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UNIDO Resource Efficient and Cleaner Production (RECP) Programme

Project:

***Eco-Industrial Parks (EIPs)
in Emerging and Developing Countries:
achievements, good practices and lessons learned***

Synthesis of national policies reviews

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Summaries of national policies reviews

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Cambodia

The economy of Cambodia is still largely based on agriculture. About 80% of the population lives from agriculture. 78% of the population is illiterate. The emphasis of the government is on economic development. Some international organizations contribute to the notion of sustainable development.

National institutional framework The key strategy of the Royal Government of Cambodia (RGC) with its industry policies is to expand the economic linkages between agriculture and industry, to improve the industrial sector and to lessen its dependence on the textile/garment industry. The ministries involved are: Ministry of Industry, Mines and Energy (MIME, development, implementation and management of Government policy and strategy with regard to the industry (including IZ and SMEs), mining and energy sector), Ministry of Commerce (MOC, investment licenses), Ministry of the Interior (MOI), Ministry of Health, Ministry of Economy and Finance (MOEF, regulates the economic and financial sectors), Ministry of Environment (MOE, regulating environmental related issues, including Environmental Impact; responsible for Environmental Impact Assessment reports, and ensuring compliance with the environmental law, and establishing proper guidelines for monitoring its operations at the national level) and the Ministry of Social Affairs, Labour and Vocational Training and Youth Rehabilitation. There is much duplication of legal requirements. Important agencies are Cambodia Investment Board, Cambodian Special Economic Zone Board.

National policy framework The government's Industrial development strategy (IDS-2010-2015), which is stated in the strategic framework of the General Department of Industry (GDI), is to list the performance of the industrial sector, challenges ahead, vision and strategic agenda, and core areas of intervention and the transformation of GDI by 2015. GDI will focus on Cambodia's cooperative advantages and human development with industrial growth, and eco-friendly and socially responsible industrial growth. Cambodia adopted the national policy and strategic plan for green growth 2013-2030, aiming at developing the economy with consideration for environmental and natural resource sustainability, approved by the Cambodian government. The national policy, compiled by the MOE, aims to balance economic development and with environment, society, culture and sustainable consumption of natural resources in order to enhance people's well-being and living conditions. Other policies focus on CP and resource efficiency, fiscal incentives, pollution prevention, clean-techs, (diffusion of) eco-innovation, capacity building, awareness raising, voluntary certification, land planning, energy, water, waste management, transport, biodiversity, infrastructure and socio-economics.

Evaluation and monitoring The progress of the strategies or policies implementation will be monitored and evaluated on an annual basis and a report will be produced on the findings and the proposed corrective actions. At the national level, a limited and manageable number of "core indicators" will be used to monitor key dimensions of policies and strategic progress on a yearly basis based on which the annual progress report will be prepared. The second tier will be used at the ministry/agency level. Each

line ministry/agency will develop its indicator list using policies and strategic focus. The tools are the use of self-assessment, public feedback mechanisms and performance management reporting structures. Most of the government strategic plans made by the Ministry of Planning (MOP) are responsible for the monitoring and evaluation.

International collaboration and certification Cambodia is a signatory to the UNFCCC, the conventions to combat desertification, on Biological Diversity, on Wetlands of International Importance, the Basel Convention on Control, Transport and Disposal of Trans-boundary Hazardous Waste, Stockholm Convention on Persistent Organic Pollutants and other conventions.

Cooperation with the following organizations:

- Japan International Cooperation Agency (JICA) is the executing agency of Japanese Official Development Assistance (ODA). Japan has been the number one bilateral donor in Cambodia since 1992
- USAID: International Development to support joint U.S. and Cambodian priorities in economic growth, agriculture, food security, and global climate change adaptation and mitigation
- GIZ (German Society for International Cooperation) is helping Cambodia to attain its MDGs, current GIZ cooperation with Cambodia is mainly in the form of targeted budget and technical support
- Australia's aid program: Priority sectors that Australia works with Cambodia are agriculture and rural development, health, infrastructure, and law and justice
- NCPO-C is also acting as a focal point of UNIDO/UNEP international network of resource efficiency and Cleaner Production

The only certification scheme mentioned is the GOTS: Global Organic Textile Standard.

China

Over the last 15 years, China has formed a relatively complete policy system for promoting ecological construction and development of industrial parks. Up to the end of 2010, the total number of industrial parks that had been built or in construction in China was close to 6900. There were 83 National High-tech Development Zones (NHTDZ) and 107 National Economic and Technology Development Zones (NETDZ). Because of the concentrated enterprises, high strength of industrial activities, high resource utilization and intensive pollution, the industrial parks have become hot-spot of resource and environmental problems in China.

National institutional framework At the national level, China has promoted the ecological reconstruction of industrial parks from three aspects. For the emission reduction of the overall industrial parks, the Ministry of Environmental Protection (MEP), Ministry of Commerce (MOFCOM) and Ministry of Science and Technology (MOST) initiated the establishment and construction of the National Demonstrative Eco-industrial Parks (NDEIP). For the promotion of circular development of industrial parks, the National Development and Reform Commission (NDRC) with Ministry of Finance (MOF) started the construction of the National Circular Economy Parks (NCEP). And

for the low carbon development of industrial parks, the MOFCOM is now putting great efforts in the establishment of Low-carbon Parks (LCP).

