted. If the answer is positive, then the enterprise would proceed with a cleaner production assessment which would identify pollutant reduction measures that an enterprise could undertake using its own financial resources. If these CP measures are implemented, which would demonstrate an enterprise's commitment to environmental improvement, then an industrial management assessment is undertaken. If the plant implements the measures recommended in this assessment, then the TEST team would proceed to an environmentally sound technology assessment. If the industrial management options are not implemented, an enterprise would no longer be included in the project.

At the end of these two assessments (cleaner production and industrial management), the enterprise would have sufficient information about its production processes and problems to undertake an environmentally sound technology assessment. The EST assessment would identify the combination of best available techniques (combination of process change, pre-treatment and final treatment) and best available practice (sectoral environmental control strategies and measures) that would bring the enterprise into compliance with environmental norms. If the EST assessment identifies a technically and financially feasible combination of technologies and these technologies are available on acceptable terms to the enterprise, the TEST team would prepare a sustainable enterprise strategy. If the EST assessment does not identify a satisfactory combination, then the enterprise would be dropped out of the project.

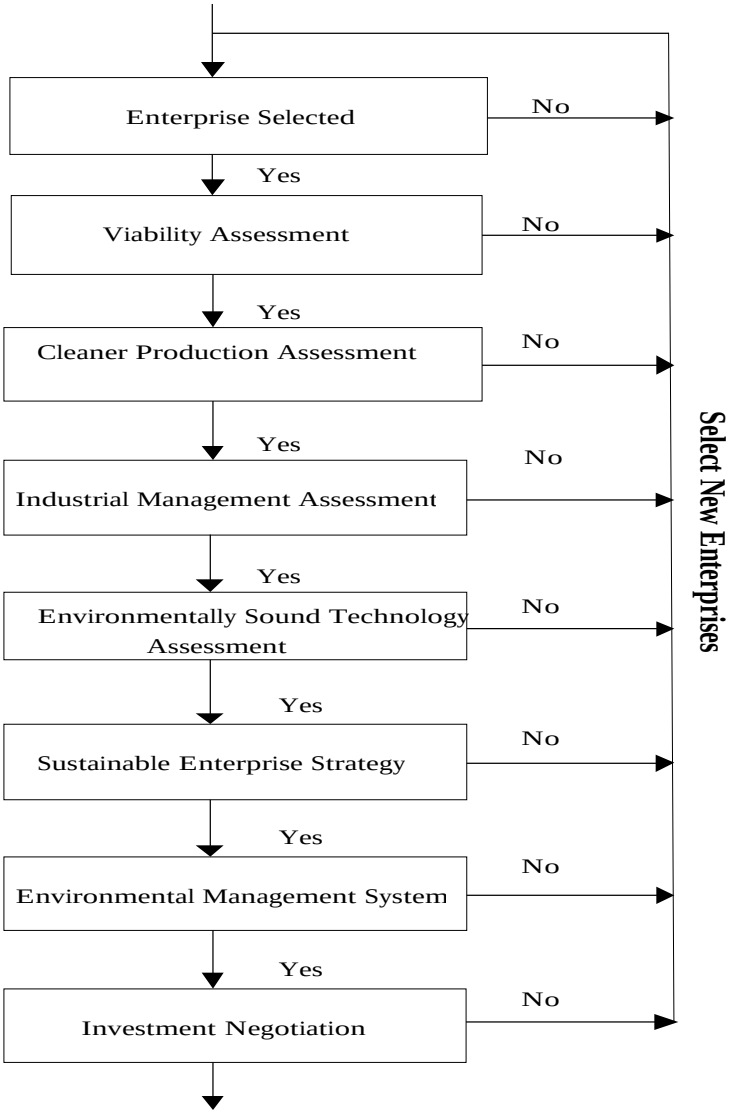
The sustainable enterprise strategy would combine an updated business plan that includes the financial justification for the EST investment, a social action plan on how to assist workers who would potentially be made redundant as a result of technological modernization and a negotiated environmental compliance schedule that reflects a common understanding between the enterprise and environmental authority that the authority would not take enforcement actions against the facility as long as it stayed on the proposed schedule for technological modification.

When the strategy is nearing finalization (agreement with labour unions and environmental authorities), an enterprise would enter into the last two steps of the TEST approach. It would formalize an environmental management system for its operations as most of the preparatory work for setting up the system would have already been done in undertaking the earlier steps. And, it would begin the process of investment negotiation, which moves either in the direction of finding a strategic partner to bring into its operations or in the direction of approaching major lending institutions, such as the World Bank and EBRD. If the former direction were envisaged (making a business alliance), the enterprise would certainly want to include the proposed partner in finalization of its sustainable enterprise strategy because the proposed partner would most likely have proposals that should be taken into account in the revised business plan.

The design of the TEST approach is uniquely different from earlier and currently on-going technical cooperation projects addressing industrial pollution in the Danube River Basin in two aspects. First, continued participation of enterprises in the TEST programme is contingent upon improving while assessing. This means that enterprises must implement at least some of the improvements identified by each assessment before they proceed to the next assessment in the TEST approach. For example, they must implement no and low cost cleaner production options identified during the audit before proceeding to the industrial management assessment. Second, the TEST approach is not the typical diagnostic study primarily undertaken by outside international and national experts. Rather it is an integrated assessment and improvement project conducted by enterprise teams

under the guidance and supervision of outside international and national experts. The integrated approach usually results in a greater number of improvement options generated and implemented than the diagnostic approach.

Figure: 2 Test Approach



3. Dissemination of the TEST results achieved by the 20 enterprises to other enterprises in the five participating countries and to other countries in the Danube River Basin is immediate objective three of the project and includes the following outputs:

    (a) Preparing marketing material for the TEST approach. The marketing material would include the TEST manual along with case studies;
    (b) Hosting national seminars in each of the five countries;

(c) Offering a one-day assessment at polluting enterprises to show them the potential benefits of applying the TEST approach at their enterprises;
(d) Introducing the TEST approach to the six other Danubian countries.

Implementing the TEST approach will draw on several analytical methods that have been developed/applied by UNIDO in other technical cooperation projects. These include those for enterprise viability (Manual on Diagnostic and Industrial Restructuring), cleaner production, (Audit and Reduction Manual for Industrial Emissions and Wastes), industrial management (Manual on Diagnostic and Industrial Restructuring) environmentally sound technology assessments (Interactive Eco-Investment Decision Support Software and Manual on Technology Negotiation), environmental management systems (ISO 14000 and Eco-Management and Audit Scheme) and investment promotion (Investment Promotion Services/Agencies).

E. Reasons for UNDP/UNIDO assistance

UNIDO has the in-house capacity and historical experience (since 1966) to build capacity in institutions in order to provide the integrated package of services needed for the successful transfer of environmentally sound technology. Some of its relevant experience, with countries in transition, is summarized below:

National Cleaner Production Center Programme in the Czech Republic, Hungary & Slovakia (1994/96 - present; US$ 1.6 million): The objective of this joint UNIDO/UNEP programme is to build capacity in developing country and countries in transition to provide five core cleaner production/pollution prevention services (in-plant assessments, training, technical information, financial options and policy advice). UNIDO/UNEP started the first phase of the programme in 1994 with the establishment of eight national cleaner production centers, two of which are in the Czech and Slovak Republics. In the second phase, which started in 1996 and continues, seven more centers have been started including one in Hungary. The Czech and Slovak centers built on a base of experts trained by the World Cleaner Production Society, which was funded by the Government of Norway, and have compiled a solid record of successful in-plant assessments and trained experts. Collectively, the three Centres have completed approximately 185 in-plant cleaner production assessments, trained about 600 factory workers in cleaner production assessment methods and have issued more than 30 publications to promote the concept of cleaner production.

Assistance to the Ministry of Industry to Establish Cleaner Production at Two Polluting Plants at Copsa Mica in Romania: (US$ 250,000; 1994-1996): The objective of the project was to reduce the toxic levels of industrial pollution through expert technical assistance and cleaner production practices. A UNIDO team of international and Romanian specialists advised shutting down the carbon black power plant, but rescued the metals shelter by cleaning it up. Management invested in filters to extract polluting dust, furnace ventilators to absorb gases, a wastewater treatment plant to avoid polluting the nearby river and equipment to analyze and monitor emissions. Company teams introduced good housekeeping practices covering management, technical and environmental issues. Managers and operators improved their know-how in emission control, trainers strengthened their skills, and factories organized safety and anti-pollution teams. UNIDO introduced a programme of basic industrial hygiene to reduce factory workers' pollutant intake and avoid contaminating family members in their homes.

Promotion of Small and Medium Private Industries in Romania (US$ 2.5 million, 1992-1997): The objective of the project was to foster the growth of private enterprises in Romania through a business support network. UNIDO helped the Romanian Government set up a business development center and a countrywide network of Jute Core Business Centers. Local counselors were trained to appraise business and financial issues of concern to enterprises as well as financial institutions. The role of the centers is to assist entrepreneurs in all aspects and phases of business: developing marketing and management skills, drawing up a business plan, preparing feasibility studies and loan applications and expanding operations. The project published the first-ever guide to starting

businesses in Romania. Sixteen business centres, established by the project outside Bucharest, have continued to operate after the end of the project.

UK/UNIDO Restructuring Project in Poland (US$ 3.6 million; 1991-1996): The objective of this project was to provide restructuring assistance to 20 medium sized enterprises in Poland. This was considered a pilot project for Poland, as well as for the restructuring initiatives in the region. The main activities were: (a) enterprise diagnoses and restructuring strategies; (b) capacity strengthening at the Industrial Development Agency to undertake additional restructuring work; (c) developing national management consulting capability; (d) management training for enterprise staff; and (e) energy audits. Eighteen out of the 20 companies are now commercially viable and are seen as growth companies.

Restructuring Assistance to Privatized SMIs in Romania (US$ 220,000; 1997-1998): The objective of this project was to provide restructuring assistance, as well as management training, to privatized SMEs. Under the first wave of the Romanian privatization, enterprises classified as Small & Medium (200-1000 employees) were privatized through management and employee buyouts. The new owners had limited capabilities to restructure as well as manage the enterprise as a commercial entity. As part of this project, UNIDO trained six Romanian nationals on enterprise restructuring methodology and provided restructuring assistance to eight recently privatized companies.

