Cleaning Up:

Experience and Knowledge to Finance Investments in Cleaner Production

A Summary for Cleaner Production Practitioners, the Financial Community and Governments of the UNEP Project “Strategies and Mechanisms for Promoting Cleaner Production Investment in Developing Countries”

Division of Technology, Industry and Economics
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Part 1: The Need for Change

From microchips to skyscrapers, the annual $40 trillion global economy produces a staggering array of goods and services; allowing a level of material comfort unknown in human history. But the benefits of this rapidly expanding world economy come with equally unprecedented costs - air and water pollution, toxic waste and adverse social change, including a growing gap between rich and poor countries.

Humans generate 250-450 million tonnes of hazardous wastes each year. The waste generated to make a semiconductor chip, for example, is over 100,000 times its weight while two litres of gasoline and a thousand litres of water are required to produce a litre of commercial orange juice.

To a significant degree, these costs highlight the inescapable fact that our current patterns of production and consumption are unsustainable. The potential to economically reduce energy and resource use, pollution, waste, and investment in the production of our goods and services is, quite simply, enormous. The copious examples of industries (and companies) that have greatly reduced – even eliminated – flows of waste and materials are signposts on the way forward. Further, many of these examples demonstrate that it is often much cheaper – and easier - to reduce or prevent several impacts simultaneously than to reduce one or two individual impacts. In these examples lie the seeds of sustainability and the overriding truth that everything can be done better than it is.

This is the essence of the Cleaner Production (CP) process and a core element of sustainable development (see box right).

In many economies and businesses, the idea that waste is simply a resource out of place – a symptom of bad management that hurts the bottom line – is well understood. In others, however, the idea is still maturing, particularly in many developing countries where evolving financial institutions may not understand or value the extra environmental and social benefits cleaner production processes provide.

Access to finance remains a key barrier to investments in cleaner production. The need now is to move from demonstrating CP benefits at the corporate level to measures that improve access to finance.

Financial markets change slowly, but they are becoming more sensitive to sustainability issues, particularly those that influence both investment risk and return. Institutional investors increasingly assess new proposals using a due diligence process that more thoroughly and honestly assesses environmental and social risks and benefits. In addition, a growing group of ‘ethical investors’ is investing in companies implementing cleaner production and sustainability measures. Although these are positive steps, further effort is needed to help the financial community understand and realise the economic benefits flowing from the customers’ efforts to implement environmental strategies that prevent environmental harm.

The key challenge is to anchor cleaner production at the core of the investment decision-making process; making cleaner production a central component of the ‘due diligence’ process used by financial institutions.
A Four-Year Project

To pursue this integration and remove constraints to CP finance, the United Nations Environment Programme, Division of Technology, Industry and Economics (UNEP/DTIE), implemented a four-year project called ‘Strategies and mechanisms for promoting cleaner production investment in developing countries’. This Project, financed by the government of Norway, included a global component for research, communication and demonstration activities in Guatemala, Nicaragua, Tanzania, Vietnam and Zimbabwe.

Project staff and experts from a range of countries field-tested, adapted and refined a number of tools to help financial institutions understand the opportunities and benefits flowing from investments in cleaner production. These tools include a comprehensive package of training materials composed of guides, checklists and courses (see sidebar “Publications”), as well as workshops to explore innovative methods to finance CP developments.

The project has helped to integrate cleaner production principles and efficient resource management into the training activities of some financial institutions with international development goals. Special financial mechanisms to support investments in cleaner production have also been designed for African and Central American countries.

Although the project’s demonstration activities focused on five countries in Africa, Asia and Central America, the conclusions, recommendations and outputs are relevant to all developing countries and countries with economies in transition. Further, integrating CP strategies into investment decision-making to prevent waste, pollution and environmental harm is a challenge for both industrialised and developing countries.

The main objective of the UNEP/DTIE project was to facilitate finance for cleaner production investments in developing countries by:

- Demonstrating ways to initiate and facilitate finance options for cleaner production investments using examples in five developing countries;
- Developing financial instruments that effectively promote cleaner production investments in developing countries;
- Designing strategies to enable public and private financial institutions and the industrial sector to adopt these financial instruments;
- Motivating key decision makers in the international community, the public and private financial sectors to pursue cleaner production investments in developing countries.

More specifically, the project was designed to:

- Demonstrate to financial institutions and industrial authorities the most appropriate methods to assess the merits of cleaner production investment proposals;
- Persuade financial institutions to introduce credit schemes customized to cleaner production investments;
- Induce new initiatives such as credit lines, trust funds, policy changes and training;
- Teach cleaner production assessors how to make creditworthy loan applications; and
- Improve the general environment for investment in cleaner production.