National policy framework Aiming at the ecological construction of China eco-industrial parks, circular economy parks and relevant industrial parks, NDRC, MEP, MOFCOM and MOST etc. have issued a number of relevant policies, which structured the industrial park policy framework of China's EIP, CEP etc. In 2006, MEP, MOFCOM and MOST issued EIP standards for three categories of EIPs, including the industry-based parks, venous industries parks and comprehensive industrial parks. The standards defined conditions and indicators of evaluation and approval of a NDEIP, and proposed different indicators according to the characters of each category of EIPs and key links of eco-industry construction. In 2007, in order to guide the development of circular economy in industrial parks, NDRC, MEP & National Bureau of Statistics (NBS) issued the "Evaluation indicator system of circular economy". Policies are included in the 12th Five-Year plan (2011-2015). MEP and MIIT have issued policies on Cleaner Production. Other specific policies have been created for circular economy, regions and industrial sectors, eco-innovations, land planning and water and energy policies.

Evaluation and monitoring The inspection of the enforcement was highlighted through the "Cleaner Production Promotion Law", which was carried out by the Standing Committee of National People's Congress in 2010. The Law was amended in 2012 to strengthen the liability of enterprises to carry out CP audits.

International collaboration In order to implement "the United Nations Framework Convention on Climate Change (UNFCCC)" and the "Kyoto Protocol", the Chinese government sets its clear goal to control the emission of greenhouse gases. In order to achieve this goal, the Chinese government also formulated "12th Five-Year" work plan which proposed to carry out low-carbon pilot projects and construct "Low-carbon Parks". MEP issued a policy for ISO certification: the ISO14001 should be established for the park as a whole and for more than 15% of polluting companies.

Success factors The government propagated preferential policies for land use and sewage and gave priority to the approval of projects on pollution prevention infrastructure, resources and energy utilization, ecological industry chain complement, and provided financial support and tax incentives. It promulgated pricing policies to improve industrial park resources and energy use efficiency with implementing different electricity and water pricing. Secondly China built a scientific evaluation system framework, which provided effective technical support for park ecological reconstruction and cyclic reconstruction. And finally the government proposed policies for ecological development of industries and regions, such as the policy to encourage application of CP technology and circular economy technology and to encourage heavily polluting industries and enterprises to join in the industrial parks. These policies strengthened resource efficiency and reduction of pollutants, and also the symbiosis links between related industries in the key areas and key industries. It helped intensifying development and upgrading ecological reconstruction of industries and enterprises in the region.

Colombia

From this overview of policies, it is clear that in Colombia the issue of EIPs has yet to be addressed directly. Although there have been some pilot cases, implementation has not been fully successful, while other corporate environmental management strategies are better accepted by the private sector.

National institutional framework At the central level, i.e. the creation of national policies, the governing body of National Planning Administrative Sector or National Planning System is the “Planning Department” (DNP). A few other entities are part of this Department, within which none are directly related to EIPs.

Ministries that have direct involvement are the "Ministry of Commerce, Industry and Tourism (MCIT)" and the "Ministry of Environment and Sustainable Development (MADS)". The "National Tax and Customs Office" has authority over the free zone regime in tax and customs issues. Regarding environmental regulations and enforcement, the jurisdiction to intervene is with the "Regional Autonomous Corporations”, which acts as the environmental authority without the MADS hierarchical subordination to decide on sanctions of non-compliance of environmental obligations by all types of business and industry.

Finally in the public sector, from the perspective of science and technology, there is the, "Administrative Department of Science, Technology and Innovation" for innovation and competitiveness. The "Municipalities and its Councils" are competent to promote initiatives in their territories on EIPs.

Other players from the private sector are companies that are called to integrate companies within the EIP and implement the concepts of EIPs. The "National Business Association of Colombia" and "Colombian Association of micro, small and medium companies"(MSMEs), chambers of commerce of the country's most industrialized cities. Institutions such as the "National Centre for Cleaner Production and Environmental Technologies" can become catalysts for important processes to streamline the concept of EIPs.

National policies framework The MCIT is responsible for coordinating the Entrepreneurial Development Policy, which focuses on competitiveness and aims at removing barriers to business development in the country. However, EIPs are not part of the strategies or tools for that policy.

For strengthening the industry and MSMEs, there is the Productive Transformation Program (PTP) which is a public-private partnership created by the MCIT. The agents that participate in this program include the national government and technology parks aimed at strengthening the innovation of the MSMEs. This could be a potential to introduce the EIP concept. The Private Competitiveness Council (CPC) aims to promote competitiveness of the country and to be a liaison between the public sector, private sector, academia and other organizations interested in promoting competitiveness. EIPs are absent as a strategy to promote development or improvement in the environmental performance of the productive sector. Other policies are policies on business grouping, technological parks, environmental policies, and policies on land use.

Evaluation and monitoring For public policy DNP has a tracking system, called SISCONPES. It aims to generate quality information that allows monitoring of the progress of the various actors in the implementation of policies formulated by the Government through the DNP, which has standardized processes for the preparation and monitoring of CONPES Documents, including within its Quality Management System. And secondly it proposes monitoring and tracking of the actions associated with the policy objectives contained in the CONPES Documents, for purposes of determining the outcome. Two other relevant institutions are the Comptroller General of the Republic (financial control) and the Congress (control national government).