Restructuring Assistance to Istrochem in Slovakia (US$ 260,000; 1995-1996): The objective of this project was to provide restructuring assistance, concentrating in the areas of restructuring strategy, finance and marketing to Istrochem. Istrochem is a large chemical industrial complex located in the outskirts of Bratislava, employing over 3500 people. Their activities range from explosives, agro-chemicals, rubber additives, and plastics to synthetic fibers. The plant has now been privatized and is commercially viable.

Preparatory Assistance to Enterprise Restructuring in Moldova (US$ 220,000; 1997-1998): The objective of this project was to assist the government restructuring agency. The project undertook analysis of restructuring needs of five enterprises, trained 20 national staff on restructuring methodology and hosted a workshop on restructuring experiences and approaches.

Regional Business Development Centres in Bosnia (US$ 665,000; 1997-1999). The objective of this project was to provide assistance to the private sector small and medium enterprises and entrepreneurs to identify investment opportunities, appraise options, prepare business plans and apply for available credit facilities. The project established regional business development centres in the regional chambers of economy of Bihac, Mostar and Banja Luka.

Restructuring of Enterprises and Competitiveness Development in Albania (US$ 880,000; 1999 - 2001): The objective of this project is to assist the Albanian industrial sector to adjust to the emerging market environment by enhancing competitiveness and profitability. The activities will assist the interim restructuring of state enterprises as well as provide restructuring and competitiveness development support to recently privatized enterprises.

F. Special considerations

UNIDO has adopted a new approach for designing technical cooperation programmes that should enhance the contribution of industry to sustainable development and would most efficiently utilize the financial resources available for technical cooperation. Briefly summarized, the new approach identifies the main services that can address the cause (s) of critical problem(s) confronting industrial development in a country. UNIDO has focused its technical cooperation activities around 16 service modules, all of which contain a discrete number of main services (see UNIDO Service Modules [November 1998]).

The main UNIDO service for this project is capacity building for the transfer of EST within the Cleaner Production module. This is the principal service because it addresses pollution problems as a question of industrial production process modification and upgrading with the dual aims of environmental compliance and competitiveness improvement. The most important complementary service is pollution control (pretreatment and final treatment of pollutants) in the Pollution Control and Waste Management module because process modification alone will not bring plants into compliance with environmental norms. Other necessary complementary services are industrial restructuring and upgrading in the Continuous Improvement and Quality module; selection and operation of appropriate technologies in the Technical Skills Upgrading module; business advisory service and incubators in the Entrepreneurship module; and formulation and appraisal of partnership opportunities in the Investment and Technology Promotion module.

Internally, UNIDO has established a project design and management team with professional staff members who represent each of the service modules. Each service module representative will be responsible for training, recruitment and supervision of experts and evaluation of outputs. The team leader will be a senior staff member in the Cleaner Production and Environmental Management Branch.

G. Counterpart support capacity

Bulgaria

Organizational structure

The Clean Industry Center (CIC) was established as a separate operational unit of the Bulgarian Industrial Association in September 1995 according to the cooperation agreement concluded with the World Environment Center. The Association is the major business association in Bulgaria. It represents companies, entrepreneurs and employers of the state, private, cooperative and municipal sectors. The activities and objectives of the Associations' Environmental Policy are directly connected with the efforts of industry to achieve sustainable development, minimize its impact on the environment and raise overall production efficiency. In this respect, the CIC implements a diverse range of activities and services, including quality and environmental management systems.

In plant assessments

The Center has completed the following activities: (a) waste minimization/cleaner production programs have been undertaken at the Lead and Zinc Complex, Verily, Neftochim, Sofarma; (b) implementation of ISO 14001, including management training and consultation and environmental review including mass balances have been undertaken at Biovet Peshter; (c) feasibility studies have been prepared for Sevlievo and Sevco tannery integrated WWTP; (d) environmental site assessment (past contamination) under the privatization legal procedure have been prepared for MDK Pirdop Union Minier, Lead and Zinc Complex, Kardjaly; and (e) technical services including gas leakage measurements and consequent losses have been conducted for Neftochim.

Training

The Center has organized a series of seminars for the main industrialized areas in Bulgaria; for a whole industrial branch (e.g., the pharmaceutical and the metallurgical sectors); for the regional and branch associations that are members of the Bulgarian Industrial Association; for particular plants such as: Neftochim-Burgas, Biovet-Peshtera and others. More than 200 representatives from industry, municipalities and other sectors have been trained in Environmental Management Systems (EMS) implementation at two-day seminars.

Information dissemination

CIC maintains databases on the air emissions, water discharges, solid waste and polluted soils for 400 major polluting companies and is supporting the establishment of the National Pollutants Release and Transfer Register (Toxic Release Inventory). It has published the results of seminars, case studies, pilot projects on CP and EMS and the publications are listed on the Center's homepage.

Policy Dialogue

The CIC facilitates dialog among industry, government and society, by encouraging, strengthening and supporting the capabilities of the various industrial sectors in the formulation and implementation of their own environmental policies. Two assessments have been produced on the industrial restructuring and environmental performance of the Bulgarian industry and submitted to the Ministry of Industry and Ministry of Environment. CIC is a leading party in the official adoption of ISO 140001 as an official Bulgarian Standard.

Croatia

Organizational Structure

The Croatian National Cleaner Production Center (Cro CPC) has been hosted by APO - Hazardous Waste Management Agency, Zagreb since its inception in 1997. Its staff consists of two full time professionals including the director and part time clerical support provided by the host institution. The counterpart to the Centre is the Czech NCPC.

In-plant assessments

During the first long-term training, 11 CP demonstration projects in nine industrial companies were undertaken. Participating companies represent various industrial sectors: chemical, food processing, pharmaceutical, cosmetics and detergents, ceramics, electronics and adhesive tapes production. During the second long-term training, nine industrial companies participated: food processing, chemical, pharmaceutical, shipyards and thermal power plant. Ten in-plant assessments have been initiated as part of the training.

Training

Since 1997 two long-term interactive "train the trainer" training courses have been organized. Long-term training consists of three five-day workshops. Between the workshops the participants undertook demonstration projects in their enterprises. Outputs of first training were that 32 experts were awarded the professional development certificate in Environmental Management and Cleaner Production, and 11 CP demonstration projects were completed in nine companies. The second training course was completed in October 1999. In this course, 26 experts in CP and EMS were trained and 10 CP case studies were completed.

Information dissemination

Information dissemination is performed through long-term training and promotional seminars. Besides the two long-term training courses, seven branches and five regional promotional seminars have been organized by Cro CPC and the Croatian Chamber of Industry. Introductory and promotional presentations have been given at the Chemical Engineers Society and the High Technical School. CP has also been promoted by presentations at several national and international conferences and symposia and by articles in national magazines dealing with waste management and environment.

Policy dialogue

Croatian CP experts have been involved in the process of environmental legislation making. The Cro CPC participated in preparation of the National Environmental Strategy in 1999. At the request of the Government, Cro CPC prepared two reports as part of the United Nations Economic Commission for Europe (UNECE) project entitled "Environmental Performance Review: Croatia".

Hungary

Organizational structure

The National Cleaner Production Centre of Hungary (HCPC) started its operation in May 1997. It is located in its host institution, the Budapest University of Economic Science and cooperates with a number of national institutions involved in CP in Hungary. The office consists of five staff members, including the director. The office staff works together with 8-10 national experts. A HCPC affiliate (regional sub-centre) opened in Györ in June 1998. The counterpart to the Centre is STENUM, Graz/Austria.

In-plant assessments

Five workshops have already been completed in two regional CP projects in Salgotarjan and Dorog with 12 participating companies altogether. These projects were based on the Ökoprofit methodology, which has been developed by STENUM, and were carried out in close cooperation with the two municipalities. HCPC staff members also took part in a CP-EMS project in a Hungarian brewery.

Training

In September 1998, the staff of the Centre and seven national experts took part in an in-depth CP training, which was organized by STENUM in Graz/Austria. Six national experts have recently been trained in Ökoprofit programmes. Preparatory work is under way for further training programmes. CP has been included in the curriculum of environment management courses at the University of Economics. One of the main tasks of the regional centre in Györ is to extend the training capacities of the HCPC.

Information dissemination

The director and the staff of the centre have organized or participated in various CP awareness seminars in Hungary. The HCPC and partners were present at an international fair in Budapest in May 1998. Several presentations at various conferences have been made. The HCPC has set up an Internet database on cleaner technologies. The HCPC organized the European Cleaner Production Round Table in 1999.

Policy dialogue

The HCPC is participating in the establishment of a national accreditation body for EMS and is member of the National Accreditation Committee. Also, the HCPC is taking part in the development of economic and legal conditions in order to promote the CP concept, e.g. creation of an environmental insurance system for companies, where the fee is based on the environmental performance of the company. The director and staff members are taking part in a project initiated by the Hungarian Academy of Sciences to develop the environmental strategy for the EU accession.

Romania

Organizational Structure

The Pollution Prevention Centre (PPC) of Romania is an independent, not-for-profit non-governmental organization operating since 1995 as a civic association. Its initial funding came from the U.S. Agency for International Development via the World Environment Centre, which has supported several pollution prevention centres in Central and Eastern European and Baltic countries. Financial support for the PPC from the World Environment Centre ended in March 1999. It is staffed by six professionals, mostly engineers, and one of these is the executive director of the Centre. It is housed in a modern office building with adequate computers and space in Bucharest.

In-plant Assessments

The PPC has undertaken three CP demonstration projects in the leather sector, which included equipment and training in monitoring and analysis of wastewater discharge. The PPC has undertaken eight CP projects in companies from different industrial sectors (metal finishing, steel processing, metallurgy, wood processing, leather work), which included training in CP principles and were continued by the companies which implemented a series of CP projects. In addition, the PPC has undertaken six energy conservation demonstration projects, which included training in the use of analytical equipment.

