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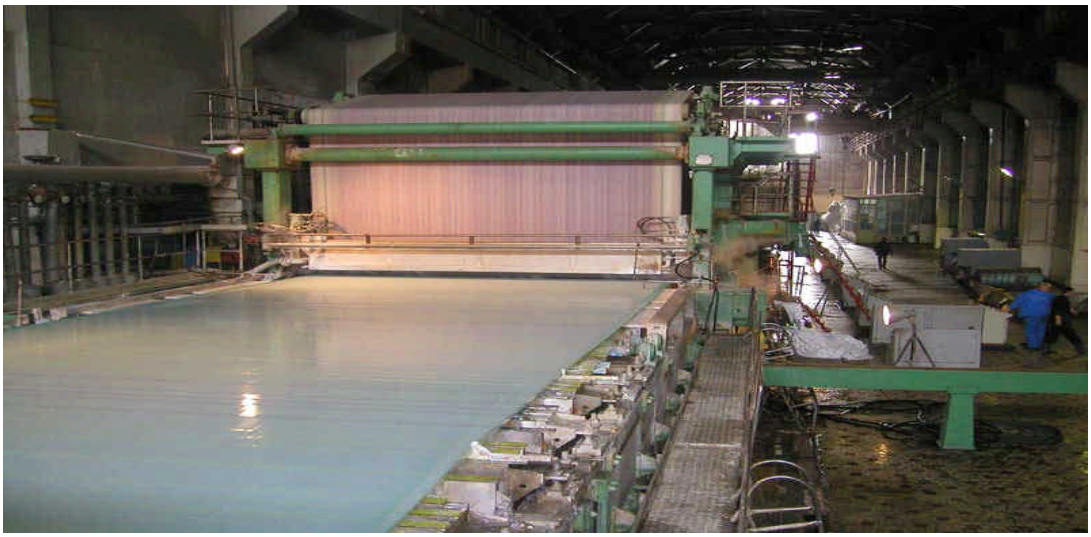
Building Successful Technological and Financial Partnerships with the Private Sector to Reduce Pollutant Loading



Abstract: The Danube TEST project was designed and targeted to demonstrate how environmentally sound technologies would not only aid in reducing point-source pollutants but would assist the associated enterprises that adopted them in being more cost-effective and less wasteful. 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. The TEST approach used a sequence of modular, customizable tools (An Initial Review of Company Needs, Environmental Management Systems, Cleaner Production Assessment, Environmental Management Accounting, Environmentally Sound Technology Assessment and Sustainable Enterprises Strategy). Although companies were initially cautious about the entire TEST approach, in most cases they quickly came to understand the potential advantages to them within the overall business landscape in terms of both complying with environmental norms and therefore being able to compete within a wider market, as well as actual savings in terms of reduction in wastes and unnecessary discharges. TEST provides a real example of how partnerships with the private sector can lead to major improvements within the regional and global environment through improved processes, stress reduction and eventual environmental status improvements.

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Building Successful Technological and Financial Partnerships with the Private Sector to Reduce Pollutant Loading

Experience of the GEF - sponsored

GEF/UNDP: Transfer of Environmentally Sound Technology (TEST) to Reduce Transboundary Pollution in the Danube River Basin

GEFID: 867, UNDP: RER/00/G35

PROJECT DESCRIPTION

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. The territories of Serbia and Montenegro, Bosnia and Herzegovina and small parts of Italy, Switzerland, Albania and Poland are also included in the basin. The Danube River discharges into the Black Sea through a delta which is the second largest natural wetland area in Europe.

In April 2001, the GEF Transfer of Environmentally Sound Technologies (TEST) project started under the implementation of UNDP and executed by UNIDO. The Development Objective of the TEST initiative was twofold:

- To improve industrial environmental management by major industrial enterprises in the Danube River Basin, resulting in major reductions in pollutant loading and consequently risk to the Danube River and Black Sea aquatic environments.
- To build capacity in networks of national cleaner production institutions to advise the enterprises in the five participating countries on how to implement the TEST approach.