International collaboration and certification There is collaboration with various UN agencies. Certification processes on management system such as ISO norms is well received by the national productive sector. Certification (ISO 9000-14000 and others) is well known in Colombia. The main certifier in Colombia is ICONTEC, it enjoys international reputation and recognition with its presence in several nations of the continent. Some years ago, the national government implemented a program to help companies obtain these certifications, which was well received and was relatively successful. Unfortunately it was not sustained. The national government, through MADS currently leads in Congress a bill which among other things seeks to encourage the implementation of the Colombian Environmental Label.

Costa Rica

National institutional framework According to the General Environmental law known as "Organic Environmental Law" and the General Regulation of the Ministry of Environment and Energy (MINAE), the leading public body on environmental quality in the country is the MINAE. However, there are approximately 12 public institutions that by different pieces of legislation have responsibilities in this area, in the management of some natural resource (water, soil, air, biodiversity, etc.) or regarding the control of some waste that is generated (solid or chemical). The Direction of Management on Environmental Quality (DIGECA-MINAE) has been working on the National Program of Environmental Quality since September 2008 in order to improve the national profile.

This Program consists of two components:

1. Inter-institutional System of Environmental Protection (SIPA) is intended for the promotion of effective communication between the different actors within the environmental quality field. The first level of actors will comprise the Coordinating Council, which will be formed by the Minister of the MINAE, the Minister of Health, the Minister of Agriculture and Cattle, the Public Work Minister and Transports and the Minister of Planning and Economic Policy. These members are the policy makers alongside the Secretariat in Environmental Quality (DIGECA). The second level corresponds to representatives of institutions such as: Directors of MINAE, the Ministry of Education, the Ministry of Economy, Industry and Commercial, the Minister of Competitiveness, the Costa Rican Institute of Tourism, Foreign trade, Costa Rican Petroleum Refinery,

- Costa Rican Institute of Electricity, and more. Integrated at this level are the municipal sector, the deprived sector, NGO's, the academic and research sectors
2. The Action Plan includes as thematic axes: water, soil, air, waste, chemical substances, biodiversity and impact on the landscape, together with strategic axes of organization: public policies, legal and normative aspects, monitoring, control, regulation and access to information

Industrial parks did not take environmental or cluster concepts into consideration at the time they were established. All tenants had to comply with applicable national and local laws and regulations. Many companies found it difficult to keep abreast of changes in these rules and regulations. A central requirement for more effective environmental protection and industrial development is the integration of policy and its implementation. More cohesiveness among the many agencies for environment and for economic development would end the fragmentation and conflicting goals that industry now faces. The National Development Plan is a general document to guide the decision making process, rational allocation of resources and organization of governmental management. It frames the agenda of work in four main axes: 1) social welfare; 2) citizen security and social tranquility; 3) environment and territorial organization; 4) competitiveness and innovation.

Lack of regulation Costa Rica lacks regulation in terms of Eco-Industrial Parks. Despite that, Costa Rica has regulated a wide range of areas related to environmental protection, sustainable use of resources and good practices on an industrial level that are generally applied.

Evaluation and monitoring MINAE and Minister of Health are considered as providers of technical support for monitoring, controlling and evaluating. However, due to the lack of technical staff from these two ministries, the industrial sectors usually rely on their own technical staff to ensure good environmental performance and efficiency on natural resources.

Carbon neutrality Costa Rica sets out to assume a leadership role on climate change and to continue on its trajectory towards reaching carbon-neutrality by 2021, through technical collaborations with different institutions, as well as various activities made voluntarily by the private sector, in addition to the existing institutional frameworks.

International collaboration In the last decade, German International Cooperation Agency, GIZ, has developed a business relationship with the Chamber of Industries in Costa Rica, leading to improvements in waste management, energy efficiency and formulating the industrial strategy on climate change.

Barriers According to CINDE and Procomer (Government institutions) property owners could make a good improvement by taking sustainable principles into consideration during the design of infrastructure facilities inside the park. However, this means additional investment that companies are not always willing to pay as new tenants at an industrial park. In addition, foreign companies usually ask for specific needs according to

their production processes where an environmental criterion is not always the main issue for decision makers. If EIP implies additional investment, then companies will not be motivated to adopt it.

End of pipe technology Today, Costa Rica emphasizes end-of-pipe treatment rather than the more holistic and preventive solutions of industrial ecology. Many overseas aid organizations add to this pressure with aggressive sales of their countries' end of pipe technologies and services. This deepens the problems of SMEs who cannot afford newer technologies based on industrial ecology principles.

Egypt

Egypt has a total number of 118 industrial zones over its governorates.

National institutional framework The following ministries and agencies are involved in the establishment, operation and management of Eco-industrial parks: Ministry of State for Environmental Affairs (MSEA) / Egyptian Environmental Affairs Agency, (EEAA, shall be the National Authority responsible for strengthening environmental relations between Egypt and other countries; the Agency shall prepare the necessary draft laws and decrees required for the implementation of such conventions); Industrial Development Authority; Ministry of Trade and Industry (MTI, development of EIP is a top priority); Ministry of Housing Utilities and Urban Communities, Ministry of Water Resources and Irrigation; Civil Defense Authority and Ministry of Interior (MOI).