Training

The PPC has organized 11 workshops for the management staff of industrial plants. The plants included the main industries in Romania, oil processing, chemicals, ferrous and non-ferrous metals, leather tanning and pulp and paper. The workshops covered CP, energy conservation and EMS.

Information Dissemination

The PPC has written and distributed manuals on waste minimization (more than 200 copies), energy conservation (more than 300 copies) and EMS (more than 150 copies). The PPC has published a report that describes CP projects undertaken in Romania, Bulgaria, Czech Republic and Slovakia.

Policy Dialogue

The PPC has proposed to the local Environmental Protection Agencies to make an inventory of pollution sources and to encourage industry to adopt CP measures. The first phase of this inventory will focus on major cities. In addition there are several joint activities with the Ministry of Waters, Forests and Environment Protection, the Ministry of Industry and the Ministry of Public Health.

Slovakia

Organizational structure

The Slovak Cleaner Production Centre (SCPC) is an independent, not-for-profit non-governmental organization operating since 1995 as a civic association affiliated with the Slovak University of Technology in Bratislava. At its inception, the Centre received funds within the framework of the Slovak-Norwegian Cleaner Production Programme and later also from other sources. The Centre is a member of the PREPARE core group working in the European Union in the area of CP and of the International Network of Environmental Management. The Centre represents Slovakia in activities of ISO TC 207 Environmental Management. CP methods applied by the Centre are based upon the experience of the counterpart institution STENUM, the Norwegian approach and the Center's own activities. The focus is on small and medium size enterprises.

In-plant assessments

In April 1995, SCPC organized the first workshop for a regional assessment project in the city of Martin. The ten participating companies represent various sectors, such as brewery, energy supply, metallurgy (Martin Metal), agriculture, glass production (Skloobal Nemsovar), hospital and wood furniture. In February 1996, the second regional assessment project started in the city of Trnava. Nine companies from the agro-industry and the chemical industry sectors and the municipality of Trnava participated in this project. In April 1997 the results of the Trnava project were officially presented. In 1997, a new EMS capacity building project was started by training consultants. In 1998 implementation of CP and EMS projects started in four companies.

Training

In November 1995, 11 Slovak experts participated in a five-day workshop on EMS organized by STENUM. During the demonstration projects in Martin and Trnava, ten consultants received in-depth training in CP. In total the Centre has trained 260 national CP experts, consultants and managers. In 1997 the SCPC created a Club of national CP experts and managers. In October 1997 a long-term training course on EMS and CP was started. In 1998 the EMS+CP course focused on training of 20 national experts and implementation of EMS+CP in four national companies, to meet the demands of ISO 14000. New projects, integrating CP, EMS and a health and safety management system, were started as well. In October 1998 a joint training with Regional Training Centre for Basel Convention was held for government representatives of 20 CEE and NIS countries.

Information dissemination

In its four years of operation, the SCPC has organized 32 CP workshops and introductory seminars for participants from industry, services, municipalities and research and development institutions. It has published a 28-page brochure on the Slovak CP programme, three newsletters and 33 articles in bulletins and newspapers and has received press and radio coverage. The first conference on CP in Slovakia was held in June 1996. At that time, the Club of Cleaner Production Experts and Managers was formed. In September 1996, in cooperation with SUSTAIN Austria, the SCPC organized the second Slovak Cleaner Production Conference and a conference on the Glass Industry and the Environment. During the last two years, activities and results of the Centre were presented at 29 national conferences and seminars and 10 international events.

Policy Dialogue

SCPC has prepared several reports for the Government and the Ministry of Economy, the most important ones being cleaner technologies in Slovak industry and development of biotechnologies. In addition, it has proposed that the Ministry of Economy should include CP in its document on industrial policy of Slovakia. This proposal was approved by the country's Parliament. Several joint activities with the Ministry of Environment and the Agency for Environment Protection were undertaken.

III. DEVELOPMENT OBJECTIVE

Significantly improved industrial environmental management by major industrial enterprises in the Danube River Basin, resulting in major reductions in pollutant loadings and consequently risk to the Danube River and Black Sea aquatic environments.

IV. IMMEDIATE COMPONENTS, OBJECTIVES, OUTPUTS AND ACTIVITIES

The implementation of the project will be subdivided into three operational components:

- Component I. Institutional Strengthening
- Component II. Entreprise Demonstrations
- Component III. Dissemination of Results

Under each component there is one major objective and several outputs.

The following tables in this section present the relationship among the components, objectives, outputs, success criteria, activities, lead agencies, national counterparts, budget lines/associated US$ funds and project milestones.

The following table reflects the full level of funding needed to implement the project, which is a combination of government inputs, GEF funds and Industrial Development Fund contributions to UNIDO.

COMPONENT I. Institutional Strengthening0

Objective 1. Set up national focal points that would facilitate the transfer of ESTs to industrial enterprises in five Danubian countries

The first step for successful implementation of the project is to strengthen national focal points that would facilitate the transfer of ESTs to industrial enterprise five Danubian countries. The focal points will be working units within an already established NCPC or PCC. Success under this objective would be strengthe institutional capacity to apply the TEST approach. The availability of the strengthened capacity would be measured in terms of the availability of trained nati team leaders and their deputies in the TEST approach, of operating information management systems and of a boards of advisors actively involved in enterpr selection and oversight of activities.

Outputs: 1. 1 TEST Focal Point[3] initiated		**Success criteria:** · Team leader designated · Advisory board set-up		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
1.1.1	Finalization of the country nominations for TEST programme lead institution and collaborating public/private sector.institutions/companies that will provide the national experts.	Host country/ NCPC/PPC UNIDO/PCU	17-01 to 17-05	1
1.1.2	Set up project advisory board from each of the participating institutions/companies.	NCPC/PPC UNIDO/PCU	17-01 to 17-05	1
1.1.3	Designate team leader for TEST team based on recommendation of advisory board with review by UNIDO/PCU.	NCPC/PPC UNIDO/PCU	17-01 to 17-05	1
1.1.4	Set up TEST team office-recruit clerical support of needed.	NCP/PPC	17-01 to 17-05	1

[3] Functions: The focal points would serve as the country coordinator for the TEST project, implement the cleaner production module of the TEST programme disseminate the results of the TEST demonstrations to other factories; Management: The director of the NCPC/PPC is the overall manager of the programme; Working Meth These are the UNIDO methodologies for the seven components of the TEST programme (enterprise viability, cleaner production, industrial management, environmentally so technologies, sustainable enterprise strategy, environmental management systems and investment promotion); Premises: the existing offices of NCPCs/PPCs; Equipment: One configuration; Resources provided by the project: Salary and expenses for the full-time professional staff member and salary for the half-time clerical/administrative assis Customer/target group: The polluting enterprises identified in the TDA.

Outputs: 1. 2 TEST team trained		**Success criteria:** · Training organized		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
1.2.1	Brief each team in country by UNIDO staff. Introduce TEST methodology.	UNIDO	16-00	2
1.2.2	Train team leader and his/her deputy in one week TEST overview workshop (briefly covers all methodological approaches) at UNIDO headquarters by members of UNIDO in-house TEST team.	UNIDO	32-00	2
1.2.3	Participation of team leaders and his/her deputies in study tour to selected European countries to see the potential of EST in the sebsectors of most relevance for their situations.	UNIDO	32-00	2
Outputs: 1. 3 Information management system setup		**Success criteria:** · Operational information · Management system		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
1.3.1	Install equipment (PC, CD-ROM Reader, etc..).	NCPC/PPC UNIDO/PCU	45-01	2
1.3.2	Establish Internet linkages with relevant databases and institutional Centre, EU, US as well as the ICPDR information systems	NCPC/PPC UNIDO/PCU		3
1.3.3	Find and assemble relevant sub-sectoral case studies about the successful implementation of ESTs. Information to be used in marketing TEST programmes to enterprises as well as training TEST team members.	NCPC/PPC UNIDO/PCU		3
1.3.4	Document relevant EU and national environmental standards for pollution release into the environment.	UNIDO/PCU NCPC/PPC		3
Outputs: 1.4 Implementation schedule prepared		**Success criteria:** · Work plan prepared		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
1.4.1	Prepare work plan for immediate objective two.	NCPC/PPC	17-01 to 17-05	3

COMPONENT II. ENTREPRISE DEMONSTRATIONS

Objective 2. Apply the TEST approach to at least twenty enterprises located in the Danube River Basin

The outputs and activities under this objective are the core of the project. Under this objective national teams will apply the TEST approach in the countries in order to show 20 enterprises that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive positi Success under this objective would be enterprise application of the TEST approach, both individual components and of all seven components. Succes application would be measured in terms of at least 15 out of the 20 participating enterprises applying the full TEST approach to their operations and a la number of firms applying most of the seven components. In addition, there should be significant pollutant reduction (at least 30 per cent) by at least ten of 20 enterprises and some pollutant reduction by the other ten enterprises at the end of the project. Full compliance with environmental norms will take additi years because of the need to install the EST packages at the enterprises.