A Cleaner Production Investment derives from a management decision to invest in an industrial project, modification or upgrade (retrofit and new) that:

- reduces use of materials, water and energy;
- improves environmental performance and business competitiveness;
- reduces risk;
- is not an additional cost of environmental performance; and
- meets acceptable financial criteria.

Financial evaluations for new industrial projects should automatically and transparently include the above criteria to meet both economic and environmental benchmarks.
Part 2: Project Activities and Results

1. Assessment

The first Project activity assessed past investment practices related to CP. This study included a local country component and a global component with a survey of past and current investment practices in more than 50 of the top international financial institutions. The assessment reviewed how selected financial institutions in eight developing countries (the five project countries plus India, Lithuania and Mexico) address environmental issues, particularly issues related to cleaner production. The full results are summarized in the publication Financing Cleaner Production: Study on Past Investment Practices and an Investment and Environment Outlook for each country (see “Publications”).

The assessment had three main conclusions:

Comprehension
From the global study, it was clear that financial institutions did not fully comprehend the language for ‘cleaner production’, which has not been embedded in the financial services industry in the same way as the term ‘environmental management’. The industry lacked a clear understanding of CP concepts and operates under a number of misunderstandings or misinterpretations of its purpose.

Time scales
A conventional CP audit to improve an existing production process or to facilitate potential design changes is generally quite swift. Recommendations requiring small capital investments can likewise be implemented quickly. A systematic integration of CP concepts into the entire production system and capital budgeting process, however, requires a longer time frame.

Size of investments
Where the CP component of an investment is justified separately, it can sometimes be viewed as an additional - rather than an integral – component of the investment. As this separation isolates CP from the mainstream investment process, the best overall results for companies (and society) are clearly achieved when CP is an integral component of the assessment process.

Other Conclusions
Each of the individual country sections of the study incorporates national conclusions and recommendations, which were based on the CP project analysis and a review of the capacity of local financial institutions. Some conclusions are:

- In many developing countries, corporate bank loans are unattractive due to high interest rates and unfavourable lending terms. Furthermore, the procedure for borrowing money from commercial banks is often complicated and lengthy.
- In many banks, the due diligence process is mainly focused on the financial aspects of loan applications and generally does not include assessments of environmental costs and risks from operations that pollute.
- Governmental policies on the environment have focused mainly on the tools to enforce and extend environmental compliance not on use of economic tools.
- The business sector has lacked insight into finance options for the purchase of appropriate machinery and equipment to support CP concepts.
- Contrary to some popular beliefs, foreign direct investment (FDI) into a country can improve the adoption of CP methods through the transfer of cleaner technologies and efficient managerial practices, which can influence the entire supply chain within the country.
- Environmental funds (such as the Carbon Fund) are being considered as new opportunities for CP investment.
2. **Training**

In any process of long-term change, training is an integral and essential component and substantial Project resources were devoted to training activities. These were designed to create and build the capability of staff in companies and financial institutions to develop and promote CP investments.

The underlying principle was to impart learning and not to merely measure the number of people trained. Eight to ten trainers from each demonstration country attended a five-day communication and relational skills course before piloting the substantive courses and delivering them to broader audiences. This helped to create a team of national experts with complementary skills and a strong belief in the value of CP measures. These teams then delivered courses and supported the industrial sector in their preparations of loan applications for CP investments.

During the Project period, more than 3000 people from industry, local and national government, academia, financial and educational institutions and media attended 100 individual courses. Mid-level managers, particularly company engineers and accountants, joined bank loan assessors and investment officers to increase their knowledge of CP and learn new skills.

Through these courses and other activities, networks to actively promote CP have emerged in some of the Project countries. Many of the partner local institutions are now in the process of integrating material into their own curricula, which will help to integrate CP processes into mainstream business and finance courses.

As a result of these activities, the general awareness of CP concepts has improved. In Zimbabwe, for example, a project evaluation concluded that 98% of 1500 survey respondents had heard about environmental management and 90% reported that waste was either a cost to business or a pollutant to the environment. Of approximately 500 respondents who had attended environmental seminars and training, 86% traced the source of their information to the UNEP CP project.

Attracting the attention of key policy and decision makers was more difficult, but is ultimately necessary to make a lasting change in the way industry invests in cleaner production. Without the support of superiors, technical staff from different government bodies trained under the project will find it difficult to successfully implement CP concepts.