National policy framework The following policies exist:

- Municipal solid waste management, the strategy depends heavily on a regional approach, with the Governorates being the principal participant for the implementation of that strategy
- Industrial development: achieving increasing growth rate with economic targets
- Industrial sustainable development: directing investments to new regions and granting incentives and relative advantages to remote areas. Any new project must be subjected to an Environmental Impact Assessment before final approval;
- Cleaner production for industry developed by EEAA with the Egypt National Cleaner Production Center
- Air emissions strategy formulated by EEAA
- Energy efficiency and renewable energy, plenty of energy efficiency projects have been implemented

Evaluation and monitoring The responsibility of monitoring and inspection of industrial zones and industrial facilities is divided between the MSEA/ EEAA, the MOI/ Egyptian General Administration of Civil Protection, the MTI/ IDA, the Egyptian Industrial Control Authority (ICA) and the Egyptian Organization for Standardization and Quality (EOS) in addition to Environmental Management Units, Ministry of Manpower and Integration and other. The inspectors of EEAA and its regional branch offices are responsible for protecting the environment from pollution from industry. The Egyptian

Organization for Standardizations and Quality grants conformity certificates for industrial commodities and products according to Egyptian and international standards.

Initiatives "Green Growth: Industrial Waste Management and SME Entrepreneurship Hub in Egypt" has the objective of developing a sustainable and integrated industrial waste exchange system in a pilot industrial park, linking stakeholders to improve the cross-industry resource efficiency, reduce the environmental impact of industrial waste, promote the development of new innovative SMEs and create green job opportunities. Two other national projects that targeted the improvement of environmental performance on the scale of an industrial estate are: the Environmentally Friendly New Industrial Cities Program (NICs) and the Integrated Industrial Solid Waste Management in Egypt Project (IISWM).

Barriers Although there have been several EIP developments, implementation of the concept is still emerging and there is not yet a fully realized operating EIP despite the fact that some successful examples of regional by-product exchanges do exist. Actually, a significant number of projects have failed or have been abandoned. Consequently, the goal of developing an EIP with a comprehensive environmental management system at the estate level is a relatively new concept. In contrast with the wide spread image that EIPs' essential element is the establishment of "physical" by-product exchanges, it is not the most important feature of EIP development. From a technical point of view, potential match-making between companies could exist, but the lack of companies' interest is deadly to initial EIP development since they are the ones who must invest money and time in planning and designing the exchange infrastructure. Issues of trust, good personal relationships, and cooperation between companies are crucial factors for the initial stages of EIP development and for the subsequent implementation.

El Salvador

In El Salvador the emphasis is put on free zones. There are currently 17 free zones.

National institutional framework The ministries involved are: the Ministry of Economy (regulating IPs), Ministry of Finance (financial assessment of free zones), Ministry of Public Health and Social Assistance, Ministry of Labour and Social Welfare, Ministry of Environment and Natural Resources (enforces environmental law, provides environmental license for companies, solid waste and water laws), Ministry of Public Works. The relevant institutions are National Energy Board (energy development policy, and energy efficiency law) and Superintendence of Electricity and Telecommunications.

National policy framework Topics are: industrial policies for expansion and restructuring of productive sector; environmental policy to reverse environmental degradation; climate change mitigation; environmental strategy to improve environmental performance, and energy policy reducing energy consumption.

Regulations Most regulations are laws, tax incentives or special regulations.

Evaluation and monitoring The enforcement of the legislation and licenses granting, as in the case of the Ministry of Environment and natural resources, Ministry of Finance and Ministry of Health, are made according to the following procedure:

- Presentation of operational report: The ministries involved, establish a standard format for the Annual Operating Reports, which will be used to establish a monitoring mechanism called "Operating performance" of the activities, works and projects.
- Inspections: The ministries involved have to carry out inspections of work activities and / or projects in order to verify compliance with the mandatory conditions stipulated by each ministry
- Environmental Audits are performed to the activities, work or projects that have different operating licenses (whether environmental, health, construction, etc.)

In addition there are voluntary agreements in Cleaner Production.

International collaboration and certification International cooperation takes place with UNFCCC resulting in the national climate change office and CDM projects; and with UNIDO, UNEP, and GIZ.

Currently in El Salvador there is no procedure for labeling an eco-park, but there are regional initiatives for energy efficiency awards and green hotels labels.

Drivers and barriers The current legislative framework regulates the approval and implementation of the free zone. The incentives and labor development ensure the best conditions regarding the aspects of safety, food and employee development. But there are no approved laws or any in the approval process that clearly defines what the free zones must enforce to be called Eco Parks. This lack of standards in this specific topic is balanced with the development of incentives laws, such as the renewable energy incentives law, which encourages the development of projects using cleaner technology; the environmental law that includes strategies for biodiversity and climate change; and the energy efficiency law which is in the approval process, which promotes the efficient use of energy. Voluntary certifications such as ISO 14001 and ISO 50001 may also encourage a model of eco-park for national labeling. Another strategy currently promoted by the government is the development of credits lines for environmental conversion, very attractive interest rates that are more profitable. Private financial institutions are also developing green credit lines focused on the same line of action of the government's entity. As a result there is a wide possibility for free zones to funnel their efforts and develop as eco-parks.

India

There are two policy reports from India, one for the state Gujarat (below) and one for India as a whole.

National institutional framework The nodal body established for developing, managing and administrating SEZs is the Department of Commerce, while Industrial Parks fall

under the aegis of the Department of Industry (Industrial Planning and Industrial Development Cell). Both departments are under the Ministry of Commerce and Industry. Other organizations involved are: Board of Approval (promotes orderly development of SEZ/IP), State Government, Zone authority, Developer, Operator, Units operating in Zones, Statutory Bodies, Municipality & Town Planner, Research Institutions, Multi-Lateral Organizations and NGOs.