Outputs: 2.1 Twenty pilot enterprises selected to participate in TEST project.		**Success criteria:** · Twenty entreprises selected		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
2.1.1	Select potential participating enterprises. Exclude those already receiving international assistance.	NCPC/PPC	17-01 to 17-05	4
2.1.2	Send letter and questionnaire to potential and select plants that could participate.	NCPC/PPC	17-01 to 17-05	4
2.1.3	Interview those enterprises that indicate potential and select plants that could participate.	NCPC/PPC UNIDO/PPC	16-00	5
2.1.4	Secure letters of commitment from top management of enterprises to participate in project. Letter should designate enterprise team and its availability for project, commit enterprise to implement low cost CP and industrial management options and state its willingness to share results with other enterprises.	NCPC/PPC		

Outputs: 2.2 Viability assessment (site survey) prepared for 20 pilot enterprises.		**Success criteria:** · Viability assessments prepared for 20 enterprises		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
2.2.1	Train national experts in UNIDO methodology for enterprise viability assessment in order to have a uniform and proven methodology in all five countries. One week workshop.	UNIDO/IE	11-51 to 11-52 17-06 to 17-10 17-11 to 17-15 32-00	6
2.2.2	Conduct a diagnostic of each enterprise from the stand point of products, markets, costs and revenue.	NCPC/PPC IE/NE	11-51 to 11-52 17-06 to 17-10 17-11 to 17-15	7-8
2.2.3	Based on the enterprise diagnostic, determine the strengths, weaknesses, opportunities and threats (SWOT) relating to each enterprise and determine the enterprise competitive advantage. Identify specific measures necessary to enhance the competitive advantage and secure enterprise future viability and profitability.	NCPC/PPC IE/NE	11-51 to 11-52 17-06 to 17-10 17-11 to 17-15	9
2.2.4	Based on these findings, TEST teams in consultation with board of advisors and enterprises determine if pilot enterprises should continue in the project.	NCPC/PPC IE/NE UNIDO/ NCPC/PPC	11-51 to 11-52 17-06 to 17-10 17-11 to 17-15	9
Outputs: 2.3 CP assessments prepared for 20 pilot enterprises.		**Success criteria:** · CP assessments prepared for 20 enterprises.		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
2.3.1	Review with national experts the UNIDO methodology for cleaner production assessments (audits, option generation and implementation) in order to have a uniform and proven methodology in all five countries. Two day workshop.	UNIDO/IE	11-53 17-16 to 17-20 32-00	9
2.3.2	Undertake cleaner production assessments to identify CP options. Prepare work plan for option implementation.	NCPC/PPC IE/NE	11-53 to 11-58 17-16 to 17-20 17-21 to 17-40	10
2.3.3	Assist enterprises over a three-month period implement cleaner production options that can be implemented within their own resources. Document results.	NCPC/PPC IE/NE	11-54 to 11-58 17-16 to 17-20 17-21 to 17-40	11-13

2.3.4	Based on results obtained, TEST teams in consultation with board of advisors and enterprises determine if pilot enterprises should continue in the project.	NCPC/PPC IE/NE UNIDO/NCPC/PPC	11-53 to 11-58 17-16 to 17-20	14
Outputs: 2.4 Industrial management assessments prepared for 20 pilot enterprises		**Success criteria:** · Industrial management assessments prepared for 20 enterprises		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
2.4.1	Train national experts in UNIDO methodology on industrial management improvement (production planning and control, inventory control, quality assurance, work study and productivity) in order to have a uniform and proven methodology in all five countries. One week workshop.	UNIDO/IE	11-59 17-41 to 17-45 32-00	14
2.4.2	Undertake industrial management assessments to determine the extent to which the enterprises are applying the appropriate industrial management techniques. Prepare work plan for option implementation.	NCPC/PPC IE/NE	11-59 17-41 to17- 45 17-21 to 17-40	14
2.4.3	Assist enterprises over a three month period in implementing industrial management improvements within their own resources in order to enhance operational performance. Document results.	NCPC/PPC IE/NE	17-31 to17- 35 17-21 to 17-40	14-16
2.4.4	Based on results obtained, TEST teams in consultation with board of advisors determine if pilot enterprises should continue in the project	NCPC/PPC IE/NE UNIDO/ NCPC/PPC	11-59 17-41 to 17-45	16

Outputs: 2.5 An EST package identified and evaluated for 20 pilot enterprises.		**Success criteria:** · EST packages identified and evaluated for 20 pilot enterprises.		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
2.5.1	Train national experts in the UNIDO approach to environmentally sound technology assessment (identification, evaluation, negotiation & financial analysis in order to have a uniform and proven methodology in all five countries. Two week course.	UNIDO/IEs	11-60 to 11-62 17-46 to 11-50 32-00	15
2.5.2	Work with each enterprise to identify potential combinations of advanced process and wastewater and air pollution control technologies that would bring plants into compliance with major environmental norms and at the same time contribute to the extent possible to improved productivity.	NCPC/PPCs IEs/NEs	11-60 11-63 to 11-67 17-46 to 11-50 17-51 to 11-70	16-17
2.5.3	Evaluate from financial (using UNIDO software, COMFAR) and environmental points of view the EST proposals and select the most suitable one. Prepare detailed project profile.	NCPC/PPCs IEs/NEs	11-61 17-46 to 11-50	18
2.5.4	Negotiate with technology suppliers the availability, costs and conditions of selected EST packages.	NCPC/PPCs IEs/NEs	11-62 17-46 to 11-50	19
2.5.5	TEST teams in consultation with their board of advisors select enterprises to continue participation in the project.	NCPC/PPC IE/NE UNIDO/ NCPC/PPC	11-60 to 11-62 17-46 to 11-50 17-51 to 11-70	19
Outputs: 2.6 Sustainable Enterprise Strategies finalized for 20 pilot enterprises.		**Success criteria:** · Sustainable Enterprises Strategies finalized for 20 pilot enterprises.		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
2.6.1	Train national experts in UNIDO formats and aspects of Sustainable Enterprise Strategy (business plans, social action commitments and negotiated environmental compliance schedules) in order to have a uniform and proven methodology in all five countries. One week workshop.	UNIDO IEs	11-68 to 11-70 17-71 to 17-85 32-00	18

2.6.2	Prepare draft reports for the participating enterprises with the enterprise teams and other appropriate groups. For business plans, involve top management and board of directors of company in reviewing the investment requirements and production cost implications of the selected EST option. For social action commitments, involve unions and local communities. For environmental compliance schedules, involve national/local environmental regulatory authorities.	NCPCs/ PPCs IEs/NEs	11-68 to 11-70 17-71 to 17-85	20-23
2.6.3	Review of strategies/plans/reports by IEs and NEs from all five countries.	TEST Teams IE/NE UNIDO/NCPC/PPC	11-68 to 11-70 17-71 to 17-85	24
2.6.4	Present business plan to company board of directors, social action commitment report to enterprise union and community and environmental compliance schedule to national environmental authorities to secure formal written agreement with the plans/reports.	NCPCs/PPCs		25
Outputs: 2.7 EMS designed for 20 pilot enterprises.		**Success criteria:** · EMS designed for 20 pilot enterprises.		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
2.7.1	Train national experts in UNIDO methodology for EMS in order to have a uniform and proven methodology in all five countries. One week workshop.	UNIDO/IE	11-71 17-86 to 17-90 32-00	24
2.7.2	Undertake EMS assessments for each potentially participating enterprise with enterprise team. Prepare work plan for system implementation.	NCPC/PPC/IE/NE	11-71 17-86 to 17-90	24
2.7.3	Assist enterprises over a three month period to implement EMSs.	UNIDO/ NCPC/PPC IE/NE	17-86 to 17-90	25-28
2.7.4	Apply for ISO 14000 or EMAS certification.	Enterprise	11-71	28
Outputs: 2.8 Investment Promotion Packages proposed for 20 pilot enterprises.		**Success criteria:** · Investment Promotion Packages proposed for 20 pilot enterprises.		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
2.8.1	Review business plans that include the investment requirements and the production costs implications of the endorsed EST option.	UNIDO/ NCPC/PPC	17-01 to 05 17-71 to 75	26

2.8.2	List proposals with UNIDO Investment Promotion Offices (IPS) as well as put forward to multilateral funding groups, World Bank, EBRD, GEF and EU.	UNIDO		26
2.8.3	Organize meetings between enterprises and potential financing sources.	UNIDO NCPC/PPC	21-00	27

COMPONENT III. Diffusion of Results

Objective 3. Diffusion of experience with the twenty pilot enterprises to other enterprises in the five participating countries and to other Danubian countries

The ultimate aim of the project is to persuade other polluting enterprises in the Danube that national institutions are available and capable of assisting ther devise cost effective plans for compliance with environmental norms. Success under this objective would be wide spread awareness and demand for the Tl approach among the major industrial enterprises causing

Outputs: 3.1 National seminars held in five countries.		**Success criteria:** · National seminars held in five countries.		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
3.1.1	Prepare national summaries of experience of undertaking TEST project for participating enterprises, highlighting lessons learned and impacts on the future of the enterprises.	NCPC/PPC	17-01 to17- 05	26
3.1.2	Hold five national seminars to disseminate results.	NCPC/PPC	33-00	28
Outputs: 3.2 Revised TEST manual with country case studies.		**Success criteria:** · TEST manual printed.		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
3.2.1	Prepare revised manual with case studies.	UNIDO NCPC/PPC	17-01 to 05	29
3.2.2	Circulate manual for review by all IEs and NEs for comment as well as internal UNIDO review.	UNIDO NCPC/PPC		29
3.2.3	Finalize manual and print.	UNIDO NCPC/PPC	51-00	29
Outputs: 3.3 Twenty five enterprises offered one day introductory TEST seminars.		**Success criteria:** · Twenty five enterprises participated in seminars.		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
3.3.1	Identify 25 enterprises from 5 countries.	NCPC/PPC	17-01 to 05	30

3.3.2	Introduce TEST to enterprises.	NCPC/PPC	15-00	30
3.3.3	Evaluate 25 reviews.	NCPC/PPC		31
Outputs: 3.4 Regional seminars held to present results of TEST application.		**Success criteria:** · Regional seminars held.		
Activities:		**Responsible parties**	**Budget line**	**Schedule (months)**
3.4.1	Hold regional seminar for nine countries (including the five participating countries) to present results and determine interest/capacity building needs for undertaking TEST programme in other Danubian countries.	UNIDO/NCPC/PPC	33-00	32
3.4.2	Prepare requests for technical assistance as needed.	UNIDO/NCPC/PPC		33
3.4.3	Prepare report on seminar.	UNIDO/NCPC/PPC		33
Outputs: 3.5 Teams identified and trained in four other Danubian countries.		**Success criteria:** · Four TEST teams trained		
Activities:		**Responsible partiesrs**	**Budget line**	**Schedule (months)**
3.5.1	Identify team members in four other countries with input from country programme coordinators, NCPC/PPC, UNIDO national focal points and UNIDO staff.	UNIDO/NCPC/PPC		33
3.5.2	Hold one week training course on TEST approach using selected national experts from the five participating countries.	UNIDO/NCPC/PPC Selected NCPC/PPC	33-00	34
3.5.3	Match one team from each participating country with new team from another country.	UNIDO/NCPC/PPC		34
3.5.4	Mission to each country to advise on enterprise selection and application of TEST approach.	UNIDO/NCPC/PPC	16-00	35
3.5.5	Provide limited technical advice as requested by new teams from the teams in the five participating countries.	NCPC/PPCs	17-01 to 05	35-36

V. INPUTS

A. Government Inputs

- The national programme coordinators for the Convention will provide all necessary information and facilitate dialogue with enterprises that will participate in the project.