Components of these courses have also been used in other global and regional training programmes to benefit in-house UNEP/UNIDO National Cleaner Production Centres (NCPCs) and bankers from developing countries and countries with economies in transition. The training courses and checklists designed and published under the Project provide general criteria, which can be used by companies and support institutions preparing CP loan applications and by financial institutions assessing CP proposals.

One of the strongest outcomes of the project is the positive effect on National Cleaner Production Centres. In all five demonstration countries, the Centres were actively involved in Project activities, which resulted in stronger support for industry. The Centres were also able to expand this support with new services, including reviews of potential investments and assistance to prepare loan applications. Extending new CP services to other NCPCs should be a follow-up activity in any future project.
3. Investment Portfolios

Portfolios of CP investment proposals were prepared in each Project country. In total, approximately 50 CP investment projects with a loan value ranging from USD 5,000 to USD 4 million were prepared and promoted to different sources of finance by teams of national experts.

Of the loan applications prepared by companies, 25% were financed during the projected timeframe. The National Project Coordinators were also able to use potential investment projects as case studies in training courses to demonstrate emerging demand for CP investments.

From this work, it is clear that companies do not invest their time and reveal confidential figures without a clear likelihood of obtaining investment funds. This made engaging financial institutions particularly challenging. Although invited to be members of the National Advisory Boards and to attend the training programmes, for example, most financial institutions declined.

Often, this reluctance was the result of specific factors. In Tanzania and Vietnam, for example, most banks do not fund industrial projects. Although the Project’s National Advisory Board in Vietnam recommended that the reform of the banking sector was needed to address this barrier, the Project could not influence this outcome directly. However, the skills acquired by bank staff through the Project will aid in the reform process and help to position CP within that process.

In Zimbabwe, the financial community was more actively involved, but political and economic developments in the country prevented this interest from being translated into active CP investments.

Financiers in Guatemala and Nicaragua also showed considerable interest and participated in workshops on innovative finance schemes. A Pilot Loan Guarantee Programme was designed to finance CP investments in small and medium enterprises. Both countries will pilot the programme before it is further developed into a Regional Programme for Central America.

Although the long-term goal of the Project is to place CP investment options within mainstream financial thinking, the Central American experience demonstrates that targeted and innovative schemes are still needed in the short to medium term.
Part 3: Moving Forward

The lessons learned and tools developed in the course of the Project are relevant and applicable to most countries in the world. The following conclusions and recommendations are made to help government institutions, the business and financial sector and support organisations integrate CP as an intrinsic element of their efforts to improve management and efficiency. In this process, all stakeholders have a relevant role to play.

The Role of Government

Governments can develop, implement and promote policies and actions that tell investors ‘CP is a good investment’, including actions to develop and enforce policy frameworks that reward continuous improvement in products and services. Such frameworks differ from end-of-pipe regulation to reduce air and water emissions.

It is clear that developing such policy and market frameworks requires governments to recognize CP as a crosscutting, multi-sectoral issue. This in turn demands a collaborative approach by all government levels. Governments can respond to this challenge through the use of regulatory and market-based instruments.

To work effectively, such instruments must be supported by strategies to provide the best and most current information. At the same time, stakeholders need to understand that this is a complex and multi-level process involving government ministries, fiscal agencies, science & technology agencies, educators and NGOs.

As an example, environmental agencies can create incentives for industry to change and adopt CP while agencies promoting industrial development can help remove obstacles through market corrections, such as enabling access to CP equipment and helping industry to implement change with technical assistance and technology transfer.

Based on experience in the five demonstration countries of the UNEP/DTIE project, examples of possible national or local government responses include:

- Establishing and enforcing minimum environmental performance standards;
- Banning certain products (e.g. the EU requirement for HACCP\(^1\) in food products, which gives clear comparative advantage to CP);
- Establishing sufficient CP oriented special funds;
- Incorporating CP into industrial investments by governments;
- Actively supporting the incorporation of CP and environment concepts into economics and investment training curricula.

The Role of Business

CP can be an immensely effective corporate tool to reduce costs and increase profits. Cost savings from reduced energy use, for example, go directly to a company’s bottom line. CP can also increase a company’s international competitiveness, particularly as new environmental and trade regulations are implemented and enforced.

It is important to remember that cleaner production is not simply a technical solution- although new technology can greatly aid a cleaner production process. Rather, CP is a behaviour that becomes a continuous process of improvement.

It is also clear from the Project that if company owners and top management do not believe in the economic merits of this strategy, the production managers and accountants will not be able to achieve the long-term benefits CP can offer.

