Cleaner Production

When the UNEP Cleaner Production (CP) was launched in 1989 the immediate task was to create awareness of the concept. In 1999, more than a decade later, the concept of CP is more viable than ever and has broadened to include products and services in addition to processes. This means that the diverse actors in the CP field have come to require different kinds of assistance, and that the ways of promoting CP have evolved as well. Implementing CP has gone beyond the initial awareness raising activities.

There are more than 300 CP active organizations located in over 70 countries. Members of the CP network, including UNEP TIE, CP centres, other UN organizations, universities, the World Bank and other lending organizations are actively promoting CP. This network is essential for the further evolution and implementation of the CP concept.

Regional Cleaner Production Activities

In the Latin American and Caribbean region there are no known previous comprehensive CP surveys. In order to carry out this pioneer initiative a survey questionnaire prepared by UNEP has been sent to all countries of the region, asking for information on their CP activities. Argentina, Bolivia, Brasil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Jamaica, México, Nicaragua, Perú, Trinidad – Tobago and Uruguay, have answered this. Estimates show these countries altogether correspond to a GNP of almost US$ 2,000 million and 459 million inhabitants, or respectively –93 % and 98 % of the region’s total GNP and population (World Bank, 1997). In this way, it is possible to say this report covers the majority of the Latin American and Caribbean region’s productive and consumer segments.

In the Latin American and Caribbean region, Cleaner Production (CP) is a theme that in the last few years has been undergoing considerable evolution and has drawn much attention. The promotion of CP in the region’s countries has been significantly boosted by the creation of various National Cleaner Production Centres (NCPCs) supported by UNIDO/UNEP and sponsored by various countries such as Switzerland and the United States. Several technological centers, universities and other organizations have incorporated the approach into their training programmes, following the trend towards a more sustainable industry. One of the main results of this interest has been the ongoing negotiation for the establishment of additional CP Centres and NCPC’s, as well as other initiatives.

Among the main factors responsible for this regional interest on CP, and maybe the most important, are the stabilization of the most important economies in the region and the need to maintain their industries’ competitiveness in both the local and foreign markets. The CP concept, primarily used as a tool for saving inputs and reducing further treatment costs, is currently being viewed through a much broader perspective. Thus, more environmentally friendly companies and products are now a basic condition for competitiveness and market survival.
In countries having a strong pollution control structure, this structure functions as an additional incentive to CP. On the other hand, in countries that recognize their shortcomings in relation to the enforcement of the environmental law, CP is offered to the industries as an alternative for environmental quality preservation outside the formal legal framework.

**UNEP/UNIDO National Cleaner Production Centres – NCPC’s**

Since 1995 the United Nations Industrial Development Organization (UNIDO), together with the United Nations Environment Programme (UNEP) and in partnership with the governments of the Netherlands and Austria, have provided management support to the creation of several National Cleaner Production Centres (NCPC’s) in many countries in South America. These NCPC’s act as clearinghouses to exchange sectoral experiences, technical information and share CP expertise. They jointly develop information strategies and evaluate their worldwide experience in terms of policy advice. They are inter-linked through the NCPC programme net server and electronic mail. Their staffs regularly meet with technical institutes to exchange ideas and information on new CP developments, provide training and upgrade their skills. The main activities of these centres are:

- To carry out in-plant assessments in cooperation with enterprise staff, identifying wasteful processes and profitable solutions. Enterprises implement the tailor-made CP measures with the support from the NCPCs. The introduction of economically successful CP measures, together with information dissemination on alternative technologies, constitute the core activities of the NCPCs;
- To provide tools and methods for continuous improvement of the production process through training workshops for enterprises, as well as CP training programmes for governments, universities, business organizations and financial institutions;
- To disseminate information in the local languages, providing on-the-spot access to technical documentation, databases and other sources of information, advising organizations on the appropriate ways to implement CP schemes, and disseminating information through seminars, newsletters, brochures and through cooperation with the national media, industry associations, training institutes and universities;
- To advise government organizations, financial institutions and environmental management agencies on policies and strategies to include provisions for CP measures and economic incentives in the national legislation. Through their links with UNIDO and UNEP, NCPC’s are informed about the latest information and expected trends in international and national legislation and can therefore help local enterprises to comply with new or revised legislation.
The Inter-American Programme for Environmental Technology Cooperation

The Inter-American Programme for Environmental Technology Cooperation in Key Industry Sectors is being funded by the Office of Science and Technology of the Organization of the American States (OAS), the International Development Research Centre (IDRC), the Government of Canada and the World Association of Industrial and Technological Research Organizations (WAITRO). The Canadian Environment Industry Association (CEIA) is implementing the programme.