National policy framework There are no specific policies related to Green SEZs or EIPs in India. The Department of Commerce brought out “Draft guidelines for Green SEZs” in 2009 with the aim to make SEZs more sustainable. However, these guidelines have not been made mandatory.

Relevant policies for SEZ/IP are National Manufacturing Policy (to catalyze the growth of the manufacturing sector through establishment of National Investment and Manufacturing Zones (NIMZs) in the nature of green field industrial townships with a minimum area of 5,000 hectares and benchmarked with the best manufacturing hubs in the world), State Level Policies, National Water Policy, Technology Policy Statement, Public Private Partnership Policy, Integrated Energy Policy, National Action Plan on Climate Change, Ecomark Scheme (to spread awareness) and Foreign Trade Policy (to increase value of exports through initiatives and incentives).

Evaluation and monitoring The Government of India has put in place a comprehensive SEZ Act and Rules for regulating and administrating SEZ performance. However, for industrial parks (not under SEZ act), many state governments themselves have implemented some performance monitoring mechanisms to evaluate the performance of the parks. The performance of the SEZ units is monitored quarterly and annually. There is no specific monitoring of the parameters on environmental performance such as greenhouse gas emissions. All units in the zones have to comply with pollution standards set by State Pollution Control Board or Central Pollution Control Board. A feedback loop is present - a system through which learning and improvements are incorporated in future versions of the rules and legislations. As a part of an e-governance initiative, the Ministry of Commerce and Industry launched “SEZ Online”, a Web based- ICT tool by the Government of India in association with the National Database Management Limited, with the aim of integrating the administrative procedures for establishment, development and administrating SEZs across the nation.

International collaboration and certification The agreements which influence SEZs/IPs or their units are: World Trade Organisation and Regional and Bilateral Trade Agreements and Climate Change and Environmental Agreements. In India, the Ministry of Environment and Forestry is the nodal ministry in the government for all multilateral environment agreements. A few major agreements which have been influencing the policy making process are the UNFCCC, Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Montreal Protocol, Stockholm Declaration, Asia-Pacific Partnership on Clean Development and Climate and Convention on Biological Diversity. Many of India’s declarations at the world stage, e.g. to combat climate change, while not agreements, have nonetheless resulted in many initiatives.

India has international cooperation with United Nations, Asian Development Bank, International Labour Organisation, International Chamber of Commerce, World Trade Organisation, World Bank, World Health Organisation, and various other organisations and agencies, such as GIZ (examples of projects: Indo-German Energy Programme, Eco-Industrial Park Project) and UNIDO. Many programs related to environment and climate change in association with organizations such as USAID, UKFCO, SIDA, SECO, are in progress in the country.

International labels and certifications are not mandated by the Government in India for any sector. However, for a variety of reasons, many organizations undertake certification and labeling exercises on a voluntary basis. This includes ISO certifications (including 14001 and 50001), OHSAS, Green Building ratings such as LEED and IGBC, carbon and water foot printing/ accounting, etc. With tightening of legislation, there is increasing scope for such activities in the country.

Drivers Today, the environment and sustainability are an integral part of the policies and legal framework, development in the country is taking shape in harmony with the environment but still there is enormous scope for improvement in several aspects of policy making. There has also been an increasing role played in international development agencies and local bodies in the development of environmentally-friendly legislature. International experiences have provided examples of what may be possible. Other major factors contributing to overall industrial development in the country are a reform oriented Government, preferential industrial policies, well established institutional structures with clear roles and responsibilities of each individual, facility, association or body, socio-economic and environmental factors under different conditions.

In India, there is no specific policy for promoting Eco-Industrial Development. There is a fragmented regulatory structure: Environment vs. Industrial Development, the goals of both the structures are contradictory rather than complementary to each other. There is an urgent need to recognize that industrial development and environment sustainability can co-exist with each other and will act as complementary to each other. To promote eco-industrial development there is the need of a unique policy to be framed by taking the views of various stakeholders relating to the sustainable industrial development. The current situation demands strong policy action on Eco-Industrial Development. Capacity building helps to create more awareness.

Gujarat, India

The economic growth indicators of Gujarat have been impressive with an achievement of an average annual growth rate of 10.4 % in the last five years, a figure that is higher than that of the "Asian Tigers". A survey under the Ministry of Statistics and Program Implementation, Indian Government reinforced the position of Gujarat as the most industrially developed state in India with respect to first rank in industrial investment and second in terms of value of production and value addition in the industrial sector.

Institutional framework of the state Organizations that have played a major role in eco-industrial development are:

- Gujarat Industrial Development Corporation (GIDC): GIDC has been created for securing the orderly establishment and organization of industries in industrial areas and industrial estates in the state. The corporation has established 182 industrial estates
- Gujarat Cleaner Production Centre (GCPC): established with support from UNIDO. GCPC aims at promoting the application of CP and other environmental management practices across various industries
- Gujarat Pollution Control Board (GPCB): towards environment related better pollution control and improved management; have e-Governance programme

Other organizations include: Industries Commissionerate, Gujarat Infrastructure Development Board, The Entrepreneurship Development Institute, Gujarat Energy Development Agency, Gujarat State Biotechnology Mission, and Federation of Indian Chambers of Commerce and Industry & The Confederation of Indian Industry.

