



3rd Global Networking Conference on
Resource Efficient and Cleaner Production (RECP)
in developing and transition countries

*“Putting decoupling into action:
moving to scale”*

convened on behalf of the

Global Network for Resource Efficient and Cleaner Production (RECPnet)

by the

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and the

United Nations Environment Programme (UNEP)

Conference Report

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Introduction

The Global Network Conference on Resource Efficient and Cleaner Production (RECP) is a biannual global event that is organized under the Joint UNIDO-UNEP Programme on RECP with the dual purpose of discussing and disseminating emerging trends and new applications in RECP and building a vibrant community of practice among member RECP service providers.



The first two editions were held:

In October 2009, at the first edition held in Luzerne, Switzerland the Global Network for Resource Efficient and Cleaner Production (RECPnet) was established.

In October 2001 in Nairobi, Kenya, in conjunction with the second Global Network Conference, participants in the first Member’s Assembly of RECPnet, adopted the Nairobi RECPnet Declaration which points to the critical importance of manufacturing in generating income and employment in developing and transition countries as a lasting solution to alleviate poverty, address emerging water and other natural resource scarcities and improve the quality of life. It stresses the need to improve resource productivity and environmental performance of businesses and other organizations to achieve low carbon, resource efficient and green industrialization.

The Third Global Network Conference –RECP Networking Conference – “Putting decoupling into action: moving to scale” focused on the overall challenges to develop, trial and promote approaches to scale-up and mainstream the application of RECP methods, techniques and policy instruments.

Even though it is acknowledged that the terms ‘up-scaling’ and ‘mainstreaming’ are used interchangeably, scaling up could be understood as a significant reduction of the effort required per company to implement RECP (greater efficiency and effectiveness in RECP assessment and implementation), whereas mainstreaming could be understood as embedding drivers and incentives for RECP implementation (stronger incentives for RECP consideration and its continued implementation).

Some commendable progress made through policy change and fiscal reform and regional, sector and topical RECP initiatives, were presented and reviewed.

Over hundred fifty participants from RECPnet Members, international RECP support-providing institutions as well as representative from the donor community and key partners and stakeholders , coming from more than 60 developing and transition countries as well as from developed economies attended the conference with the objective to exchange and share experience.

The two-days conference was structured over two main thematic; the first day focused on taking stock whereas the second day looked ahead with plenary and parallel sessions on innovative approaches for RECP and the key role of technology development and transfer.



4th September

Opening

The conference was opened by:

Hans-Peter EGLER, Head of Trade Promotion, SECO
Elisa TONDA, Head of Business and Industry Unit, UNEP
Heinz LEUENBERGER, Director of Environmental Management Branch, UNIDO
Ernst VON WEIZSAECKER, Co-Chair of International Resources Panel

From Nairobi to Montreux and Beyond

Since the 2nd Global RECP Networking conference in Nairobi in 2011, a number of key global forums took place, providing the international community with high-level strategic guidance. Rio+20 resulted in renewed political commitment towards sustainable development, including concrete and practical measures for implementing it.

In that context, this session served to place the Conference into a broader context, and to discuss the role of RECPnet and its proponents in various processes, such as 10YFP, Green Industry Platform, regional Roundtables on Sustainable Production and Consumption, and to provide an update on the status of the RECP Programme. It also offered an opportunity to focus the conference participants on the need to scale up activities and impacts to gain relevance in the present favorable global scenario.

Moderation: **René VAN BERKEL**, Chief, Cleaner and Sustainable Production Unit, UNIDO

Elisa TONDA, Head, Business and Industry Unit, UNEP
Heinz LEUENBERGER, Director, Environmental Management Branch, UNIDO
Cesar BARAHONA, RECPnet President
Evelyn SWAIN, Environmental Specialist, Global Environment Facility
Didier BERGERET, Senior Manager, Global Social Compliance Programme

UNEP and UNIDO presented an overview of their initiatives and principle programmes beyond the joint UNEP-UNIDO RECP Programme.

