

DRAFT

Discussion of new directions for USAID industrial /urban program:

Recommendations call for a multi-faceted approach within an industrial, regulatory, and technical framework compatible with economic growth, while protecting the urban environment, improving health, and preserving natural resources. The new direction must shift away from the traditional approaches of enforcing end-of-pipe control and instead embrace the principles of industrial ecology, clean technology, and pollution prevention.

1)Industrial ecology. Industrial ecology is a new discipline evolving from retrofitting pollution prevention in industries. Within this discipline, the industrial system is viewed as a producer of both products and wastes and includes the relationships among producers, consumers, and the natural world. (Environment, vol 37, no 10, pp 16-37, December 1995). The concept provides a framework for pollution control, prevention, and recycling with additional types of environmentally responsible behavior.

2)Pollution prevention and clean technology. Pollution prevention and clean technology are thought of as tools associated with the principles of industrial ecology. Whereas EOP controls are mostly capital intensive, add to both operating and capital costs, and divert limited capital from productive uses, pollution prevention investments within the production system offer significant return on investment because of reduced operating costs and greater productivity. Savings from investments in clean technology and its associated principles of reuse, recycle, and by-product recovery are realized through reduced operating costs, raw materials savings, energy savings, and greater productivity. The payback-periods associated with a pollution prevention and recovery program are often less than a year.

The options for clean technology and practices are identified during internal process and product design using: life cycle analysis; recycling and reuse options; alternative manufacturing processes; energy efficient separation programs; PPDA--pollution prevention diagnostic awareness. Analyzing the environmental impacts of all materials, not only in production, but also in consumer use and eventual disposal. Reduce the effects of products and processes on human health of both workers and community populations. Byproducts and process wastes remain in the system and the producer accepts responsibility for decreasing their use by substituting material inputs, reformulating processes, redesigning products, improving operation and maintenance, recycling in-process substances.

Clean technologies adapted for LAC conditions can be innovative, applied in a responsible manner, and fit specific situations such

as the usage of less toxic water based solvents replacing synthetic organic ones, and linking environmental problems to business opportunities. LAC industries can benefit from clean technology experiences and developments in other countries; in effect they can "leap frog" from current to more advanced technologies now active in the developed countries that are less polluting, more energy efficient, and less costly.

3)ISO 14000 Standards. ISO 14000 is a set of common international voluntary standards for environmental practices that does not specify the traditional effluent or emissions limits of byproducts or wastes. ISO 14000 instead certifies that a business has analyzed the process methodology itself and adopted a system of specific environmental management practices. The standards are adopted voluntarily, but are designed to foster commerce through harmonized standards and often become "de facto" requirements for conducting business, on both domestic and international levels. The acceptance of ISO 14000 and environmental management systems in developed countries may offer incentives for industries in LAC to adopt the same standards and related pollution prevention or controls. Meeting ISO 14000 standards may be necessary in order to attract new foreign investment, satisfy international partners, or hold on to or develop foreign trade opportunities.

3)Industrial trade and investment strategy. In addition to identifying cost saving environmental improvements, clean technology can help LAC manufacturers remain competitive as tighter production based import restrictions are imposed by G-7 countries with stricter "green labelling" laws. Industries have realized that to stay competitive in a world market, they will need a more systematic approach to integrate environmental considerations into their business strategy and longer term planning. Moreover, this competition is inextricably linked to economic development and microenterprise management. Preventing pollution in a cost effective manner is a challenge that countries of the region must meet if they are to make sustainable progress and participate successfully in expanding global markets.

4)Information and education. The concept of industrial ecology and principles of pollution prevention and clean technology are still lacking the infrastructure necessary for easy and complete conversion to take place, i.e., information, unified case studies, critical industry-wide information, production and process design data, planning, standards, and societal changes. Ongoing steps should include developing dialogue among NGO's, governments, industry, community, and academia; developing targeted industry protocol for plant managers and engineers for clean technology principles; and educate financiers and investors on clean technology options that have been proven cost-effective and bankable.

5)Innovative environmental laws and regulations: The LAC countries have reached a crossroads in environmental regulation, whether establishing regulatory approaches where none exist or replacing

those existing and not enforced. They can choose to develop and implement a set of environmental laws in either of two ways: 1) regulate the permissible pollutant limits and, in turn, force capital-intensive control technology to be used in a sunk cost approach, or preferably, 2) develop regulations patterned after the US pollution prevention act of 1990 that encourage companies to "prevent" pollutants by various means and techniques. Some LAC countries have begun to pass innovative legislation. For example, Peru passed a pollution prevention act in 1997 which offers incentives to meet environmental regulations by prevention, i.e., offers more time to meet the same standards when using new technology.

6) Economic considerations. Movement in the direction of pollution prevention requires that economic considerations be understood and accepted by the industry, the financial community, and the policy makers. These considerations include protocol on how to implement low cost and/or no cost solutions e.g., trade in byproducts of production processes (one industry's waste becomes another's raw material). By fully investigating process streams for economic recoverability, cost savings, and the associated revenue streams, industry can illustrate the benefits of, and encourage investment in, alternative technologies to financial institutions. At policy levels, efforts to identify and remove barriers on alternative technology can provide the economic incentives to promote clean technology and industrial ecology for retrofitting existing or building new industrial facilities.

7) Clean Energy Considerations. Increasing demand for electrical power as a primary power source comes from the efforts of LAC countries to increase industrialization and improve living conditions of the populace including providing electricity to the populace and widespread usage of electrical household appliances. Energy demand will be increasing dramatically in the region and most of the new energy added to the grid will be fossil fuel based, not the traditional hydroelectric approach of the past. Between 1995 and 2010 additional power demand will raise from 2700 million BOE to 4200 Million BOE. This calls for the reliable and competitive incorporation of clean technologies into the hemisphere's electric power grids to result in significant economic, social, and economic benefits. Market conditions need to be created to promote and reward investments in clean energy approaches. Privatization of the ownership of power generation industry ranges from approximately 80% in Bolivia, Peru, and Chile down to 25% in Guatemala to a low end of 10% in El Salvador. This will affect the creation of incentives.

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