\(^1\) Hazardous Analysis and Critical Control Point by the International Standards Organization
For businesses in developing countries, measures to incorporate CP as a mainstream business activity include:

- Improving accounting and costing practices to capture the actual cost of wasted resources and waste management;
- Conducting cleaner production audits to pinpoint industrial process inefficiencies;
- Building CP teams to undertake continuous monitoring and improvement in management practices, including purchasing, processing, and waste disposal;
- Continuous training of technical and financial staff in CP methods, particularly by institutions in the five CP financing project demonstration countries;
- Using UNEP CP financing checklists to prepare and assess investment proposals.

**The Role of Banks and other Financial Institutions**

For **commercial banks**, environmental issues are just one of many criteria in risk assessments. However, such assessments often need to account for the costs of compliance with existing regulations and anticipate costs to comply with emerging regulation and pressures from the supply chain. CP can be helpful in such assessments, which can find ways to reduce waste. Thus CP often increases cash flow and is more efficient and cost-effective in long-term operations.

In all countries, **asset managers** can benefit from mounting evidence that environmentally and socially responsible companies are more profitable, provide greater returns and offer lower risks to their shareholders. Eco-efficient firms - companies that strive to maximize resource productivity using processes that mimic nature - are increasingly able to create greater shareholder value than industry competitors while minimizing risk and environmental impacts. These considerations are also relevant to credit rating agencies.

**For financial institutions in general, a future role includes:**

- Improving customer relations and reducing risk in loan portfolios by investing in enterprises using CP strategies;
- Continuously improving a competitive environmental advantage through supportive partnerships such as UNEP FI, SANet and multilateral development finance institutions (including International Finance Corporation), which provide access to such services as CP finance training;
- Participating actively in voluntary networks promoting sustainable finance practices, such as UNEP FI, Association of Socially Responsible Investment in Asia (AsRIA) etc.;
- Using UNEP CP finance checklists to assess customer portfolios and loan applications.

**The Role of Business Support Organizations**

In the busy - often frenetic - pace of business, timely and efficient information is highly valuable. CP advisory services can greatly assist the business sector by providing such information and assistance, particularly to prepare CP project proposals and loan applications. Such activities can also be of great value to financiers in their efforts to secure solid portfolios, supervise project implementation and monitor project results.

Consequently, **CP Centres** should focus their efforts on helping policy and investment decision makers change their attitudes and behaviour toward CP investments.

As noted earlier, the UNEP CP finance project generated a range of training materials to assist business providers and decision makers. There is a clear demand to disseminate this material to countries and regions not covered by the four-year pilot project. Core teams of local trainers are needed to deliver such knowledge through business schools and other educational institutions.

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1 UNEP Finance Initiatives are coordinated by the Geneva based office of the Division of Technology, Industry and Economics of UNEP. www.unepfi.net
2 Sustainable Alternatives Network, a joint project by GEF and UNEP/DTIE
Part 4: Future Projects

The Project has clearly demonstrated a demand for CP information, training and new finance facilities. Subsequently, UNEP/DTIE has prepared project concepts and commenced discussions with a number of potential partners. All stakeholders mentioned previously have an important role to play. When supported by international organisations and the donor community, they can meet the identified demand through an active role in developing and implementing projects such as the ones mentioned here.

Coordination and advancement of the global CP Finance agenda

A focal point is needed to build upon the work of the UNEP project and other CP projects and to continue coordinating and monitoring such initiatives. Such a focal point is also needed to ensure that projects by various donors and development finance institutions are efficiently coordinated.

UNEP proposes an umbrella project to maximize the use of the reports, results, manuals, checklists and training material developed in the current CP financing project, and to continue contributing to regional and global workshops, seminars and roundtables on cleaner production and sustainable finance issues. This effort would help to maintain the global leadership needed to advance the CP agenda generated through the Project.

Business School Curricula

A project is needed to further help business schools develop and implement new educational and curricula tools incorporating sustainability issues. Business schools in Africa, Asia and Latin America have been identified to participate in a pilot project. A project development proposal has been submitted to the Global Environment Facility (GEF) to fund the formulation of a three-year project to be implemented by UNEP in close cooperation with the International Finance Corporation and the World Resources Institute.