Elisa TONDA described the 10 Year Framework of Programme on Sustainable Consumption and Production (10YFP) adopted at the Rio+20 which should be understood as a global framework of action to enhance international cooperation to accelerate the shift towards SCP in both developed and developing countries.

Heinz LEUENBERGER presented the strategic elements of UNIDO's Green Industry Strategy for the realization of Green Growth (ESCAP, G20, OECD)– Green Economy(UNEP,DESA) – Green Jobs (ILO) in the manufacturing and related sectors. The Green Industry Platform launched at Rio+20 Conference was portrayed as well as the UNIDO Green Industry Initiative which provides a two-pronged approach for industrialization, through the "greening of industries" and through the creation of "green industries".



The recently launched PAGE initiative (Partnership for Action on Green Economy), Initiative was presented as a response to the “Future we want”; the outcome document of RIO+20, which recognizes the green economy as a vehicle for sustainable development poverty eradication. UNIDO and UNEP, along with the International Labour Organization (ILO) and the United Nations Institute for Training and Research (UNITAR) will provide a comprehensive suite of green economy services that will enable countries to transform their national economic structures to meet the growing demands and challenges of the 21st century. More specifically, PAGE will build enabling conditions in participating countries by shifting investment and policies towards the creation of a new generation of assets, such as clean technologies, resource efficient infrastructure, well-functioning ecosystems, green skilled labour and good governance. The four agencies have previously undertaken joint green initiatives. However, this is the first time that all four partners have come together to coordinate their support, expertise and resources at the national level. During the first two years of the partnership, PAGE will focus on seven pilot countries, yet to be named, and scale up this support to a total of 30 countries by 2020.

Didier BERGERET briefed the audience on the UNIDO - GSCP Cooperation and its main objectives were also presented in particular with regard to the development of capacities within clusters of suppliers (SMEs) and local institutions on productivity and social /environmental sustainability in order to prepare suppliers to comply with buyers’ requirements.

The importance of enabling a common understanding of continuous improvement as well as the use of a standardized Capacity Building and monitoring toolkit was highlighted.

Evelyn SWAIN gave an overview of the areas of work of the Global Environment Facility as the largest public funder of projects to improve the global environment and of the GEF-6 planning. She highlighted the new chemicals and waste framework and the fact that new POPs, requiring clean production practices and life cycle management, will also be a focus of GEF-6.

Cesar BARAHONA, in his capacity of President of RECP*net*, provided a briefing on the recent development of the global network and achievements against the three main targets 2011-2013: Consolidation, Service Delivery and Advocacy. The 30% increase in membership base with a solid core membership including over 60% of regular members was highlighted. The recently established web-based knowledge management system as well as the joint UNIDO-GIZ capacity building initiative to improve business model and service delivery of selected RECP*net* members were also mentioned as strong contributions to the network.



Innovations in RECP service delivery: successes from RECPnet

During this plenary session RECPnet Members showcased innovative activities to their peers in RECPnet and other participants. A particular emphasis was given to novel approaches developed in response to national requests which have yielded high impacts and could be considered for replication elsewhere.

Moderation: **Cesar BARAHONA**, RECPnet President

YIN Jie, Chief, China NCPC

Reuben KADALIE, National Cleaner Production Centre of South Africa

Luis Mariano MUNOZ PAREDES, Executive Director, Fundación Centro Guatemalteco de Producción más Limpia

Yolanda SALAZAR, Executive Director, Centro Nacional de Producción más Limpia El Salvador

Vladimir DOBES, Director, EMPRESS

Garrette CLARK, Business and Industry Unit, UNEP

YIN Jie presented an overview of the Cleaner Promotion Law in china which was put into effect on 1st July 2012 and the main results achieved through this initiative.

Reuben KADALIE presented the Graduate Students Placement Programme in South Africa which aims at integrating talented engineering graduates into the mainstream economy that combine academic training with “real world experience” and application through skills and technology transfer with a specific focus on green productivity.

Luis Mariano MUNOZ PAREDES presented the Memberships Project as a source of permanent financing for NCPCs and a means to reach the funds from private sector with the aim of supporting companies. As described, through this initiative, the CGP+L (Centro Guatemalteco de Produccion mas Limpia) has created memberships packages which offers training and measurement services that support clients in legal compliance and environmental management.

