FOREWORD

We need a greater commitment by the private sector to engender a new culture of environmental accountability; we need to develop and use cleaner technologies that are resource efficient and that prevent pollution at source; we need to invest in more sustainable production and consumption patterns; we need to transfer environmentally sound technologies to developing countries.

This is part of the message sent to the United Nations Millenium Assembly by more than 100 environment ministers who gathered in Malmö, Sweden, in May 2000 for the first Global Ministerial Environment Forum convened by the United Nations Environment Programme (UNEP).

For a number of years, UNEP has been actively raising awareness of decision makers in government and industry on the cleaner production approach, the only strategy to reconcile environmental and economic benefits. UNEP has been facilitating the transfer of information and experiences on cleaner and safer practices in industry. It has contributed to developing the capacity of industry managers to evaluate cleaner production alternatives. UNEP has also facilitated the creation of necessary institutions, such as National Cleaner Production Centres.

The UNEP Financial Services initiatives, now involving more than 260 financial institutions and insurance companies in all parts of the world, has also demonstrated that sustainable development offers many opportunities for the financial sector, and that financing sustainable investments is also good business.

Despite those demonstrated benefits, however, many new investments, particularly in developing countries, are made in obsolete technologies which have significant adverse environmental impact. It is also difficult to secure funding to upgrade existing technologies.

Therefore, to understand better the barriers to a wider use of cleaner processes and technologies, UNEP has launched a project “Strategies and mechanisms for promoting cleaner production investments in developing countries”, focusing on five countries: Guatemala, Nicaragua, Tanzania, Vietnam, Zimbabwe, but also taking into account inputs received from other countries.

The purpose of this report is to present the results of the study carried out during the first phase of the project, with the objective of better understanding the decision making process of past investment practices.

The results of this study demonstrate in particular that:

- there are many stakeholders and actors involved in the decision making process for new investments or for approving loans or grants for cleaner production projects: planning authorities, investment boards, bilateral or multilateral development banks, commercial banks, industry managers;

- those actors and stakeholders, particularly in the financial sector, have not yet integrated environmental or sustainability criteria in their choices;

- financial institutions lack the specific technical expertise to evaluate adequately the environmental risks or opportunities associated with investments;

- incentive schemes that will orient choices towards cleaner production are lacking.

The second phase of the project will be concentrating on ways and means to overcome these barriers.

We at UNEP hope that this work will contribute to redirecting choices towards urgently needed sustainable investments patterns, and to bigger a worldwide transformation of industrial practice.

Jacqueline Aloisi de Larderel
Director
Division of Technology, Industry and Economics
United Nations Environment Programme

1. Introduction

Cleaner Production (CP) as a concept has expanded rapidly in recent years. Since its inception in 1989, the United Nations Environment Programme (UNEP) has been a leading force behind the development and dissemination of CP as a practical way of moving toward sustainable development.

UNEP has embarked on this three-year project with an aim to increase investments in cleaner production in developing countries. This project will demonstrate how helping national and local policy makers, industrial associations and financial institutions understand the importance of CP can stimulate such investments. It is also anticipated that the outcome will assist CP experts to develop creditworthy investment proposals.

Throughout the four-year period, the project focuses on five demonstration countries: Guatemala, Nicaragua, Tanzania, Vietnam and Zimbabwe. The study is conducted under a trust fund created by the Government of Norway.

The project will demonstrate in the five participating countries how to initiate and facilitate the financing of CP investments. The project also aims to persuade public and private financial institutions and the industrial community to adopt these instruments. The results obtained and the lessons learned in the demonstration countries will be used at the global level to inform key decision-makers to pursue CP investments in developing and developed countries.

More specifically, the project will:

- Show financial institutions and industrial authorities how to assess the merits of CP investment proposals
- Persuade financial institutions to introduce credit schemes customised to CP investments
- Induce new initiatives, such as credit lines, trust funds, policy changes and training
- Teach CP assessors how to make creditworthy loan applications
- Improve the general environment for investment in CP.

In light of the project aims, it is important to understand past investment practice to provide background for the discussion on promoting CP investments. For this reason, UNEP/DTIE has studied the experience of the demonstration countries, as well as three additional countries for the sake of comparison, and reviewed how selected financial institutions in the developed world address environmental issues, particularly related to cleaner production. This document provides a summary and an analysis of the results of this work.

2. Background

The CP Programme has launched this project in response to a UNEP Governing Council decision in 1989. Its objectives are to:

- Increase world wide consensus on a "CP vision"
- Catalyse implementation of policies and strategies, environmental management systems, environmentally sound technologies and products and the establishment of National CP Centres
- Support the growing network of organisations dedicated to promoting CP and eco-efficiency activities
- Help enhance capabilities through training and education
- Support demonstration projects and provide technical assistance.