Education and Training

Projects are proposed to increase education and training activities, including

a) Translating and disseminating training packages, preparing demonstration loan applications and training core groups of national trainers. These projects include:
   • Enhancing financing of CP investments in China, India and other Asian countries.
   • Further training in Latin American countries using CP finance material in Spanish and incorporating Guatemalan and Nicaraguan expertise.
   • Further training using Arabic, French, Chinese, and Russian versions of CP Finance materials.
   • Training in Africa using Tanzanian and Zimbabwean experts.

b) Adapting and implementing distance learning courses for CP finance trainers by NCPCs and training institutions in selected developing countries.

c) Consolidating the efforts of the UNDESA Expert Working Group on Environmental Management Accounting (EMA) to use EMA as a tool to promote CP and CP finance.

d) Promoting the integration of CP measures into investments (particularly foreign direct investment) as an integral part of the Sustainable Investment Global Network SIGN3-Asia initiative.

e) Adapting CP finance training material and checklists in courses provided by the World Business Council for Sustainable Development and other industry associations.
Financing Schemes

Innovative financing schemes are a necessary short-term means to increase investments in CP. Proposals include:

a) Revolving finance and guarantee facilities for CP investments in small and medium enterprises in Eastern and Southern Africa. This proposal follows strong demand for such facilities at the project’s closing workshops in Tanzania and Zimbabwe and at the 2nd African Roundtable on CP in March 2002.

b) A pilot loan guarantee programme for CP investments in Central America. The project is targeted initially at Guatemala and Nicaragua.

c) A loan guarantee scheme for CP investments in Vietnam, developed by the Ministry of Planning and Investment with the Ministry of Finance, State Bank of Vietnam, Ministry of Resources and Environment, and other banks and funds.

d) Other targeted funding schemes for CP investments in collaboration with Cleaner Production Centres.
Final Thoughts

CP is a proven and effective tool to increase both a company’s bottom line and protect a community’s environmental values. The more CP measures are fully integrated into policy and business practice, the more quickly the benefits can accrue.

But without finance, many CP investments (and the subsequent benefits) go begging. As the UNEP CP Finance Project has demonstrated, there are numerous non-technical barriers that inhibit the flow of funds to good projects. Overcoming these barriers will take time, but the exciting news from this Project is that these barriers can be overcome through a combination of activities that empower stakeholders with information, training and new finance facilities.

One lesson CP demonstrates time and time again remains the same for developing and developed countries alike:

Everything can be done better than it is.
Publications

- Reports of International high-level expert meetings, including:
  - Expert group meeting report on training services, Cambridge, UK, 9-11 July 2000
  - Expert group meeting report on UNEP capacity building material, Paris 27-28 November 2001
- *Training techniques guide* (web)

These generic publications are also available through web sites www.financingCP.org and www.uneptie.org/cp. Training material and the checklists will be available on the web sites in Arabic, Chinese, French, Russian and Spanish later in 2003.
About the UNEP Division of Technology, Industry and Economics

The mission of the UNEP Division of Technology, Industry and Economics is to help decision-makers in government, local authorities, and industry develop and adopt policies and practices that:

- are cleaner and safer;
- make efficient use of natural resources;
- ensure adequate management of chemicals;
- incorporate environmental costs;
- reduce pollution and risks for humans and the environment.

The UNEP Division of Technology, Industry and Economics (UNEP DTIE), with the Division Office in Paris, is composed of one centre and five branches:

- **The International Environmental Technology Centre (Osaka)**, which promotes the adoption and use of environmentally sound technologies with a focus on the environmental management of cities and freshwater basins, in developing countries and countries in transition.

- **Production and Consumption (Paris)**, which fosters the development of cleaner and safer production and consumption patterns that lead to increased efficiency in the use of natural resources and reductions in pollution.

- **Chemicals (Geneva)**, which promotes sustainable development by catalysing global actions and building national capacities for the sound management of chemicals and the improvement of chemical safety world-wide, with a priority on Persistent Organic Pollutants (POPs) and Prior Informed Consent (PIC, jointly with FAO).

- **Energy and OzonAction (Paris)**, which supports the phase-out of ozone depleting substances in developing countries and countries with economies in transition, and promotes good management practices and use of energy, with a focus on atmospheric impacts. The UNEP/RISØ Collaborating Centre on Energy and Environment supports the work of the Branch.

- **Economics and Trade (Geneva)**, which promotes the use and application of assessment and incentive tools for environmental policy and helps improve the understanding of linkages between trade and environment and the role of financial institutions in promoting sustainable development.

- **Coordination of Regional Activities Branch (Paris)**, which coordinates regional delivery of UNEP DTIE's activities and ensures coordination of DTIE's activities funded by the Global Environment Facility (GEF).

UNEP DTIE activities focus on raising awareness, improving the transfer of information, building capacity, fostering technology cooperation, partnerships and transfer, improving understanding of environmental impacts of trade issues, promoting integration of environmental considerations into economic policies, and catalysing global chemical safety.