Yolanda SALAZAR presented the RECP and entrepreneur development programme as a key tool for financing RECP in El Salvador. She highlighted the importance of developing credit lines for technology suppliers and of, building capacity at the level of the banks as well enterprises in terms of RECP risk analysis, evaluation and monitoring.

Vladimir DOBES gave an overview of RECP needs and opportunity assessments.

Garrette CLARK introduced the themes and issues for discussions in afternoon sector parallel sessions (see below).



Parallel Sector-Based Sessions:

The following questions guided the interventions by panelists:

- What lessons can we learn from past and existing activities that are instrumental to inform future actions?
- How can RECPnet Members best capitalize on successful interventions?
- Where do the most significant opportunities for RECPnet to deliver quality services lie in the near future?
- What are key levers to scale up RECP applications and impacts in the sector?

Agro-Processing / Food Sector

The agri-food sector - which includes food processing, marketing, and retailing - is one of the most vulnerable business sectors from an environmental changes viewpoint.

Keeping in mind that risks to businesses could include changes in availability, quality, and price of agricultural products and that some companies are already using new approaches and developing more climate-resilient sources of supply, this thematic session focused on potential for RECP in the food sector, addressing both consumption and production issues.

Experience were shared from a number of ongoing activities, including processing, agro-food roundtables (South Africa, Ghana and Mozambique), and available tools and methodologies. Concrete examples of low-carbon production, waste minimization and valorization in the sector were presented and discussed.

Moderation: **Jurgis STANISKIS**, Executive (Europe) RECPnet

Martin FRITSCH, Waste Minimization for Low Carbon Development in Coffee & Rice Sectors

Yaniris Lorenzo ACOSTA, RECP and the sugar industry value chain in Cuba

James Wilberforce LUDIGO, Energy and Resource Efficiency in Sugar in Uganda

Lambert FAABELUON, Experience in agro-processing in Ghana

Smail ALHILALI, Sustainable Agribusiness Value Chain Diagnostic

The guiding questions around which the discussion was articulated were:

- What should be done to replicate successful activities?
- How can the RECPnet and members promote scaling up the applications?
- What are the missing pieces for scaling up?

The food sector offers interesting opportunities for RECP. Also, the rationale to promote improvement is strong given the vulnerable nature of the sector vis-à-vis environmental changes. Increased resource efficiency has proved to provide the company engaging in such activities with a competitive edge. It must be noted however



the agro-processing and the food sector in general is very diverse and that adequate measures are context-dependent.

Aside from the process improvements, bio-waste along the value chain offers opportunities for heat and electricity generation. In a number of case, the bio-waste presents an environmental issues, and at the same time, companies face high cost of energy. Valorizing the organic waste through the generation of energy can thus be a very attractive proposition. The valorization of by-product can also be made in the form of material, e.g. fertilizer.

From the concrete interventions presented, it was clear that there is a significant replication potential, yet untapped thus far. Required is additional information dissemination, using pilot projects to illustrate the benefits at the plant level. Also, the development of tools customized to the agro value chain can serve to inform decisions regarding the diagnosis and remediation of environmental sustainability.



Chemicals Management

In this session, Experts exchanged views and experience on sound chemicals management, using examples pertaining to responsible production, at policy level (e.g. SAICM), from innovative approaches (e.g. chemical leasing), as well as from concrete interventions. It also included salient issues such as green chemistry, hazardous waste (including e-waste).

Moderation: **Seina PEIRIS**, Director, National Cleaner Production Centre Sri Lanka

Reinhard JOAS, Bipro GmbH

Lena PERENIUS, Executive Director, International Chemicals Management-Cefic
- European Chemical Industry Council

Leonor ALVARADO, SAICM Coordinator, UNEP

Vojislavak SATRIC, National Coordinator ChL Project, CPC Serbia

Mathias SCHLUEP, EMPA

Reinhard JOAS presented “Innovative approaches to chemicals management and waste” and introduced various examples to demonstrate how Innovative Chemicals Solutions contribute to improved competitiveness and support decoupling resource use and pollution from industrial development

Lena PERENIUS’s presentation entitled “Chemicals management in Europe (Responsible Care, regulatory affairs - REACH)” highlighted the vital role Industry play in decoupling resources from production and that Responsible Care and GPS can help the industry to move towards sustainable operations.