- The NCPCs/PPCs will provide clerical support and office space and make available already established data bases on cleaner technology and contacts with national experts that could participate in the project.

B. GEF Inputs

The GEF has been requested to fund US$ 900,000 of project expenses (plus 10 per cent AOS). The GEF funds will be allocated as follows: US$ 220,000 for international experts; US$ 520,000 for national expertrs/support staff; US$ 100,000 for training and US$ 60,000 for travel/evaluation mission(s).

C. UNDP BUDGET

	PROJECT NUMBER:											
BL	**DESCRIPTION**	**TOTAL**	**AOS TOTAL**	**p/m**	**2001**	**AOS**	**p/m**	**2002**	**AOS**	**p/m**	**2003**	**AOS**
10	PROJECT PERSONNEL											
11	International Experts											
11-50	International Consultants	216,000		12.0	216,000							
11	***Sub-total***	***216,000***		***12.0***	***216,000***							
15	Monitoring & Evaluation											
15-01	Duty travel	30,000			10,000			10,000			10,000	
15-99	***Sub-Total***	***30,000***			***10,000***			***10,000***			***10,000***	
16	Mission Costs											
16-02	UNIDO	30,000			10,000			10,000			10,000	
16	***Sub Total***	***30,000***			***10,000***			***10,000***			***10,000***	
17	National Experts											
17-01	Project leader	72,000		36.0	24,000		12.0	24,000		12.0	24,000	
17-02	Project leader	72,000		36.0	24,000		12.0	24,000		12.0	24,000	
17-03	Project leader	72,000		36.0	24,000		12.0	24,000		12.0	24,000	
17-04	Project leader	72,000		36.0	24,000		12.0	24,000		12.0	24,000	
17-05	Project leader	72,000		36.0	24,000		12.0	24,000		12.0	24,000	
17-50	National Consultants	164,000		54.0	104,000		20.0	60,000				
17	*Sub Total*	*524,000*		*234*	*224,000*		*80.0*	*180,000*		*60.0*	*120,000*	
19	*COMPONENT TOTAL*	*800,000*		*246*	*460,000*		*80.0*	*200,000*		*60.0*	*140,000*	
32-	TRAINING											
32-01	Workshops	100,000			50,000			25,000			25,000	
39	*COMPONENT TOTAL*	*100,000*			*50,000*			*25,000*			*25,000*	
93	*UNIDO Support Costs*		90,000			51,000			22,500			16,50
99	**GRAND TOTAL**	**990,000**		**106.0**	**510,000**		**80.0**	**225,000**		**60.0**	**165,000**	

VI. RISKS

(1.) Major risks

a. The environmental authorities in the participating countries may not enforce the environmental norms that are necessary to protect the environment. If they fail to enforce norms, there may not be sufficient incentives to participated in the TEST project The risk

additional incentive to implement pollutant reduction programmes.

b. The EST options (combine process and pollution control technologies) identified for some of the 20 plants may be too costly. If implemented by these enterprises, they would no longer be profitable operations. This risk is acceptable because there is considerable evidence that compliance with environmental regulations is not excessive (see section B. 4).

c. Financing may not be available for the enterprises to implement the identified EST option. This risk is acceptable both because there are a number of programmes providing financial support for environmental investments and the enterprises themselves must begin to address environmental problems with their own resources if they are to stay in operation.

(2) Minor risks

a. Some of the participating enterprises may drop out of the TEST programme, diminishing the number of plant demonstrations undertaken during the project. This happened in the case of the PHARE programme on Clean Technology with one plant. This risk can be monitored and probably avoided by the NCPC/PPCs by maintaining a continuous dialogue with the enterprises about their concerns with project activities.

VII. PRIOR OBLIGATIONS AND PREREQUISITES

The participating governments have provided official country requests for the UNIDO project and endorsements for GEF funding. The host institutions for the project in each country will make in-kind contributions. The country programme coordinators for the ICPDR will serve as the official link between the project and the overall work plan of the ICPDR. There are no further prerequisites or obligations to be fulfilled prior to UNIDO approval of the project.

VIII. INSTITUTIONAL FRAMEWORK, CO-ORDINATION AND ADMINISTRATION

The programme will be executed by UNIDO in close cooperation with the ICPDR and the PCU, whose organizational arrangements were described in section A.4. (Figure 3). The UNIDO Project Manager will be responsible for insuring coordination with other technical assistance activities addressing industrial pollution in the Danube and for routine monitoring of the activities of the TEST focal points in the five countries as well as keeping the PMTF informed of the progress in implementing the TEST programme.

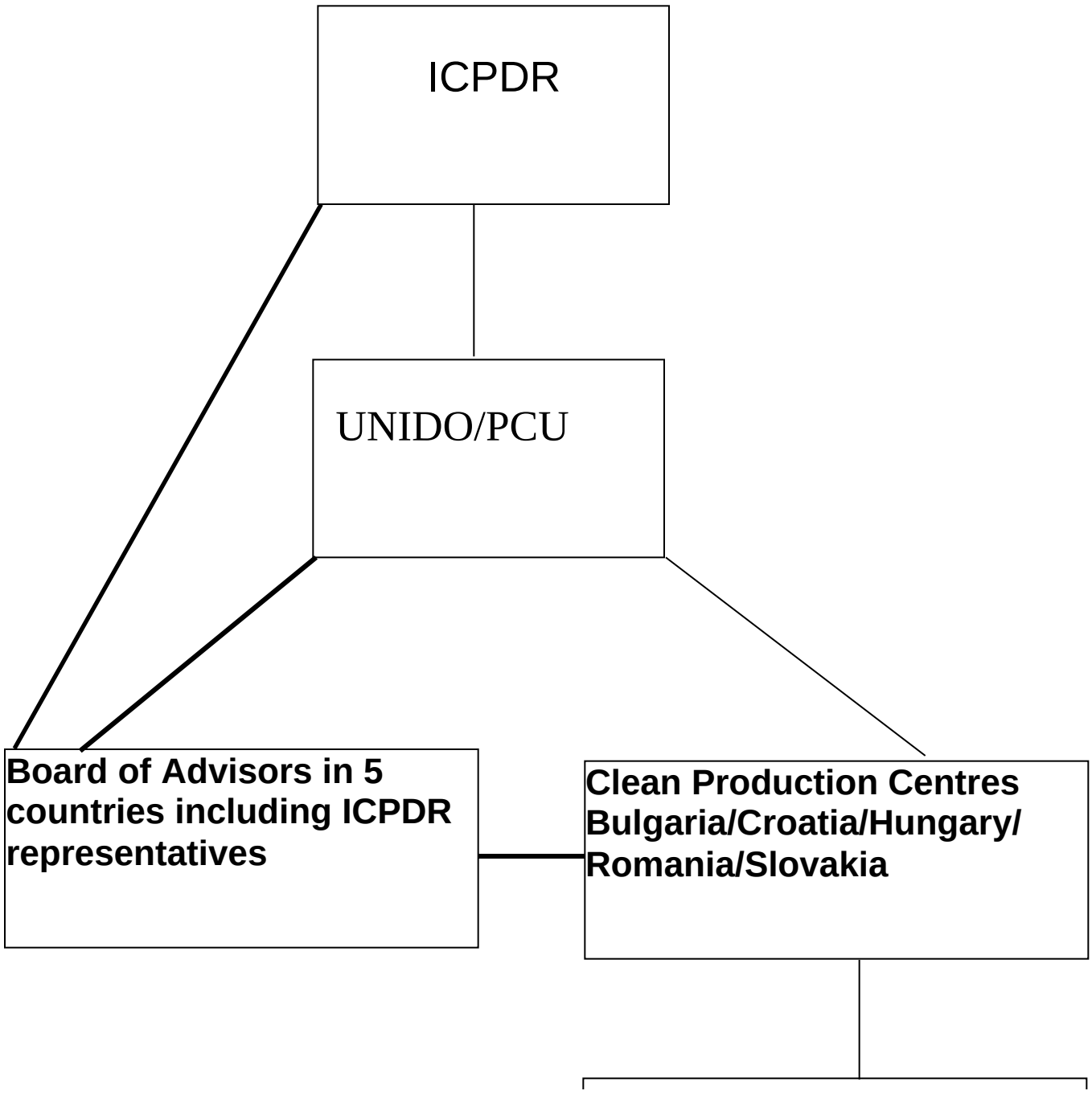
Internally, UNIDO has established a programme design and management team with professional staff members who represent each of the service modules. Each service module representative will be responsible for training, recruitment and supervision of experts and evaluation of outputs The team leader will be a senior staff member in the Cleaner Production and Environmental Management Branch.

There were two criteria for selecting the five countries that will participate in the first phase of the TEST programme One is that the country has an operating cleaner production centre or its equivalent. Six of the 11 countries, in which the PRP identified enterprises significantly contributing to pollution of the Danube River, have an established cleaner production centre or its equivalent (Bulgaria, Croatia, Czech Republic, Romania and Slovakia). The other criteria is that there is a significant number of polluting industrial enterprises (at least five) to participate in the first phase of the TEST programme. The Czech Republic was not included because the PRP identified only a few industrial hot spots and they have already begun implementation of pollutant reduction measures.

cleaner production services (in-plant demonstrations, training, information and policy advice) to industry. All of the centres have the necessary office facilities and equipment that will be needed by the project.

The TEST focal points in each country will establish a Board of Advisors. Members of the Board of Advisors will include the country programme coordinators for the Convention, ministries of industry and environment, industry associations and financial institutions likely to be able to draw on World Bank and EBRD funds. At least one NGO working with the Danube Environmental Forum will be on the Board of Advisors in each country.