Policy framework of the state The state has had a proven track record of attracting high volumes of investment and as a result, becoming the most privileged investment destination in India. A new Industrial policy by the Government of Gujarat will be announced in 2014. The new policy has identified and developed a strategy which would promote industrial development in the state in a planned manner and to do so, a few focus sectors have also been identified. Other policies are Cleaner Production (CP and RE), financial /fiscal incentive policies, waste management policies, environmental policies, capacity building, awareness raising, education and infrastructure, transport and mobility policies. Other policies comprise partly disbursement of the certification (e.g. ISO) fees and cost of testing equipment, biodiversity, and energy and water policy. The Environmental Information System Centre on "Eco-labelling and Promotion of Eco-friendly Products" was established in 2005 with the financial support from the Ministry of Environment and Forests, GoI.

Evaluation and monitoring Government of Gujarat has various departments to monitor and evaluate implementation of national and state level policies: Energy and Petro Chemicals Department, Industries Commissionerate (initiates possibilities to develop fast growth in small medium and large-scale Industries), Forests and Environment Department (to achieve sustainable development in the State and introduce sound environmental management practices) and Roads and Buildings Department.

International collaboration Gujarat and GoI are collaborating with UNFCCC (including Kyoto Protocol that India ratified) and GIZ International Services (provides high quality advice and capacity building related to energy, natural resource management, and industrial development).

The Industrial Policy plan of a state is its official strategic effort to encourage the development and growth of the manufacturing sector of the economy. A state's infrastructure (transportation, telecommunications and energy industry) is a major part of the manufacturing sector that usually has a key role in IP. Eco Industrial Park is one of the recent strategies for sound environment system at the estate level. Efforts have been

made by applying tools at three levels: Micro, macro and industrial symbiosis in policy aspects to transform existing industrial estate in to eco industrial parks.

In view of the above, it can be concluded that, the existing policies are well defined and drive the industries and industrial estate developer to go for sound environmental management, which ultimate lead to “Eco- Industrial Park”. The existing policies in their current form are not sufficient to lead EIPs. However, the concept of EIP in terminology with Green Industrial Park is being added in IC policy 2015.

Morocco

Not one of the existing or planned industrial parks in the country is dedicated to “eco” activities. Collective synergies between industries in the same park are not yet an introduced practice.

National institutional framework The main relevant stakeholders with regard to establishment, operation and management of industrial parks in Morocco, are: Ministry of Trade, Industry and New Technologies, Ministry of Economics and Finance, Ministry of Interior, Ministry of Equipment and Transport, Ministry of Agriculture and Fisheries, Urban Agencies, Professional chambers, Investment Regional Centers, Moroccan Investment Development Agency, Hassan II Fund for Economic and Social Development, Al Omrane, MEDZ/CDG, Tangier Mediterranean Special Agency(TMSA, responsible the Tangier Med port complex and its industrial platform), French Chamber for Commerce and Industry in Morocco, Industrial parks associations and the General Confederation of Moroccan enterprises.

National policy framework Specific policies for industrial parks include

- The National Pact for Industrial Emergence: a contract program(2009-2015) between the government and the private sector, strategy is the establishment of Integrated Industrial Zones and Improved competitiveness of Small and Medium Enterprises
- Integrated Industrial Platforms (P2I) program
- The Green Morocco Plan is a political initiative aiming to revive Morocco’s agriculture, the main driver of the nation’s economic growth
- The Halieutis Plan is an integrated strategy for the development and competitiveness of the fishing industry
- The national strategy for the development of logistical competitiveness

Specific policies for Cleaner Production and Resource Efficiency comprise The Moroccan energy program (will invest an estimated \$18.95 Billion by 2020), the Solar Plan and wind Energy Plan. There are also several financial and fiscal incentives policies for industrial parks and Resource Efficiency and Cleaner Production. Overall Environmental Policies are the National Charter for Environment and Sustainable Development, National Program for Liquid Sanitation and Wastewater Treatment and National Program for Industrial Pollution Prevention.

Evaluation and monitoring To ensure implementation of the Covenant Emergence, the National Pact for Industrial Emergence was established in a framework of global governance by the Monitoring Committees, which are chaired by the Ministry of Industry and Development Agency Moroccan Investments. It identifies the needs and problems of the industry to deliver business solutions. The "Industry Observatory" establishes the relevant indicators to measure progress in the industrial sector and to provide stakeholders with timely information.

The following tools were established under the tutorship of the Ministry in charge of the Environment in order to monitor and assess the environment on national and regional level: National Environmental Observatory (continuous monitoring of the environmental situation in order to improve knowledge and develop tools to support decision-making on environmental protection and sustainable development), Regional Observatories for Environment and Sustainable Development (to ensure a continuous monitoring of the environmental situation and measure the results and performance of corrective actions initiated by environmental upgrading programs) and the National Environmental Laboratory as a reference institution regarding pollution monitoring.

International collaboration and certification As part of the implementation of the international environmental agreements, Morocco developed national strategies and plans. The National Climate Plan, the National Climate Strategy and the Ozone Depleting substances phase out plans are the main ones concerning the industry. The past environmental projects and initiatives have been supported and implemented by bilateral development agencies (GIZ, etc.) as well and international organizations (UNIDO, UNEP, World Bank, IFC, etc.). Few projects were targeting group of companies from the same industrial park but focusing on individual actions on the companies' level to initiate and enhance synergies between companies. In 2003, the French Global Environment Fund (FFEM) and the Global Environment Facility (GEF) supported (for 5 years) an energy and environment projects in the Sidi Bernousi Industrial Zone. In 2011, GIZ supported the launch of the CoZInE (Collectif des zones industrielles pour l'Environnement), a platform, gathering some industrial parks associations, for experience exchange.