Leonor ALVARADO “Strategic Approach to International Chemicals Management” presented the key concepts of the global policy framework (SAICM) to coordinate, catalyse, and facilitate activities so that by 2020, chemicals are produced and used in ways that minimize adverse effects on human health and the environment.

Vojislavak SATRIC with his presentation “Chemical Leasing moving from products to services”, introduced Chemical Leasing as an innovative and proven business model that reduces chemical consumption and increases business competitiveness.

Mathias SCHLUEP introducing current status of the recycling sector, giving examples of various threats imposed by informal recycling while on the other hand combining strengths of the formal and informal sectors can increase substantially the material recovery rate.

The discussions among panelists were formulated around four guiding questions:

- What lessons can we learn from past and existing activities that are instrumental to inform future actions?
- How can RECPnet Members best capitalize on successful interventions?
- Where do the most significant opportunities for RECPnet to deliver quality services lie in the near future?
- What are key levers to scale up RECP applications and impacts in the sector?



With global increase in chemicals consumption, various problems are emerging and industry has a vital role to play in addressing them. There are increasing demands for responsible and innovative solutions and business models that allow the enterprises to be competitive while decoupling resource consumptions and pollution from the profitable operation. Lessons were learned that it is essential to engage stakeholders from both public and private sectors, including authorities, industry, NGOs, among others for more effective interventions.

To capitalize on successful experiences of the members, participants agreed that such case studies should be shared by making use of the existing knowledge management systems. It was also emphasised that partnership and collaboration should be intensified among members and with service providers as well as with other initiatives such as Responsible Care, Global Product Stewardship, SAICM.

Abundance of experiences available within RECPnet, the members should build on them and seek opportunities to broaden the activities. For example, targeting larger and possibly multinational enterprises would allow the members to broaden the field from local or regional to the global market. In addition, holistic marketing strategy and service portfolio that consider the whole life cycle of chemicals from production to disposal, would allow the members to identify current “gap” in the services, therefore opportunities for further intervention can be identified. It was pointed out that members should work to develop new skills and knowledge of innovative solutions to remain competitive and ideally such opportunities are provided by RECPnet.

To scale up from local or regional to global, “similarities” of the regions should be analyzed to seek opportunities for replication or activities based the experiences and pilot activities. To move up from the sector to nation level, effort to expand existing collaboration with industry to the authority was considered as a plausible means to move up to supporting governments and industrial associations at the policy level. It was concluded that strengthening the RECPnet, allowing sharing of information and experiences as well as collaborative activities, is a key to be successful at larger scale.



Tourism

Tourism has significant potential as a driver for growth of the world economy. The sheer size and reach of the sector makes it critically important from a global resource perspective. Efficiently planned and managed, tourism has the potential to support conservation and be a force for poverty alleviation. The tourism industry faces sustainability-related challenges that cover energy and greenhouse gas (GHG) emissions; water consumption; waste management; loss of biological diversity, effective management of built and cultural heritage; and planning and governance. At the same time there are immense opportunities. These include: improved desirability of some destinations due to environmental changes; increased demand for nature-based tourism, ecotourism, and agro-tourism; and reputational benefits and increased demand for companies/destinations perceived as environmentally responsible. In addition to improving resource efficiency at the enterprise level, there are a multitude of policy as well as technical approaches that can enhance sustainability in this diverse sector. Within this broader context, the session highlighted RECP related initiatives as well as other innovative efforts, and discuss the potential for enhanced NCPC engagement in the sector.