Figure 3: Coordination Arrangements



IX. PROJECT REVIEWS, REPORTING AND EVALUATION

(a) The project will be subject to review (joint review by representatives of the government, UNIDO, UNDP and Member State donors) at least every 12 months, the first meeting to be held after the first 12 months of the start of full implementation. The directors of the NCPCs and PPCs and the senior UNIDO project officer shall prepare and submit to the respective governments, UNIDO and UNDP management and Member State donors, at least three months before each review, an Annual Project Report (APR)/Project Progress Report (PPR) for each country in line with the established guidelines of UNDP and UNIDO.

(b) Project terminal reports will be prepared for consideration at the terminal review meetings. They shall be prepared in draft sufficiently in advance to allow review and technical clearance by the executing agencies at least four months prior to the terminal review.

(c) The project shall be subject to a joint in-depth evaluation with the participation of the donor/UNIDO/UNDP and representatives of the recipient governments. The organization, terms of reference and timing (approximately 16 to 18 months after the inception of the project) will be decided after consultation among the parties involved in the project.

X. EXPECTED FOLLOW-UP

It is expected that at the end of project, the TEST focal points (NCPCs/PPCs) will have the capacity to apply the TEST approach to other enterprises identified in the TDA. It is also possible that a similar project will start to build capacity within the remaining Danubian countries.

XI. LEGAL CONTEXT

This Project Document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of those participating countries which have signed such Agreement and the United Nations Development programme.

The following types of revisions may be made to this project document with the signature of the Principal Project Resident Representative (PPRR) only, provided he or she is assured that the other signatories of the project document have no objections to the proposed changes:

1. Revision in, or addition of, any of the annexes of the project document.
2. Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation.
3. Mandatory annual revisions which rephrase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility.

XII. ANNEXES

Annex I: **Job Descriptions**
Annex II: **Work-plan**
Annex III: **Budget sheets**
Annex IV: **Major Manufacturing Discharges identified by the GEF Danube River Basin Pollution Reduction Programme, 1998 for Bulgaria, Croatia, Hungary, Romania and Slovakia**
Annex V: **Contact information for NCPCs/PPs**
Annex VI: **Government requests (Bulgaria, Croatia, Hungary, Slovak Republic, Romania)**

ANNEX I

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-51

Post Title: Expert in Marketing of Manufactured Products

Duration: 3.0 w/m (one mission to Vienna and two missions to each of five Countries)

Date Required: Months 6 to 9

Duty stations: Vienna and various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related Activity
1. Offer one week course in viability assessment along with expert 11-52	1 week	Vienna	Trained national experts	2.2.1
2. Assist national experts in conducting introductory workshops and initial plant investigations along with expert 11-52	5 weeks	Various locations in five countries	Viability assessments initiated at 20 plants	2.2.2
3. At each plant review the draft final viability assessment along with expert 11-52	5 weeks	Various locations in five countries	Viability assessments completed at 20 plants	2.2.3
4. Provide advice as requested to TEST team and advisory board in each country	1 week	Home based	Written comments to TEST team	2.2.4

Qualifications: Advanced degree in marketing with proven track record in assessing market potential for manufactured products. At least 10 years experience in field.

Language: English. German and Slavic language capability would be useful

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-52

Post Title: Expert in Cost Accounting for Manufactured Products

Duration: 3.0 w/m (one mission to Vienna and two missions to each of five Countries)

Date Required: Months 6 to 9

Duty stations: Vienna and various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related Activity
1. Offer one week course in viability assessment along with expert 11-51	1 week	Vienna	Trained national experts	2.2.1
2. Assist national experts in conducting introductory workshops and initial plant investigations along with expert 11-51	5 weeks	Various locations in five countries	Viability assessments initiated at 20 plants	2.2.2
3. At each plant review the draft final viability assessment along with expert 11-51	5 weeks	Various locations in five countries	Viability assessments completed at 20 plants	2.2.3
4. Provide advice as requested to TEST team and advisory board in each country	1 week	Home based	Written comments to TEST team	2.2.4

Qualifications: Advanced degree in cost accounting with proven track record in cost accounting for manufactured products At least 10 years experience in field including experience with factories in Central and Eastern Europe.

Language: English. German and Slavic language capability would be useful

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-53

Post Title: Expert in Cleaner Production Assessments

Duration: 1.0 w/m (one mission to Vienna and one mission to each of five countries)

Date Required: Months 9 to 14

Duty stations: Vienna and various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related Activity
1. Offer two day course in advanced techniques in cleaner production assessments	1 week	Vienna	Trained national experts	2.3.1
2. Assist national experts in conducting introductory workshops and initiating cleaner production assessments in participating plants	2 weeks	Various locations in five countries	Cleaner production assessments initiated at 20 plants	2.3.2
3. Review draft final cleaner production assessments	3 days	Various locations in five countries	Evaluation of the progress made in implementing CP options at 20 plants	2.3.3
4. Provide advice as requested to TEST team and advisory board in each country	2 days	Home based	Written comments to TEST team	2.3.4

Qualifications: Advanced university degree in engineering or science with proven track record in cleaner production assessments for manufactured products. At least 10 years experience in field.

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.
The UNIDO methodology for implementing this output is described in the “Audit and Reduction Manual for Industrial Emissions and Wastes”.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-54

Post Title: Sub-sector Expert in Cleaner Production/Industrial Management (Fertilizer)

Duration: 1.0 w/m (one mission of 3 weeks to five countries and one week Home-based)

Date Required: Months 10 to 14

Duty stations: Various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related Activity
1. Comment on CP options identified in initial CP assessments for similar sub-sector plants	2 days	Home-based	Written evaluation of CP assessments	2.3.3 2.4.2
2. Conduct option generation sessions at similar sub-sector plants in five countries as needed along with expert 11-53 if possible	3weeks	Various locations in five countries	Written report on options identified	2.3.2 2.4.2
3. Assess if satisfactory progress made by plants in implementing CP options	3 days	Home-based	Written report on progress in implementation of CP/IM options	2.3.3 2.4.3

Qualifications: Advanced engineering degree in specified sub-sector field. At least 10 years experience in field and proven track record advising on CP assessments

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.
The UNIDO methodologies for implementing this output are described in the “Audit and Reduction Manual for Industrial Emissions and Wastes” and “Manual on Diagnostic and Industrial Restructuring”.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology (TEST) in the Danube River Basin
JOB DESCRIPTION
11-55

Post Title: Sub-sector Expert in Cleaner /Industrial Management (Chemical)

Duration: 1.0 w/m (one mission of 3 weeks to five countries and one week home-based)

Date Required: Months 10 to 14

Duty stations: Various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
1. Comment on CP/IM options identified in initial CP assessments for similar sub-sector plants	2 days	Home-based	Written evaluation of CP assessments	2.3.3 2.4.2
2. Conduct option generation sessions at similar sub-sector plants in five countries as needed along with expert 11-53 if possible	3weeks	Various locations in five countries	Written report on options identified	2.3.2 2.4.2
3. Assess if satisfactory progress made by plants in implementing CP options	3 days	Home-based	Written report on progress in implementation of CP/IM options	2.3.3 2.4.3

Qualifications: Advanced engineering degree in specified sub-sector field. At least 10 years experience in field and proven track record advising on CP assessments

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.
The UNIDO methodologies for implementing this output are described in the “Audit and Reduction Manual for Industrial Emissions and Wastes” and “Manual on Diagnostic and Industrial Restructuring”.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-56

Post Title: Sub-sector Expert in Cleaner Production/Industrial Management (Metallurgical)

Duration: 1.0 w/m (one mission of 3 weeks to five countries and one week home-based)

Date Required: Months 10 to 14

Duty stations: Various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
1. Comment on CP/IM options identified in initial CP assessments for similar sub-sector plants	2 days	Home-based	Written evaluation of CP/IM assessments	2.3.2 2.4.2
2. Conduct option generation sessions at similar sub-sector plants in five countries as needed along with expert 11-53 if possible	3 weeks	Various locations in five countries	Written report on options identified	2.3.2 2.4.2
3. Assess if satisfactory progress made by plants in implementing CP options	3 days	Home-based	Written report on progress in implementation of CP/IM options	2.3.3 2.3.4

Qualifications: Advanced engineering degree in specified sub-sector field. At least 10 years experience in field and proven track record advising on CP assessments

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of oncern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.
The UNIDO methodologies for implementing this output are described in the “Audit and Reduction Manual for Industrial Emissions and Wastes” and “Manual on Diagnostic and Industrial Restructuring”.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-57

Post Title: Sub-sector expert in Cleaner Production/Industrial Management (pharmaceutical)

Duration: 10 w/m (one mission of 3 weeks to five countries and one week home-based)

Date Required: Months 10 to 14

Duty stations: Various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
1. Comment on CP/IM options identified in initial CP assessments for similar sub-sector plants	2 days	Home-based	Written evaluation of CP assessments	2.3.2 2.4.2
2. Conduct option generation sessions at similar sub-sector plants in five countries as needed along with expert 11-53 if possible	3 weeks	Various locations in five countries	Written report on options identified	2.3.2 2.4.2
3. Assess if satisfactory progress made by plants in implementing CP/IM options	3 days	Home-based	Written report on progress in implementation of CP/IM options	2.3.3 2.4.3

Qualifications: Advanced university degree in industrial management. At least 10 years experience in field.

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.
The UNIDO methodologies for implementing this output are described in the "Audit and Reduction Manual for Industrial Emissions and Wastes" and "Manual on Diagnostic and Industrial Restructuring".

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-58

Post Title: Sub-sector expert in Cleaner Production/Industrial Management (Pulp and paper)

Duration: 1.0 w/m (one mission of three weeks to five countries and one week home-based)

Date Required: Months 10 to 14

Duty stations: Vienna and various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
1. Comment on CP/IM options identified in initial CP/IM assessments for similar sub-sector plants	2 days	Home-based	Written evaluation of CP/IM assessments	2.3.2 2.4.2
2. Conduct option generation sessions at similar sub-sector plants in five countries as needed along with expert 11-53 if possible	3 weeks	Various locations in five countries	Written report on options identified	2.3.2 2.4.2
3. At each plant evaluated the EST configuration selected	3 days	Home-based	Written report on progress in implementation of CP/IM options	2.3.3 2.4.3

Qualifications: Advanced university degree in engineering or science with proven track record in cleaner production assessments for manufactured products. At least 10 years experience in field.