The programme brings together international organisations, governments, industry, non-governmental organisations (NGOs) and academics. The signature of the International Declaration on Cleaner Production by ministers, industry managers and leaders of other organisations demonstrates the importance those decision-makers attached to CP as a strategy to achieve sustainable development.

CP is a recognised and proven strategy for improving the efficient use of natural resources and minimising wastes, and pollution and risks to human health at the source, rather than the end of the production process. CP is a step beyond waste management – it deals with the source of the problem, rather than its effects. The traditional focus on production processes and on environmental management systems has expanded to include product-cycle aspects such as eco-design, and more recently, a consideration of the consumption patterns of products in use.

Investments in CP can have attractive economic benefits due to reduction of input costs for materials, energy and water and reduced expenditures on waste treatment and disposal. Payback periods may, however, be longer than is customary in a typical new investment. Small- and medium-sized industries have a particularly difficult time making CP investments for reasons that range from the cost of capital to the absence of appropriate funding mechanisms. Furthermore, CP is less likely to be economically attractive in countries with few and/or lax environmental regulations, and under-priced or free natural resources.

Several international organisations, development banks and donors have initiated and implemented projects to facilitate the introduction of CP investments in developing countries. Most projects have been in the form of technical assistance grants and training to industries and/or loans at below market rates from dedicated trust funds. Yet the present level of lending through such projects is by far not sufficient to trigger widespread adoption of CP.

From the perspective of industries considering the adoption of CP measures, listed below are six constraints for CP investment. They include:

- **Financial** - i.e. high cost of capital, lack of funding mechanisms, high transaction costs
- **Economic** - i.e. cost effectiveness of investments based on natural resource prices, immaturity of companies' internal capital budgeting, cost calculations and allocation procedures
- **Policy-related** - i.e. lack of sufficient industrial development policies and strategies, lack of national environmental policy and framework
- **Organisational** - i.e. lack of company environmental leadership, limited involvement of employees, non-existence of environmental management systems
- **Technical** – i.e. lack of well established production practices and maintenance schemes, limited access to reliable technical information and equipment
- **Conceptual** – i.e. Indifference to good environmental performance, misinterpretation or misunderstanding of the CP concept, resistance to change.

Financial analysis is essential to make a decision on any types of investment. Decision-making processes can be adapted and improved to translate CP assessments into feasible investment options.

For some companies, the management has the intention to invest in CP, as well as the knowledge and the skills to correctly appraise environmentally-related costs and benefits. Yet, the implementation of such a proposal can still be hindered by a lack of financial resources and/or a difficulty in accessing them.

Financial institutions and other providers of private sector funding follow a well defined process of due diligence when evaluating loan and investment proposals. This process consists of verifying the technical, financial and legal aspects of the project, evaluating the creditworthiness of the borrower and assessing the different potential risks involved.

Environmental risks are often undervalued and the costing of inputs often favour less efficient options – particularly in developing countries. Consequently, projects that might be good investments with national environmental benefits fail to advance because of a misconception of the risks involved and misleading financial assessment.

Listed below are five general constraints to CP investment in developing countries:

- Inability of financial institutions and industrial authorities to assess the technical and financial merits of CP investment proposals
- Lack of credit schemes customised to CP investments
- Inability to develop creditworthy CP investment proposals
- High cost of implementation of CP
- Lack of enabling environment for CP.

The above constraints are caused, in part, by a lack of awareness of industrialists and financiers to fully understand the impact of CP to investment profitability and the skills and knowledge to assess CP content of an investment proposal. It is also due to stage of development of the banking systems in the

developing world. This is reflected in the short-term repayment periods, the provision of working capital only and high interest rates, mostly due to macro-economic and financial instability.

There is a need to develop financial and economic tools and instruments that correct this bias and address less tangible factors, such as avoided costs, compliance, training, liability and quality of products.

Governments can facilitate this process by introducing policies and instruments (import tax reductions, special funds and credit windows for CP, etc.) that promote CP rather than promoting end-of-pipe measures. This will require the participation of a number of ministries and agencies in the process, such as ministry of finance, customs and tax departments, investment promotion and licensing authorities, industrial promotion and control agencies, etc.

In light of the hurdles that exist for the wide spread adoption of CP, the financial institutions, governments and industry should consider the following strategies:

- Increased capacity of technical assistance providers and CP assessors in the preparation of creditworthy loan applications
- Awareness of new tools and instruments to financial institutions in developing countries on the assessment of the economic merits of CP options
- Mainstreaming of environmental investments into a bank's portfolio (adopting CP as a viable investment field by loan officers)
- Promotion of credit schemes customised to CP investments
- Active match-making between potential investors and credit lines, trust funds, etc dedicated for pollution prevention or other environmentally sustainable projects and initiatives
- Global networking and advocacy with multinational financing institutions to increase emphasis on the preventative approach in their commitment for and implementation of environmentally sustainable financing schemes.