This was a GEF Medium Sized Project which was designed and targeted to demonstrate how environmentally sound technologies would not only aid in reducing point-source pollutants but would assist the associated enterprises that adopted them in being more cost-effective and less wasteful. This project took on the challenge (over a 3 year period) to effectively demonstrate to the industries of five Danubian countries (Bulgaria, Croatia, Hungary, Romania and Slovakia) that it is possible to comply with environmental standards and still maintain, or even enhance their competitive position. In the three-year period of the MSP, the project successfully completed training and knowledge transfer related to capacity building and institutional strengthening at both the level of the selected demonstration enterprises and at the level of the national counterpart institutions (Cleaner Production Centres (CPC's), and Pollution Control Centres (PCC's), etc). The actual demonstrations of the TEST approach in selected industrial/commercial enterprises was equally as successfully with considerable investment made by the selected companies into the adoption of cleaner production processes and environmentally sound technology. 17 enterprises in 5 countries were successfully introduced to TEST and various options for environmental management and pollution reduction were adopted to varying degrees dependent on availability of funding. 5 Cleaner Production Centres or similar bodies were trained and had their capacity enhanced in order to service the needs of these enterprises. The training and capacity building of these national institutions is the subject of another IWEN related to the TEST process (See 8. REFERENCES below)

The Independent Terminal Evaluation of GEF TEST found the project to have been most notably successful and a very worthwhile example of a GEF MSP investment from which many valuable lessons and practices could be captured. The Evaluation provided a number of recommendations, including the proposal that serious consideration be given to further investment to transfer these lessons and best practices and to build on the substantial achievements of the TEST project.

THE EXPERIENCE

Issues and Challenges

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.

Within the framework 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 analysed at the regional level in the TDA. Based on the TDA and the ICPDR Emission Expert Group.

Up until the inception of the TEST initiative within the Danube basin, there was a lack of convincing practical demonstrations with private sector commercial enterprises to show that it is possible to comply with environmental norms and still remain or perhaps enhance their competitive positions. 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 were not being provided as an integrated service package that is needed by the enterprises to pursue the three objectives simultaneously.

Addressing the Issue

The UNDP/GEF Pollution Reduction Programme identified 130 major manufacturing enterprises of concern (known as hot spots) within the Danube River Basin. Five countries were selected to participate in the TEST programme (Bulgaria, Croatia, Hungary, Romania and Slovakia). All of these target countries were in:

1) Economic and political transition,
2) Undergoing increasing industrial production and consumption,
3) Experiencing growing environmental pressure, and
4) Experiencing changing social conditions and pressures.

Each of these countries had industrial enterprises which were contributing very high nutrient loadings to the river basin. Selection of enterprises was a difficult step due to the fact that the participating countries are characterized by lack of enforcement of environmental legislation and by limited understanding of environmental concerns. The intention was to develop integrated services within each of the industries in order to achieve the simultaneous objectives of A) Competitive enhancement of their production and marketing, B) Improved social responsibility (both in relation to the workplace and local landscape), C) Environmental compliance to meet market demands and national priorities.

Not all 'hot-spot' enterprises were suitable for the TEST project (most of the hot spot companies were in very difficult financial circumstances related to economic transition). Financial viability of companies was not easy to assess on a preliminary basis, due to lack of reliable data. Moreover many companies do not have formal medium-long term management or environmental strategies, which further complicated the identification of appropriate pilot enterprises for project implementation. This was a common situation within the transition economies at the time where companies were rushing to meet demand and their focus on near-term survival was higher than that of building a medium-long-term strategy. Once the enterprises realised that they would also need to contribute time, financial and human resources to the project aims there was a further natural selection process through attrition and lack of 'ownership' for the project concepts and outcomes. In the end 17 enterprises qualified, volunteered and were adopted for the TEST demonstration process. The aim of the TEST initiative was to work with the selected pilot enterprises to:

- Demonstrate the feasibility of achieving industrial compliance with environmental norms and social considerations while maintaining a company competitive edge

- Bringing the selected enterprises into compliance with European Union Accession requirements as well as the Danube River Protection Convention requirements

National counterparts were also identified within each country in order to deliver the necessary TEST products and training. These were either existing national Cleaner Production Centres (as established by UNIDO and UNEP) or other appropriate Pollution Control Centres or Institutes dealing with national pollution management and control. The project aimed to build the capacity of these national bodies to implement TEST tools.