The programme is an initiative which responds to the challenges faced by small and medium sized enterprises (SME’s) in Latin American and Caribbean countries to adopt cost-effective, environmentally sound technologies and management practices.

The programme’s main objective is to improve industry associations’ capacity to deal with the environmental management of their member companies and bring their members together with those organizations that can assist them with follow up initiatives, thus creating a support network in the hemisphere. Its general goals include:

- The creation of a strong hemispherical network of sectorial industry associations that would support, and also promote, national initiatives for sustainable development;
- To support the increasing role of sectorial industry trade associations as key information disseminators, educators, public relations with the government, promoters of alliances, projects and each sector’s new approaches to competitiveness;
- To identify the SME’s and industry associations’ needs in relation to sustainable development;
- To demonstrate that environmentally sound technologies and management practices can be adopted by SME’s in a cost-effective way.

Country Approaches to CP Promotion in the Region

The Latin American and Caribbean region is comprised of a great diversity of countries. Although almost all of them may be considered as having middle-income economies (World Bank, 1993), they differ from each other in terms of size, climate, natural resources, topography, demography, infrastructure, income levels, degree of industrialization and general level of education. The degree of industrial output, environmental degradation and awareness also vary considerably.

This variability is reflected in the differences of understanding of and approaches to CP from country to country. In some countries there has been much progress in relation to the former command-and-control/enforcement
approach, but the environmental policy emphasis is still focused on basic sanitation rather than a more holistic approach.

In Argentina, Brazil, Mexico and Uruguay, which are considered to have upper-middle-income economies (World Bank, 1993), it is noted that despite several initiatives and a strong governmental awareness on CP related issues, there are few policies specifically dedicated to CP. Some Brazilian States, for instance, have instituted their own CP policies.

In Bolivia, Guatemala, Ecuador, Peru, El Salvador, Colombia, Jamaica, Costa Rica, and Chile, which are considered by the World Bank to be lower-middle-income economies, the variation in terms of the existence of CP support and encouraging policies is high. In the majority of these countries there are no specific regulations written, but there is considerable awareness about the CP concept and motivation to formalize it as new environmental policy instrument in the countries. In Colombia, CP was established as a priority program in the “National Environmental Policy 1998-2002”. Since 1994, Colombia’s Ministry of the Environment has been institutionalizing a National Cleaner Production Policy oriented to the public and private productive sectors.

The Development of CP in the Region

Isolated CP initiatives have been observed in the region since the 1970s, with some investments by certain industrial sectors. More recently, the regional and biased view about pollution and environmental problems has been replaced by a new concept of making business, gradually incorporating the principles of the 1992 Rio Summit’s “Agenda 21”. Just to mention some few initiatives, many of the region’s industries have implemented environmental management systems, process and fuel substitution and phase-out of ozone depleting substances.

The movement towards CP was started by the industrial sector and encouraged by groups of consumers conscious of the environmental challenge. CP was found to be essential to achieve product competitiveness, production cost abatement and environmental impact reduction, contributing to captivate potential consumers as well.

More recently, the governments of the region have become concerned about ways to better support initiatives such as CP, P2, E2 and EMS, through voluntary projects or an adequate environmental policy incorporating preventive concepts to the environmental permitting and auditing processes. Other ways of supporting CP initiatives are by influencing the market through instruments such as green procurement, incentives and promoting a general “greening of the government”.

The uncontrolled growth of urban areas is also pushing environmental enforcement requirements into an “integrated pollution prevention and control approach” of their regulatory framework.
The financial sector, with some notable exceptions, has so far shown little or no engagement in CP.

However economic mechanisms in the region have contributed significantly to a shift towards CP. The 70’s and 80’s model of funding allocation profile, in which governmental institutions used to give loan to governments has shown to be outdated in the context of rapidly changing global economies, intense capitalism and high interest rates. Privately owned, smaller size projects are now being given preference for funding allocation. Good examples are the jointly implemented initiatives aimed at mitigating greenhouse gas emissions under the Kyoto Protocol. The economic incentives to be prospectively given under the Clean Development Mechanism – a financial compensation scheme between developed and developing countries for projects designed to mitigate these emissions - are causing industrialists to invest on research and development of technologies beyond the “business-as-usual” condition.

**Comprehensive CP Programmes**

The first comprehensive CP activity in the region to mention is the one of the National Cleaner Production Centres (NCPC) Programme, established and assisted by UNIDO and UNEP in Brazil, Costa Rica, El Salvador, Guatemala and Mexico. The NCPC’s play an important role in the diffusion of CP, both in their respective countries and in the region as well. In Nicaragua a UNIDO/UNEP NCPC project has been established, which will hopefully lead to the establishment of a real NCPC in the long term.