Language: English. German and Slavic language capability would be useful

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.
The UNIDO methodologies for implementing this output are described in the "Audit and Reduction Manual for Industrial Emissions and Wastes" and "Manual on Diagnostic and Industrial Restructuring".

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-59

Post Title: Expert in Industrial Management

Duration: 3.0 w/m (one mission to Vienna and two missions to each of countries)

Date Required: Months 11 to 16

Duty stations: Vienna and home based

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
1. Offer one week course in industrial assessment	1 week	Vienna	Trained national experts	2.4.1
2. Assist national experts in conducting introductory workshops and initiating plant assessment	5 weeks	Various locations in five countries	Industrial management assessments initiated at 20 plants	2.4.2
3. At each plant review the draft final industrial management assessment	5 weeks	Various locations in five countries	Progress in implementing recommendations assessed at 20 plants	2.4.3
4. Provide advice as requested to TEST team and advisory board in each country	1 weeks	Home-based	Written comments to TEST team	2.4.4

Qualifications: Advanced university degree in industrial management. At least 10 years experience in field.

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.
The UNIDO methodology for implementing this output is described in the “Manual on Diagnostic and Industrial Restructuring”.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-60

Post Title: Expert in Environmentally Sound Technology Assessment

Duration: 3.0 w/m (one mission to Vienna and two missions to each of countries)

Date Required: Months 15 to 19

Duty stations: Vienna and various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
1. Offer two week course in environmentally sound technology (EST) assessment with input from 11-61 and 11-62	2 weeks	Vienna	Trained national experts	2.5.1
2. Assist national experts in conducting introductory workshops and initiating EST assessments in participating plants	4 weeks	Various locations in five countries	EST assessments initiated at 20 plants	2.5.2
3. At each plant evaluate the EST configuration selected	4 weeks	Various locations in five countries	Written evaluation of EST configuration selected	2.5.2
4. Provide advice in technology negotiation process as needed	1 week	Home-based	Written comments to 11-60 and plants	2.5.4
5. Provide advice as needed to TEST team and advisory board in each country	1 week	Home-based	Written comments to TEST team	2.5.5

Qualifications: Advanced university degree in engineering or science with proven track record in cleaner production assessments for manufactured products. At least 10 years experience in field.

Language: English. German and Slavic language capability would be useful

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.
The UNIDO methodology for implementing this output is described in the documentation for the

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-61

Post Title: Expert in Financial Evaluation of Investment Options

Duration: 1.0 w/m (one mission to Vienna and home-based)

Date Required: Months 15-18

Duty stations: Vienna and home-based

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
1. Contribute to two week course on environmentally sound technology (EST) assessment organized by 11-60 and with input also from 11-60	1 weeks	Vienna	Trained national experts	2.5.1
2. Review financial feasibility analyses for the selected EST configurations	2.5 weeks	Home-based	Financial analyses evaluated	2.5.2
3. Provide advice as needed to TEST team and advisory board as needed	0.5 week	Home-based	Written comments	2.5.5

Qualifications: Advanced university degree in business administration with specialization in financial analysis. At least 10 years experience in field.

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.
The UNIDO methodology for implementing this financial analysis in this output is described in the "COMFAR" manual.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-62

Post Title: Expert in Technology Negotiation

Duration: 2.0 w/m (one mission to Vienna and one mission to each of five countries)

Date Required: Months 15-19

Duty stations: Vienna, various locations in five countries and home-based

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
1. Contribute to two week course in environmentally sound technology (EST) assessment organized by 11-60 with input also from 11-61	1 week	Vienna	Trained national experts	2.5.1
2. Provide advice to plants on how to negotiate for the EST configuration selected	4 weeks	Various locations in five countries	Technology negotiation advice provided	2.5.4
3. Provide additional support in technology negotiation process as requested	2 weeks	Home-based	Written advice provided	2.5.4
4. Provide advice to TEST team and advisory board in each country	1 week	Home-based	Written comments to TEST teams	2.5.5

Qualifications: Advanced university degree in relevant business field. . At least 15 years experience in field, with at least five with EST negotiations. Experience in Central and European countries would be useful.

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.
The UNIDO methodology for implementing the technology negotiation component is described in the

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-63

Post Title: Expert in Sub-Sector Technology (fertilizer)

Duration: 1.0 w/m (one mission covering five countries)

Date Required: Months 16-17

Duty stations: Various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
1. Advice participating fertilizer plants on the available EST options	3 weeks	Various locations in five countries	EST options generated and evaluated on basis of technical performance	2.5.2
2. Provide advice to EST expert (11-60) and technology negotiator (11-62) as requested	1 week	Home-based	Written evaluations of requests	2.5.4

Qualifications: Advanced university degree in chemical engineering and specialization in fertilizer manufacturing. At least 15 years experience in field, with at least five with EST selection. Experience in Central and European countries would be useful.

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-64

Post Title: Expert in Sub-Sector Technology (chemical)

Duration: 1.0 w/m (one mission covering five countries)

Date Required: Months 16-17

Duty stations: Various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
1. Advice participating chemical plants on the available EST options	3 weeks	Various locations in five countries	EST options presented and evaluated on basis of technical performance	2.5.2
2. Provide advice to EST expert (11-60) and technology negotiator (11-62) as requested	1 week	Home-based	Written evaluations of requests	2.5.4

Qualifications: Advanced university degree in chemical engineering. At least 15 years experience in field, with at least five years with EST selection. Experience in Central and European countries would be useful.

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology (TEST) in the Danube River Basin

JOB DESCRIPTION
11-65

Post Title: Expert in Sub-Sector Technology (metallurgical)

Duration: 1.0 w/m (one mission covering five countries)

Date Required: Months 16-17

Duty stations: Various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
1. Advice participating metallurgical plants on the available EST options	3 weeks	Various locations in five countries	EST options presented and evaluated on basis of technical performance	2.5.2
2. Provide advice to EST expert (11-60) and technology negotiator (11-62) as requested	1 week	Home-based	Written evaluations of requests	2.5.4

Qualifications: Advanced university degree in metallurgical engineering. At least 15 years experience in field, with at least five years with EST selection. Experience in Central and European countries would be useful.

Language: English. German and Slavic language capability would be useful.

Background information: The GEF Pollution Reduction Programme has identified 169 industrial enterprises of concern (known as hot spots) within the Danube River Basin; of these 49 were designated as high priority for pollution reduction efforts. There is a lack of convincing practical demonstrations with either the smaller set of 49 high priority enterprises or the larger set of 169 enterprises of concern that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. The UNIDO programme on Transfer of Environmentally Sound Technology (TEST) proposes to build capacity in existing cleaner production institutions in five Danubian country to apply the UNIDO integrated systematic approach, drawing on its extensive experience in several fields of assistance to industry, to 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention, at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading within enterprises. The enhanced institutional capacity would then be available to assist other priority plants in these countries as well as other Danubian countries.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-66

Post Title: Expert in Sub-Sector Technology (pharmaceutical)

Duration: 1.0 w/m (one mission covering five countries)

Date Required: Months 16-17

Duty stations: Various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
3. Advice participating pharmaceutical plants on the available EST options	3 weeks	Various locations in five countries	EST options presented and evaluated on basis of technical performance	2.5.2
4. Provide advice to EST expert (11-60) and technology negotiator (11-62) as requested	1 week	Home-based	Written evaluations of requests	2.5.4

Qualifications: Advanced university degree in pharmaceutical engineering. At least 15 years experience in field, with at least five years with EST selection. Experience in Central and European countries would be useful.

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-67

Post Title: Expert in Sub-Sector Technology (pulp and paper)

Duration: 1.0 w/m (one mission covering five countries)

Date Required: Months 16-17

Duty stations: Various locations in five countries

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
5. Advice participating pulp and paper plants on the available EST options	3 weeks	Various locations in five countries	EST options presented and evaluated on basis of technical performance	2.5.2
6. Provide advice to EST expert (11-60) and technology negotiator (11-62) as requested	1 week	Home-based	Written evaluations of requests	2.5.4

Qualifications: Advanced university degree in pulp and paper engineering. At least 15 years experience in field, with at least five years with EST selection. Experience in Central and European countries would be useful.

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-68

Post Title: Expert in Business Plan Preparation

Duration: 2.0 w/m (one mission to Vienna and one mission to each of 5 countries).

Date Required: Months 18 to 25

Duty stations: Vienna, various locations in five countries and home-based

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
1. Offer one-week course in Sustainable Enterprise Strategy (SES) along with experts 11-69 and 11-70. Team coordinator	1 week	Vienna	Trained national experts	2.6.1
2. Assist national experts in conducting introductory workshops in each of five countries and responding to enterprise specific situations	3 weeks	Various locations in five countries	Business plan component of SES initiated at each enterprise	2.6.2
3. Review business plan component of SES prepared by companies	3 weeks	Home-based	Business plan component of SES evaluated	2.6.3
4. Respond to questions about SES addressed to TEST team	1 week	Home based	Written comments to TEST team	2.6.4

Qualifications: Advanced degree in business with a specialization in preparation of business plans. At least 10 years experience in field with some experience in incorporating EST options into business plans. Successful experience with Central and Eastern European enterprises is essential.

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-69

Post Title: Expert in Social Action Plan Preparation

Duration: 4.0 w/m (one mission to Vienna and two missions to each of five countries)

Date Required: Months 18 to 25

Duty stations: Vienna; various locations in five countries and home-based

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity[1]
1. Offer one-week course in Sustainable Enterprise Strategy (SES) along with experts 11-68 and 11-70	1 week	Vienna	Trained national experts	2.6.1
2. Assist national experts in conducting introductory workshops in each of five countries and responding to enterprise specific situations	8 weeks	Various locations in five countries	Social action plan component of SES initiated at each enterprise	2.6.2
3. Review social action plan component of SES prepared by companies	6 weeks	Various locations in five countries	Social action plan component of SES evaluated	2.6.3
4. Respond to questions about SES addressed to TEST team	1 week	Home-based	Written comments to TEST team	2.6.4

Qualifications: Advanced degree in relevant social science field. At least 10 years experience in working with enterprises to assist their redundant workforces. Successful experience in this field with Central and Eastern European enterprises essential.