The TEST approach used a sequence of tools that were effectively modular in that specific tools could be targeted or enhanced to suit specific enterprises. The Project provided training and delivery in the following TEST tools:

A. **An Initial Review of Company Needs**: To identify which of the following modules need to be integrated into the specific enterprises' TEST programme
B. **Environmental Management Systems**: Practices and procedures to promote an environmental policy within a company's overall quality management system
C. **Cleaner Production Assessment**: An integrated preventive environmental strategy applied to industrial processes, products and services to increase overall efficiency and reduce risks/impacts to humans and the environment
D. **Environmental Management Accounting**: Identifying the financial impacts on improved environmental performance (which can negative or positive)
E. **Environmentally Sound Technology Assessment**: Implementing best available techniques and practices to improve environmental performance or meet environmental norms
F. **Sustainable Enterprises Strategy**: Adoption of all of above into performance objectives within an overall business strategy so they are not 'stand-alone' but form part of overall company policy

Over a 3 year period, the Project worked with the national counterpart institutes in each country to train their selected enterprises in the implementation and adoption of the appropriate suite of TEST tools.

RESULTS AND LEARNING

Although companies were initially cautious about the entire TEST approach, in most cases they quickly came to understand the potential advantages to them within the overall business landscape in terms of both complying with environmental norms and therefore being able to compete within a wider market, as well as actual savings in terms of reduction in wastes and unnecessary discharges.

One pertinent example out of the 17 assisted enterprises relates to an alcohol production plant. The TEST assessment process identified the problems within this plant as:

- Its product being too poor quality to be acceptable on the EU market
- Unacceptably high discharges of pollutants (slops and liquid waste) causing conflicts with regulatory bodies
- Consequent threat from Government of 'shut-down'
- Massive losses of thermal energy through cooling water discharges
- Over 60% of company costs going toward production of wastes (the 'hidden factory')
- Less than 30% of production costs actually realised in alcohol

The TEST solutions that were delivered were as follows:

- A change from sugar to cereal-based alcohol production, able to convert the organic matters of the slop into commodity products
- A higher quality product for the EU market
- Reduced chemical oxygen demand in the discharge (related to quality and consistency of slops) by a factor 100% as well as reduced water consumption of 80% and wastewater discharge
- The slops were also captured as a valuable by product (animal feed)
- The water in the processing was now recycled (with associated high savings related to reductions in water pumping and thermal losses)
- As a result of this successful demonstration, five other companies linked to the TEST Pilot were then targeted by the owners for similar modification (effective replication of the process)

The following is a summary of the overall achievements of implementing the TEST process at all of the selected companies:

- A general reduction in unnecessary investments and costs to companies of producing waste products
- Change from **loss** to **profit** by using of wastes (recycling or alternative products)
- Overall improvements in quality of products
- Increased marketing potential as a result of higher quality linked with environmental acceptability
- Avoidance of fines, penalties and ill-will with regulatory bodies monitoring compliance
- Overall improvements to company profiles and credibility

As a result of these demonstrated achievements. Considerable investments were made by most of the companies into cleaner production processes and more environmentally-sound technologies

The lessons learned from this exercise in relation to improved industrial environmental performance versus competitive advantage as demonstrated via delivery of TEST tools can be detailed as follows:

A. The companies reacted positively and became very supportive and enthusiastic once the problems were identified within each company in relation to pollution discharges and wastes, and linked to improved market competition and compliance.
B. As a consequence, and as the TEST process progressed, companies learned to relate cleaner production to increased savings and a more competitive status in a wider market.
C. The development of the concept of the 'hidden factory' of non-productive wastage and the identification of this as a major financial drain created significant interest and cooperation from the companies.
D. The fact that this TEST pilot initiative was being undertaken in relevant countries committed to EU pre-accession requirements was extremely beneficial in creating company 'buy-in' initially and in delivering project objectives in those countries overall.
E. Major economic drivers (e.g. EU pre-accession requirements, savings from recycling and new-product identification) proved to be stronger incentives than purely environmental compliance (e.g. national regulatory requirements which often amounted to the need to pay small fines and penalties).
F. The process could have been even more effective in the longer term if low-interest 'soft' loans had been negotiated so that companies could have accessed the larger investment requirements needed to carry out some of the major best available practices and technology improvements recommended as a result of the TEST process.

REPLICATION

The Danube TEST project was always intended to develop pilots and lessons which would be highly replicable and the lessons learned to date have been shared with the GEF UNDP Danube Regional Project, the International Commission for the Protection of the Danube River Basin, and various other groups and fora, including the GEF's Third Biennial International Waters Conference in Brazil in 2005.

Further TEST initiatives are currently under implementation or being developed. This includes a follow-up to the Danube TEST pilot project which aims to extend delivery of the TEST process within other Danube river basin countries as well as to countries in the basins of the Black and Caspian seas.

In replicating these early TEST initiatives it would be advisable to take note of the following challenges and potential improvements:

- Enterprises are more likely to pursue and adopt some of the more high investment TEST options if they have access to low interest loans. Therefore it would be advisable to negotiate such loans at an early stage.
- Governments should become more involved with the TEST process by providing incentives. In some countries, demonstrating ISO14000 accreditation and other compliance and environmental norms results in significant reductions in company licensing fees. Obviously, cleaner production and compliance are all in the national interest

- It is critically important to capture the lessons and experiences from initial enterprises that have successfully implemented TEST and to identify suitable opportunities at the national level in which to share these experiences so as to encourage other enterprises and to foster government support for TEST approaches
- Those enterprises that may not meet the eligibility criteria or which do not volunteer to be part of such an initiative may be the ones that are in most need of TEST tools and may be causing the greatest level of pollution. The National Government shall target these companies with specific actions
- TEST training is a dynamic and on-going process. A process needs to be identified whereby companies can be reviewed and reassessed for TEST-related efficiency and sustainability.
- TEST initiatives of this nature (especially through funding-assisted projects) need a realistic preparatory and lead-in time in order to identify potential counterpart options (especially in the absence of Cleaner Production Centres - CPCs) and their suitability and to allow for enterprises that may drop out in the earlier stages. Such a preparatory phase (e.g. a PDF B phase, which was not available in the above case as it was a Medium Sized Project) also allows time for awareness building within potential candidate enterprises as well as time to identify co-funding options and partnerships in support of the TEST process.
- Existing CPCs with TEST experience can be used for regional training to build capacity within new or less experienced institutes.

SIGNIFICANCE

This TEST initiative is of enormous significance to transboundary waters management as well as to the overall control of land-based sources of pollution, integrated water resources management and coastal area management *per se*. TEST provides a real example of how partnerships with the private sector can lead to major improvements within the regional and global environment through improved processes, stress reduction and eventual environmental status improvements. Real, measurable and positive changes can be made to water quality, reductions in harmful discharges and recycling or use of waste products that will result in beneficial improvements to the sustainable management and protection of watersheds (including rivers and lakes) and coastlines as well as the open oceans and high seas.

REFERENCES

Website for the Transfer of Environmentally Sound Technology in the Danube River Basin: www.unido.org/doc/26190

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Introducing Environmental Management Accounting at Enterprise Level. Methodology and Case Studies from Central and Eastern Europe. (Authors: Roberta de Palma, Maria Csutora).

KEYWORDS

Environmentally Sound Technology
Industrial Environmental Management
Private Sector Partnerships