Moderation: **Mariana ASSENOVA**, Coordinator, Unit for Sustainable Enterprises Development Office Social and Environmental Responsibility Center

Hanan HANZAZ, Director, Centre Marocain de Production Propre

Adriana ALZATE, Technical Director, Centro Nacional de la Produccion más Limpia y Tecnologicas Ambientales, Colombia

Leonardo GUIRUTA, Director, Mozambique National Cleaner Production Center

Stephanie OSSENBACH, Project Manager Corporate Responsibility, Kuoni Travel

Garrette CLARK, Business and Industry Unit, UNEP

Mariana ASSANOVA opened session with a reflection on common definitions for sustainable tourism. She emphasized that the main aim is to refocus and adapt tourism development, through proper planning and management of tourism projects to achieve best possible economic, social and environmental outcomes.

Hanan HANZAZ presented case study of sustainable tourism policy for Morocco and contributions thereto by NCPC Morocco. Tourism has enjoyed growth of about 8% annually. The tourism policy addresses beach, cultural and nature tourism. Sustainability initiatives include: Moroccan Charter for Responsible Tourism (voluntary commitment); Responsible Tourism Trophy; Environmental Best Practices for Hotels; Green Key Label; and RENOVOTEL financing scheme for upgrading hotels. NCPC is contributing to promoting sustainable tourism in particular through awareness and information dissemination, technical assistance and benchmarking.

Adriana ALZATA presented case study of climate change compensation and eco-label in tourism in Colombia. Tourism is diverse in Colombia – nature/biodiversity, beach, cultural and business. It contributes ~2.3 % to GDP. The GHG scheme includes GHG inventory, development and implementation of GHG mitigation plan and determination of compensation/off set of remaining emissions.



Moreover a set of eco-labels has been developed for e.g. hotels, travel agencies etc, which each include contributions to community, environmental protection. NCPC assisted ~100 hotels of which 92 achieved eco-label and also several natural parks. In addition a sustainable tourism guide has been developed.

Leonardo GUIRUTA presented results of the project on mainstreaming RECP in hospitality sector in Mozambique. Total of 11 hotels were supported, whereas in addition training and awareness activities were undertaken. Ministry of Environment and Tourism provided awards to three best performing hotels. Poor environmental and energy practices were common, including continuous running of lights, fans, ovens; substandard laundry and kitchen operations. Significant savings can be made with solar hot water instead of electric boilers yet solar hot water systems are still very expensive.

Stephanie OSSENBACHER, CSR project manager of KUONI, presented case study. Kuoni delivers services in leisure travel, destination management and visa services, which global turnover of close to 6 billion. KUONI. Presented some examples, including work on integrating business skills into ecotourism operators (jointly with IUCN) (through textbook, capacity building and new product development) and CP and CSR of hotels in Tunisia (supporting 30 hotels in Tunisia).

Garrette CLARK presented the Global Partnership on Sustainable Tourism, which now has 77 partners. The mission is to transform the way tourism is done worldwide, through six core activities: policy frameworks; stakeholder management; supply chain management; (all three aimed at people and organizations); programmes and portfolios; measuring outcomes and transformative learning. UNEP offers mainstreaming sustainable tourism workshops with NCPCs.

During the discussion session, the Egypt NCPC reported that it had developed a programme to train energy technicians of hotels in partnership with German Egypt Chamber of Commerce and Industry. The training was popular and comprised a six month schedule of class room training and coaching followed by a formal exam. Further issues discussed included incentives (including recognition, supply chain pressure and above all energy costs and water/energy supply interruptions) and costs for service delivery. Moreover conducive policy frameworks are needed. The challenge remains to get policy makers to adopt legislation and policies that foster RECP in tourism sector.



5th September

Eco Innovation for SMEs

Eco-innovation harnesses strong potential to bring about systemic transformation and structural changes in the way resources flow through society. Notably it is an enabling mechanism for achieving resource efficiency and job creation. This session will outline the potential of eco-innovation to support SCP and the critical role of SMEs and the intermediaries with whom they work.

Moderation: **Ali ABOSENA** Deputy Director, Egypt National Cleaner Production Centre

Keynote speaker: **Pavel MISIGA** Head of Unit, European Commission

What is eco-innovation and its contribution to sustainable industrial systems?

Elisa TONDA Head, Business and Industry Unit, UNEP Speakers
What are the business case and drivers for eco-innovation?