This pioneering initiative has accelerated the process of the establishment of other CP centres in the region. In some countries, technological reference centres are also embracing a similar approach. In Colombia the National CP Programme was established in March 1998, sponsored by the Ministry of the Environment, some industrial groups and the universities, as well as the Swiss Government. In Brazil, for instance, several centres of the National Service for Industrial Education (SENAI) are currently applying CP in order to meet the sectorial and regional demands. SENAI, together with the Swiss government, is currently also launching a CP Centre in Sao Paulo.

Past experience from organizations such as USAID, GTZ and WHO, and programmes like EP3, Inter-American Programme, Responsible Care® and the Repamar network have also been very important to what is known today as CP in Latin America and the Caribbean. These agencies are still actively participating in regional environmental projects, switching more and more from end-of-pipe solutions to pollution prevention at the source.

**Future Vision**

- **Sustainable development and CP:** In a holistic approach, poverty is a major problem to be addressed in many countries. The continent is now being offered the opportunity of taking advantage of the international experience in the search for new development models. What is needed is to assure the benefits obtained with CP are not going to be offset by additional
waste generation and resource depletion through a nations’ development process. It is worth mentioning here the implementation process of the sustainable development concept in the region will have to count with the unrestricted support and collaboration of all of sectors and agencies pertaining the local governments. In the region it is a fairly well known fact that government agencies and government-owned enterprises are among the main polluters. The adequate management and correct disposal of residues, particularly solids and liquids of domestic origin still are a challenge to be faced by the Latin American and Caribbean countries.

Expansion and dissemination of CP concepts: More interactions among nations are also very important, in order to create a critical mass of CP-involved producers and consumers. The support of governments will also be invaluable for the development of an adequate CP legislation and also of regulatory tools, aiming at supporting sustainable CP initiatives. The local consulting companies will also have to be prepared for the opening of the region’s consulting markets. The industries themselves should expand the practice of CP and search for ISO 14000 certification; that would possibly start a chain reaction on their suppliers and help the whole process. Even those companies already ISO 14000 certified are going to face the challenge of maintaining that certification and investing on continuous improvement.

• Greater involvement of the financial sector: The financial sector will also have to be incorporated into the process, by developing ways for companies – and particularly SME’s – to have access to the existing credit lines, as well as creating innovative mechanisms for CP promotion in the region. On the other hand, there are some key factors that must be considered to allow the financial sector to effectively come to support CP in the region. It is initially important to stress the fact that complex, incomplete or unclear regulatory frameworks increase the amount of risk perception (and of caution) of the financial market. Furthermore, it is important to conceive good CP projects that prove to be self-sustainable at long term, while those countries applying for access to foreign resources must show good competitiveness conditions at international level.

• Focus on resource depletion: Regarding the region comprised by Latin America and the Caribbean, it would be necessary to concentrate more efforts on CP practices in the agro industry and mining sectors, since they play a very strategic role in those countries. De-foresting practices are also a major source of waste and natural resources depletion, to be tackled by more conscious forms of management. The tourism sector also presents considerable profitability potential. The region’s countries are increasingly more aware of this fact and have been searching to develop it. This potential is intimately linked to the preservation of the region’s extremely large wealth of natural resources and biodiversity. This sector will yet present many opportunities for the use of CP practices. Some Caribbean islands – such as Jamaica and Trinidad – Tobago - have already reported some of these benefits.
• **Application of the Life Cycle Assessment (LCA) approach to CP:** Urban traffic is currently a major problem in the largest Latin American cities, contributing to aggravate their public health conditions and emit a considerable amount of greenhouse gases. In the future it is very important that this issue be adequately tackled. It will be necessary to plan and implement sustainable transport systems, searching for alternatives to those already in place and encouraging the utilization of public and alternative transportation means. New fuels and engines will have to be developed and land use practices in those cities will have to be reviewed, with the improvement of their roads and the provision of economic and fiscal instruments. Such recommendations aim to broaden the concept of CP outside the factory boundaries, considering the whole life cycle approach.

• **The need to introduce CP into the privatization process:** The energy sector is also a major pollution source. In spite of the huge potential for renewable sources, burning fossil fuels is an inevitable reality in the short term. Losses at the end-use, transmission and supply phases are going to require more effective approaches by demand-side management (DMS). Regulating the privatization process of the energy, transport and sanitation sectors, already underway in several of the region’s countries, may provide the opportunity to include CP and P2 concepts into new regulatory frameworks.