Peru

Industrial parks in Peru are areas where industries coexist with workshops and homes, in industrial zones. They have declared bills creating industrial parks in different regions of the country since 2009. Since 2011, Law No. 28183 Development Framework Industrial Parks regulates the establishment, promotion and development of industrial parks. In August of 2013, the Act that Promotes the Development of Ecological Techno Industrial Parks (PITE) was passed. This act will implement a national strategy to promote competitiveness, linking and profitability of the production units of the industrial and agricultural sectors.

National institutional framework Stakeholders in the development of industrial Ecoparks (IEP) in the country are involved in the development of industrial zones and

industrial parks, as actors in economic development at local, regional and national levels. First the public institutions consist of: Ministry of Production, Ministry of Environment, Ministry of Housing, Foreign Ministry, Ministry of Foreign Trade and Tourism, and institutions such as the Development Finance Corporation, National Strategic Planning Center and local and regional governments. The second stakeholder group consists of the private institutions: National Society of Industries, Association of Exporters and other Associations. Thirdly there are the academic and technical institutions including universities and eco-efficiency center. And finally there are the international institutions such as international cooperation agencies, including GIZ, Swiss EMPA and SECO, Swiss Chamber of Commerce, UNIDO and USAID.

National policy framework Many policies have been issued. Areas are strategic development, eco-efficiency, water resources, energy, transport, port, solid waste, health, forestry, chemicals, global monitoring, electronic waste, PCBs, recycling, biofuels and wind energy. A few examples are mentioned here. As part of the national policy that involves the development of EIPs in Peru, i.e. the National Environmental Policy, 2009, (the general government policy on the environment, which frames policies at sectoral, regional and local levels. It is the basis for the conservation of the environment); the Institutional Eco-efficiency Plan, 2011; Policy and National Water Resources Strategy of Peru, 2009.

Evaluation and monitoring In order to monitor and evaluate the implementation of national policies that are dependent on each ministry body, discharge procedures are followed in Rules of Organization and Functions (ROF) as institutional normative instruments. Public bodies for control of standards are National Water Authority, Office of People's Defence, Supervisory Agency for Investment in Energy and Mining and other. They monitor use of renewable natural resources, provision of public services, compliance with legal and technical activities by companies, provision of sanitation services, zoning and environmental health.

International collaboration Generally, International Cooperation represents 2% of the annual budget of the country. Progress was made in implementing conventions and the definition of strategic and legal frameworks in the whole country such as in the case of the UNFCCC, the Convention on Biodiversity (CD), the Convention to Combat Desertification and Drought, the Kyoto Protocol and the Cartagena Biosafety Protocol under the CD framework.

Certification and integration into new standard There are many voluntary certification agreements. As a priority it is the role of the national government to transfer the national policy "Industrial techno-ecological parks" to regional governments through economic development management according to the Ministry of Production (PRODUCE), as lead agency, and the National Competitiveness (CNC). Part of the generated incentive is a policy that will diversify exports, where it will bring conditions that facilitate private investment and innovation in new businesses, impacting the social aspect in the way of creating new local jobs. PRODUCE will provide enterprises and consumers with

information about the location of new industrial and municipal parks and is responsible for the promotion of products and services they provide if intended for the local market. One subsumable benefit which has to be identified as part of the strategy for EIPs in Peru are policies towards an industry/company to enhance the relationships with other companies and which can help to achieve planned integration. Also, appropriate public-private agreements are necessary for clusters that must be tackled strategically or are identified within a given geographical area.

Perspectives It is important to gain a good understanding of the current status and potential future scenarios of industrial development in Peru, including location of existing/new parks, drivers and challenges, and stakeholder needs (e.g. industry, community). Assessment of existing policies on their relevance to eco-industrial development and potential to integrate new eco-industrial development policies/strategies. It is important to create early successes and some practical local eco-industrial park examples in Peru. The implementation of eco-industrial development principles in the pilot projects will create learning for policy development and other industrial parks.

South Africa

National policy context Since 2008, South Africa has embarked on a programme towards developing a green economy through the development of a number of policies and plans, these include:

- The National Environmental Strategy and Action Plan (1998)
- National Framework for Sustainable Development in South Africa (2008)
- The New Growth Path (2010)
- Integrated Resource Plan for Electricity (2010)
- National Industrial Policy Framework (NIPF) (2010)
- The Industrial Policy Action Plan (IPAP) (2010, 2011, 2012, 2013)

EIPs are created as part of the transition towards a green economy. The approach to EIPs can be incorporated into South Africa's current IDZs, and more recently, special economic zones (SEZs).

National institutional framework Although support for green industries and a green economy fall under the DTI (Department of Trade and Industry), the DTI relies on other government departments in assisting them in the planning, implementation, management, monitoring and evaluation of the green economy. The key governmental departments include:

- Department of Environmental Affairs
- National Treasury
- Department of Energy
- Department of Water Affairs
- Department of Agriculture, Forestry and Fisheries

- Department of Economic Development

In addition to various business associations and NGOs other initiatives are:

- The Green Fund
- The Central Energy Fund
- The Renewable Energy Scheme

All the departments, business associations and NGOs are geared towards, and committed to the development and promotion of a green economy within South Africa.

Industrial Development Zones are primarily created to encourage and attract foreign direct investment.