Carlos TORO Centro Nacional de la Produccion mas Limpia y Tecnologicas
Ambientales - Colombia
Eco-innovation opportunities for RECPnet

Nguyen LE HANG Vietnam National Cleaner Production Centre
Building on the experience of sustainable product design

Tim MCALOONE Danish Technology University
Eco-innovation in Action

Pavel MISEGA, DG Environment, Eco-Innovation and Circular Economy, started with highlighted key global environmental challenges, including climate, air quality and biodiversity. Trends are unsustainable, and the present challenges need to be turned into innovative solutions. Green economy will be realized by eco-innovation combined with or accelerated by green market transformation. Eco-Innovation "is introduction of any new or significantly improved product (good or service), process, organizational change or marketing salutation that reduces the use of natural resources (including materials, energy, water and land) and decreases the release of harmful substances across the life cycle" (Eco Innovation Observatory, EIO, 2010). Could be incremental or systemic/disruptive, and apply to product, process, commercialization/marketing, organization, behavior etc. EIO compiled 100 case studies that demonstrated average cost savings of 11% of annual turnover mainly as a result of process innovation. An eco-innovation indicator has been developed that is positively correlated to domestic material consumption. EU fosters Eco-Innovation through the 2011 Eco-Innovation Action Plan, that brings together elements from environmental policy, demonstration projects, standards and performance targets, access to finance and support services to SMEs (in particular for start-ups), international cooperation, new skills and European innovation partnerships (for water, raw materials and agriculture). Eco-Innovation is a key enabler for the transition to circular economy, which refers to industrial system that is restorative by design.



Elisa TONDA, UNEP, talked about Eco-Innovation for SMEs. In UNEP's interpretation "*Eco-Innovation is the development and application of a new business strategy that entails a combination of a significantly improved or new product (good or service), production process, organization and business model that will lead to improved sustainability performance*". Key elements are company strategy, holistic life cycle approach and enhanced sustainability performance. There is a need for enabling environment, in terms of national and regional policy framework, willingness and readiness of company in context of its market and supply chains, R&D/national innovation system. Ms Tonda also introduced UNEP's eco-innovation project for developing and transition countries which focuses on SMEs in agri-food processing, chemicals production and management and metal processing, and development of SCP strategies at national level. The project has triple scope in terms of policy mainstreaming and planning; making the business case; and strengthening RECP services delivery.

Carlos TORO, National Cleaner Production Centre of Colombia, reported on perceived drivers for eco-innovation in developing countries, including strengthening of environmental legislation and its enforcement, international pressure from international buyers (cited example of assistance provided to Colombian coffee roaster for carbon footprint as requested by Walmart), and government public procurement. He elaborated on needs of NCPCs which in particular includes eco-design methodologies, market intelligence, business models and international markets access, green marketing, value chain sustainability. Eco-innovation could be seen as an umbrella strategy that could further strengthen services portfolio of NCPCs.

Nguyen LE HANG, Viet Nam Cleaner Production Centre, reported on experience from sustainable product design (D4S) in Viet Nam. During 2007-2009, VNCPC implemented the Cleaner Production for Better Products project under which eight pilot projects were done in handicrafts, food and packaging sector. It was found that D4S is a valid concept and that can bring value to the product and the companies, yet integrating sustainability in management and operation of companies remains a challenge. Thereafter, from 2010 onward, VNCPC is implementing the Sustainable Product Innovation (SPIN) project, which is aimed at assisting 500 SMEs in Viet Nam, Lao and Cambodia in furniture, handicraft, food processing, textile and footwear. She presented examples with new product designs, horizontal cluster development, new technology development with community development with system innovation (gasifier on waste agricultural biomass). She concluded that there is huge potential for sustainable product development that needs to be supported by supplier, market and business development.

Jamie O'HARE, of Technical University of Denmark, presented example of eco-innovation at Natura. The cosmetics company from Brazil, is working on well being (social responsibility) and being well (environmental responsibility). The company invests heavily in innovation and has a constant stream of new products. The present strategy is result of a 30 year journey. He presented example of SOU bath and shower gel products for large volume market, based on fewer ingredients, smart and low waste packaging and better production process, resulting in 3 fold reduction of waste from the product.