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-70

Post Title: Expert in Negotiated Environmental Compliance

Duration: 1.0 w/m (one mission to Vienna and one mission to each of 5 countries)

Date Required: Months 18-25

Duty stations: Vienna; various locations in five countries and home-based

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity
1. Offer one-week course in Sustainable Enterprise Strategy (SES) along with experts 11-68 and 11-69.	1 week	Vienna	Trained national experts	2.6.1
2. Assist national experts in conducting introductory workshops in each of five countries and responding to enterprise specific situations	2 weeks	Various locations in five countries	Negotiated environmental compliance component of SES initiated at each enterprise	2.6.2
3. Review negotiated environmental compliance schedule in SES prepared by companies	3 days	Home-based	Negotiated environmental compliance schedule in SES evaluated	2.6.3
4. Respond to questions about SES addressed to TEST team	2 days	Home based	Written comments to TEST team	2.6.4

Qualifications: Advanced degree in relevant legal or social science field. At least 10 years experience in working with governments and/or enterprises in negotiating environmental compliance schedules. Experience in this field with Central and Eastern European enterprises desirable.

Language: English. German and Slavic language capability would be useful.

Background information: The UNDP/GEF Pollution Reduction Programme has identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin; a significant number of these are contributing to transboundary pollution in the form of nutrients persistent organic pollutants. In spite of the environmental problems they are causing, there is a lack of convincing evidence that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. This project will build capacity in existing cleaner production institutions in five Danubian countries to apply the UNIDO programme on Transfer of Environmentally Sound Technology (TEST) at 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading. The enhanced institutional capacity would then be available to assist other enterprises of concern in these countries as well as other Danubian countries.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT/PROGRAMME
Transfer of Environmentally Sound Technology
(TEST) in the Danube River Basin
JOB DESCRIPTION
11-71

Post Title: Expert in Environmental Management Systems

Duration: 1.0 w/m (one mission to Vienna and one mission to each of 5 countries)

Date Required: Months 24 to 28

Duty stations: Vienna; various locations in five countries and home-based

Counterpart: NCPCs/PPCs

Duties: The consultant will specifically be expected to:

Main duties	Expected duration	Location	Expected results	Related activity[2]
1. Offer one week course in Environmental Management Systems (ISO 14000/EMS) to national experts	1 week	Vienna	Trained national experts	2.7.1
2. Assist national experts in conducting introductory workshops in each of five countries and responding to enterprise specific situations	2 weeks	Various locations in five countries	Preparation of EMS initiated at each of the participating companies	2.7.2
3. Review EMS proposed by each company	3 days	Home-based	Written evaluation of the adequacy of EMSs	2.7.3
4. Advice enterprises that want to apply for certification	2 days	home based	Written comments to enterprises	2.7.4

Qualifications: Advanced university degree in environmental field. At least 10 years experience in advising companies on setting up EMSs. Experience with Central and Eastern European enterprises desirable.

Language: English. German and Slavic language capability would be useful.

Background information: The GEF Pollution Reduction Programme has identified 169 industrial enterprises of concern (known as hot spots) within the Danube River Basin; of these 49 were designated as high priority for pollution reduction efforts. There is a lack of convincing practical demonstrations with either the smaller set of 49 high priority enterprises or the larger set of 169 enterprises of concern that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive position. The UNIDO programme on Transfer of Environmentally Sound Technology (TEST) proposes to build capacity in existing cleaner production institutions in five Danubian country to apply the UNIDO integrated systematic approach, drawing on its extensive experience in several fields of assistance to industry, to 20 pilot enterprises. The aim of the assistance is to bring these pilot enterprises into compliance with environmental norms of the Danube River Protection Convention, at the same time taking into account their needs to remain competitive and to deal with the social consequences of major technology upgrading within enterprises. The enhanced institutional capacity would then be available to assist other priority plants in these countries as well as other Danubian countries.

ANNEX II

Transfer of Environmentally Sound Technology (TEST)

Work plan Year 1

Outputs/ Activities	Month1	Month2	Month3	Month4	Month5	Month6	Month7	Month8	Month9	Month10	Month11	Month12	Month13
1.1.1 Country nominations for TEST programme													
1.1.2 Set up project advisory board													
1.1.3 Designate team leader for TEST team													
1.1.4 Set up TEST team office													
1.2.1 Briefing & introducing TEST methodology													
1.2.2 Train team leader –one week TEST overview workshop													
1.2.3 Study tour in selected European countries													
1.3.1 Installation of equipment													
1.3.2 Establishment of Internet linkage													
1.3.3 Find and assemble case studies													
1.3.4 Document relevant EU & national environmental standards													
1.4.1 Preparation of work plan for immediate objective 2													
2.1.1Select potential participating enterprises													
2.1.2 Send letters & questionnaire													
2.1.3 Interview enterprises/select plants													
2.1.4 Secure letters of commitment from enterprises to participate in project													
2.2.1 Train national experts in UNIDO methodology													
2.2.2 Undertake viability assessment for each pilot enterprise													
2.2.3Determine the enterprises SWOT													
2.2.4 Determine if pilot enterprises should continue in the project													
2.3.1 Train NEX in UNIDO methodology for CPA													
2.3.2 Undertake CPA to identify CP options													
2.3.3 Assist enterprises over 3 month period. Documents results													

Transfer of Environmentally Sound Technology (TEST)

Work plan Year 2

Outputs/ Activities	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18	Month 19	Month 20	Month 21	Month 22	Month 23	Month 24	Month 25
2.3.4 Based on results obtained determine if pilot enterprises should continue in project													
2.4.1 Train national experts in UNIDO methodology for IMAS , one week workshop													
2.4.2 Undertake IMA to determine the application of the appropriate IMT													
2.4.3 Assist enterprises over 3 month period for implementation. Document results													
2.4.4 Based on results obtained determine if pilot enterprises should continue in the project													
2.5.1 Train NEX in UNIDO approach to EST. Two week course													
2.5.2 Work w/each enterprise on wastewater & air pollution technologies													
2.5.3 Evaluate financial & environmental points of view EST proposal (UNIDO COMFAR software)													
2.5.4 Negotiate w/technology suppliers availability, costs & conditions of selected TEST packages													
2.5.5 Select enterprises to continue participation in the project													
2.6.1 Train NEX in UNIDO formats & aspects of SES. One week workshop													
2.6.2 Prepare draft reports													
2.6.3 Review of strategies/plans/reports by IEs & NEs from all 5 countries													
2.6.4 Present business plan and reports													
2.7.1 Train NEX in UNIDO methodology for EMS. One week workshop													
2.7.2 Undertake EMS for each participating enterprise. Prepare work plan													

Transfer of Environmentally Sound Technology (TEST)

Work plan Year 3

Outputs/ Activities	Month 24	Month 25	Month 26	Month 27	Month 28	Month 29	Month 30	Month 31	Month 32	Month 33	Month 34	Month 35	Month 36
2.7.3 Assist enterprises over 3 month period to implement EMSs													
2.7.4 Apply for ISO 14000 or EMAS certification													
2.8.1 Review business plan													
2.8.2 List proposals w/UNIDO IPS as well as World Bank, ERBD,GEF & EU													
2.8.3 Organize meetings between enterprises & potential financing sources													
3.1.1 Prepare national summaries of experience of undertaking TEST project													
3.1.2 Hold five national seminars to disseminate results													
3.2.1 Prepare revised manual case studies													
3.2.2 Circulate manual for review by all IEs & NEs for comment													
3.2.3 Finalize manual and print													
3.3.1 Identify 20 enterprises from 5 countries													
3.3.2 Introduce TEST to enterprises													
3.3.3 Evaluate 20 reviews													
3.4.1 Hold regional seminar for nine countries													
3.4.2 Prepare requests for TA as needed													
3.4.3 Prepare report on seminar													
3.5.1 Identify team members in four other countries													
3.5.2 Hold 1 week training course on TEST													
3.5.3 Match one team from each participating country													
3.5.4 Mission to each country to advise/selection/application of TEST procedure													
3.5.5 Provide limited technical advice requested by the 5 participating countries													

ANNEX V

Contact information for NCPCs/PPCs

POLLUTION PREVENTION CENTRES		
BULGARIA	Dr. Dimiter Brankov Executive Director Clean Industry Center at the Bulagarian Industrial Association 16-20 Ala Bin Str. 1000 Sofia, Bulgaria	Tel & Fax 011-3592816620 BIA Fax: 011-3592872604 E-mail: Brankov@bia.bol.bg
ROMANIA	Mr. Vladimir Gheorghievici Executive Director Foundation Pollution Prevention Centre Bd. Constructorilor-20 Bucharest 6, Romania	Tel: 011-4012211948, 2211899 Fax: 01104012212050 E.mail: cpp@com.pcnet.ro
NATIONAL CLEANER PRODUCTION CENTRES		
CROATIA	Mr. Marian Host Hazardous Waste Management Agency Zagreb, Croatia	Tel:00385 1 6176736 Fax:00385 1 6176734 E-mail: mhost@alf.tel.hr
HUNGARY	Mr. Sandor Kerekes Director National Cleaner Production Centre, Budapest University of Economic Science Fovam ter 8, Budapest, Hungary	Tel: 00361 2188076 Fax: 00361 2179588 E-mail: skerekes@enviro.bke.hu or cleaner@enviro.bke.hu
SLOVAK REPUBLIC	Ms. Viera Feckova Director, Slovak Cleaner Production Centre Pionierska 15 83102 Bratislava, Slovak Rep.	Tel: 00421 74445 Fax: 00421744259015 E-mail: sccp@cpz.sk