Policy framework While there are a number of environmental and socioeconomic national and strategic policies with links to South Africa's industries, there are few that speak directly to the planning, establishment, development and management of (eco) industrial parks. The focus of most policies and documents is fixed on reinforcing environmental awareness within the context of the country's over all social and economic development. Policies are the National Climate Change Response Policy, the National Framework for Sustainable Development, the Industrial Policy Action Plan and the National Industrial Policy Framework. The NIPF and the IPAP are the two main policies of the DTI which seek to drive eco-innovation and promote green industries. Characteristics of EIPs such as Cleaner Production and Energy Efficiency (for example) are promoted in policies which speak to Industrial Parks/Industrial Development in general, where their links to industry in terms of competitiveness and job creation are addressed.

Evaluation and monitoring The cabinet approved the National Evaluation Policy Framework (NEPF) in 2005. Introduced as part of the Policy Framework for the Government-Wide Monitoring and Evaluation System, the NEPF focuses on the monitoring and evaluation of policies, plans, programs and projects at a national-level.

Tunisia

National institutional framework

The following ministries are involved:

- Ministry of Industry
- Ministry of agriculture
- Ministry of Equipment and the Environment
- Ministry of Health

Public agencies and public institutions are National Office of Sanitation, National Agency for Environmental Protection, Protection Agency and Planning Littoral, Tunis International Center for Environmental Technologies (CITET), National Agency for Waste Management, National Society of Mining and Water Distribution, Industrial Land Agency, Agency of Industrial Promotion and Innovation. CITET takes care of the development and promotion of environmental technologies. They also train managers within companies.

Another structure is the Maintenance and Management Group (GMG). The GMG is responsible for the maintenance and rehabilitation of public utility services such as roads and public lighting management, animation equipment and removal of garbage and industrial waste. A GMG must be created in each industrial area, at the initiative of organizations and professional associations and occupants, operators and owners of property in designated area. Even in cases where GMG is active, motivated and well organized the results are often limited due to the lack of resources and skills. There are also private development companies which have been forced to intervene in recent years alongside the public structures, these have resulted in mixed public-private structures in traditional industrial areas and service areas to higher or lower added value (technoparks). Technoparks or science parks aim to promote the competitiveness of the economy and develop its technological components, by encouraging technological innovation and support of complementarity and integration between these activities in the context of national priorities.

Legal framework There are the Water and Labor Codes, the Code of Planning and Urban development and Conditions of Wastewater Discharge. There are also Impact Studies of the Environment establishing the National Agency for Environmental Protection (ANPE) in 1988. Authorization for the creation of new activities that could cause damage to the environment is subject to the completion of an environmental impact assessment and approval by the ANPE.

Planning of industrial zones There are policies for planning, urban planning and Industrial Zones. Offers of industrial land are provided through tender offer and private offering. In addition there are procedures for creating an industrial area, its maintenance and rehabilitation.

Vietnam

Vietnam has seen a rapid industrial growth over the past twenty years. Since the first industrial zone in 1991, 283 new industrial zones have been established. In the Social Economic Development Plans the target was set to make Vietnam an industrialized country by 2020.

National institutional framework The institutional framework with regard to management of industrial parks and zones consists of three main stakeholder groups: the sectoral ministries, the industrial zones management authorities and the companies including the infrastructure development company and the companies operating in the IZs. The first stakeholder group of sectoral ministries includes the Ministry of Planning and Investment, Ministry of Home Affairs, Ministry of Finance, Ministry of Construction, Ministry of Industry and Trade, Ministry of Natural Resources and Environment (MoNRE), Ministry of Science and Technology, Ministry of Labor, War Invalids and Social Affairs and Ministry of Public Security. With the decentralized government, much of these authorities are devolved to corresponding sectoral agencies under the overall supervision of the Provincial People's Committee. From an eco-

industrial perspective, the MoNRE could be viewed as a crucial actor in the management of IZs as it is the lead government ministry in charge of policies to tackle industrial pollution. Across the whole country, 672 of 674 districts have set up a Division of Natural Resources and Environment.

National policy framework None of the industrial parks and zones in Vietnam have met the criteria of an eco-industrial park. There have been few specific policies which go beyond environmental compliance and pursue an eco-industrial approach.

Vietnamese policy on industrial parks:

1. to attract foreign and domestic investment (e.g. by tax incentives and favorable conditions)
2. environmental protection (establishment and enforcement of laws and regulations)

Environmental Protection Law:

- Strategic Environmental Assessment
- Environmental Impact Assessment

Lessons Learned In the area of environmental protection, the performance has not met the required level yet. There are some overlapping and ineffective regulations. The reasons for poor quality of regulations include inadequate research and lack of stakeholders' input; and lack of regular revisions due to complex administrative procedures and lack of pressure from stakeholders. A more critical issue is the weakness in law, and regulation enforcement in Vietnam. For example, inspections conducted at 90 manufactures and trading facilities in six provinces in 2005 and 2006 showed that environmental violation rate was about 96%. Particularly for IZs sector, the most important documents namely the Decision 62 and Decree 29 lack a clarification in guidance on collective environmental management. This has led to issues in environmental management of IZs and unaddressed environmental violations.

Evaluation and monitoring The Department of Natural Resources and Environment at the provincial level has had great difficulties while monitoring compliance to EIA, due to scarcity of staff and the large geographical area they have to cover. EIA monitoring stops after EIA approval.