Parallel Thematic Sessions:

Petra SCHWAGER introduced the themes and issues for discussions in parallel thematic sessions.

Regional Approaches

Significant success has been achieved in implementing RECP at the level of individual enterprises. Yet, reaching a significant number of companies will require different approaches. Efforts to upscale impacts include cluster approaches. For instance, remarkable environmental, resource conservation and competitiveness gains have been reported from some eco-industrial parks. In addition, networks of like-minded institutions facilitate effective information exchange and peer-learning and approaches targeting industrial zones or other regional areas have shown promise.

Moderation: **Tran Van NHAN**, RECPnet Executive (Asia), RECPnet

Jane NYANKANGO, Director, Kenya National Cleaner Production Centre
Lake Victoria project

Daniel AYES, National Cleaner Production Centre - Honduras
ISWM at a regional level: working in 3 municipalities

Punamchandra RATHOD, Gujarat Cleaner Production Centre
Cluster based RECP promotion and implementation

GENG Yong, CAS
Eco-Industrial Parks in China – policy initiatives and achievements

Suren ERKMAN, University of Lausanne
Global review of planning, development and management of Eco-Industrial Parks

In this session members exchanged their efforts in up scaling the implementation of RECP practices. The presenters shared their experiences and challenges with the participants:

Jane NYANKANGO (Director, Kenya National Cleaner Production Centre) “Lake Victoria project” introduced various successful cases. Examples include UNEP’s Pre-SME (Promoting resource Efficiency in Small and Medium Enterprises) toolkit and UNIDO’s Enterprise Level indicator toolkit which were first piloted in Ethiopia and subsequently to including Kenya, Uganda and Tanzania. It is a region-wide effort of capacity building exercise. The toolkits were taken up by individual companies for their monthly performance assessments and centers use them for RECP audits. It was particularly successful in standardizing the reporting methods and shortened the project delivery time.



Daniel AYES (National Cleaner Production Centre - Honduras) "*ISWM at a regional level: working in 3 municipalities, Integrated SW Management (ISWM)*", explained the major challenges solid waste poses as the quantity of solid waste is expected to double by 2025.

A training manual by UNEP-IETC (International Environmental Technology Centre) was introduced: it is a comprehensive training manual consists of four components: (i) waste characterization and quantification, (ii) assessment current waste management system and the gap, (iii) targets and issues of concerns, and (iv) developing an integrated solid waste management plan.

In addition, their experiences in ISWM development project for multiple municipalities were shared, highlighting the challenge with the local authorities. It was noted that the key to successful replication lie in engaging a wide range of stakeholder and to conduct thorough consultations.

Punamchandra RATHOD (Gujarat Cleaner Production Centre) "*Cluster based RECP promotion and implementation*", explaining that the pollution is a major concern in Gujarat where there are 83 production clusters, 202 industrial estates and 55 Special Economic. In their effort to upscaling RECP applications, implemented by areas or clusters in collaboration with the relevant industrial associations. Various publications were made for awareness raising and capacity building purposes in textile, paper recycling, dairy and chemical sectors. Newsletters and CP guidelines are published along with a text-book stile publication, "CP and its application to industries".

GENG Yong (CAS) "*Eco-Industrial Parks in China – policy initiatives and achievements*", the number of Industrial parks in China reached 6,900 at end of 2010, out of which 171 are owned by state council, 1,100 by provincial government, 5,600 by municipal, county, township government and departments. It was noted that the country faces challenges of significant resource consumption by those industrial parks and the low resource efficiency as well as the lack of regional balance. To achieve "Circular economy" (Sustainable economy), Eco Industrial Parks are considered by various government agencies (Ministry of Environmental Protection, Ministry of Commerce, Ministry of Science and Technology) but various challenges are foreseen as there is no unified national strategy. As a consequence, the definition of EIP is vaguely understood and often simply linked to "low carbon" i.e. energy efficiency. Although a guideline exists in which indicators are set, they are perceived as being vague and intricate and require revision.