CP financing has emerged as a topic at most CP regional round tables held in Asia and the Pacific, Europe and the Americas. National CP roundtables have also introduced this element to their agendas. Governments, industrial enterprises and financial institutions are increasingly aware of the importance of the issues covered in this report.

The number of dedicated revolving funds and credit lines for CP investment has increased considerably over the past few years. Several initiatives by the World Bank, Asian Development Bank, Inter-American Development Bank, EBRD, etc have been launched or are in the process of being formulated. An inventory on who's-who in CP financing has been compiled by UNEP/TIE for global dissemination as a separate document.

Further details on the constraints and possible strategies and approaches are provided in the Issue Paper in Annex 1 of this report.

3. Methodology

The purpose of the overall project is to identify specific obstacles to CP investment and to provide series of tools and framework recommendations to stimulate change. This study is to be used to generate a baseline of information concerning past investment experience globally and within specified industries in the five demonstration countries of the project. The countries represent a wide span of socio-economic conditions, have different industrial interests and are at different stages of industrialisation. The demonstration countries include Guatemala, Nicaragua, Tanzania, Vietnam and Zimbabwe.

The CP concept is relatively new in the developing world. For this reason, additional information about three comparator countries with well-established CP Centres has been augmented into the analysis. These countries include Lithuania, Mexico and India. The additional cases, which are included in the CP Project Studies, are to provide some context into the world-wide take-up of CP projects. However, in-depth analysis of the national situation within each of the three countries is not covered in this study.

There are three main components of the study, which include:

- **5 Country Financial Study** – Assessment of the level of awareness and capacity for CP investments in the financial sector in the five demonstration countries. This includes: individual country briefings and country-specific financial sector overviews.

- **8 Country Projects Study** – Analysis of past project activities and related investment practice in the five demonstration countries, with additional information collected from India, Mexico and Lithuania. This includes an analysis of activities by industry sector and by country.

- **Global Financial Survey** - Assessment of current investment practice, financing strategies and cleaner production investment potential. This includes surveying global financial institutions and interpreting their responses.

The *global component* of the project required surveying over 50 of the top international financial institutions to examine the current and past investment practice. The aim in launching the global component was to develop more effective interaction between the financial community and industry about CP investment opportunities. The objectives for the global study were three-fold:

- To demonstrate how to initiate and facilitate the financing of Cleaner Production investments.
- To develop financial instruments for effectively promoting Cleaner Production investments. This will include developing strategies for both public and private financial institutions to adopt the use of such instruments.
- To motivate key decision makers in the international community and the public and private financial sectors to identify Cleaner Production as an attractive investment.

The global study methodology was by way of written survey, later followed up by an e-mail survey and telephone requests. There was too low a response to provide any sound statistical basis upon which conclusions could be drawn. This in itself demonstrated a lack of clear understanding of cleaner production concepts. A sub-group of those surveyed were previously contacted regarding environmental management issues and were keen to respond.

The *country component*, which includes the 5 Country Financial Study and the 8 Country Projects Study, was designed to demonstrate how CP investments can be facilitated and enhanced. This involved examining past practices in the financial services sector and investment projects at the national level. The aim was to review the information to understand the obstacles that exist in promoting CP production investments.

Cleaner Production Centres (CPC) have been established in all 8 countries and have been closely involved in the project. The National Focal Points, National Project Coordinators and Advisory Boards were also involved in the survey in each of the five demonstration countries.

An International Advisory Board, including the Norwegian government, UNIDO, UNDP, IFC, World Bank, International Chamber of Commerce and a commercial multinational bank, provided overall guidance.

Two workshops were arranged with the Directors of several UNEP/UNIDO National Cleaner Production Centres (NCPC) to introduce and discuss the project aims, objectives and content. These meetings took place in Norway in September 1998 and Prague in May 1999. NCPC Directors present at the workshops include: Brazil, China, Costa Rica, Croatia, the Czech Republic, El Salvador, Guatemala, Hungary, India, Mexico, Nicaragua, the Slovak Republic, Tunisia and Zimbabwe. UNIDO, UNEP/DTIE and financial and project advisors were also in attendance. At each of the workshops the proposed methodology was presented and at Prague, where a more developed version was available, significant constructive comments were received that influenced the process. As a result, an initial first output of the project was produced – a primer concerning the financial markets. This was written directly for the Director's of the National Cleaner Production Centres and its aim is to explain the workings of such markets, including common terminology, to the NCPCs. This provides a level of