Suren ERKMAN (University of Lausanne) "*Global review of planning, development and management of Eco-Industrial Parks*", provided insightful review on planning of Eco Industrial Parks, providing definition of Eco Industrial Parks, and highlighting the lack of coherence in indicators, absence of "norm" or national policies. Key points in the life cycle of EIP are in the planning and design, early stage of development, continuous improvement and corrective measures, re-assessing the features for re-qualification and relocation as necessary. It was also pointed out that there are a large amount of publications, reviews and studies available on the topic and it is important to selectively make best use of the information available. Participants joined to discuss how to select existing industrial parks for transformation into an EIP in which it was highlighted that the industrial parks were not designed in a manner that takes environmental issues into consideration. Needs for government support and sharing of costs of maintenance and services within the estate were also discussed.



Enterprise Support and Assessment Approaches

Innovative methods and tools are required to aim for greater and lasting RECP benefits in enterprises at affordable costs to them. Some tools are readily available to scale up RECP efforts and have been demonstrated in different settings, such as the Resource Kit on Promoting Resource Efficiency in SMEs (PRE-SME) or Eco-Profit Programmes. Other are promising and require further application (such as sectoral benchmarking or material/energy flow accounting). Yet insight in strengths and potential of different methods and their strategic deployment is still largely missing.

Moderation: **Hanan EL-HADARY** Regional Executive (Arab Region), RECPnet

Rene VAN BERKEL Chief, Cleaner and Sustainable Production Unit, UNIDO
Methods for scaling up

Branko DUNJIC, Director, Cleaner Production Centre of Serbia
EcoProfit Approach and Results in Serbia

Cesar BARAHONA, Director, Cleaner Production Centre Nicaragua
EcoProfit Approach and Results in Nicaragua

Frank O'CONNOR, Director, Ecodesign Centre
Thoughts on mainstreaming and scaling up of ecodesign practice

Marcos ALEGRE CHANG, Director, Centro de Eco-Eficiencia y Responsabilidad Social, Peru
Water and carbon footprinting

Kiran Ananth PAGADRAI VENKATESH, Sohrabji Godrej Green Business Centre
Green Rating of Enterprises: experiences from India

In this session experts exchanged views and experiences on methods and tools used to assist scaling up RECP efforts. Successful applications of existing tools were shared as well as prospects of further applications and innovative methods through which insights in strength and potential of various methods and their applications were shared. The discussions among panelists were formulated around three guiding questions:

- What should be done to replicate successful activities?
- How can the RECPnet and members promote scaling up the applications?
- What are the missing pieces for scaling up?

The participants were actively engaged in discussions on the potential partnerships and collaboration, and means to engage various players. It was pointed out that understanding what motivated the entities to be involved in existing tools and methods of scaling up can lead to success of scaling up.

Importance of multi-stakeholder partnerships between public and private institutions, and with financial sectors was emphasized, exploring the potentials for RECPnet members to assist SMEs in accessing funds. Various views were exchanged, examples being proposing new financial package/ product to financial institutions that introduce innovative means to financing RECP projects for SMEs.

It was concluded that there is no one-solution fits all and the solutions must be customized for each context and that means to motivate the stakeholders engagement in the respective programmes must take into consideration the local customs and conditions. The participant suggested the topic to be added to the work-plan for RECPnet to continue the discussion and to enable the members to build on the exiting framework, knowledge, insights, tools and experiences to be shared.



Leveraging demand: greening public and private supply chains

Small and Medium sized Enterprises can be remote from environmental and social concerns of the final consumers of their products, whereas institutional public and private buyers (mostly government and retail sectors) are keen to minimize risks of their products being perceived as environmentally unfriendly. Hence, leveraging a demand for more sustainable goods and services is critical in enhancing market linkages and the need to show better environmental performance could provide strong incentives for SMEs to consider and implement RECP. This session will look at current efforts underway in the public and private arenas and explore further the potential of RECPnet members to engage further.

Moderation: **Elisa TONDA**, Head, Business and Industry Unit, UNEP

Eveline VENANZONI, Federal Office for the Environment, Switzerland
Sustainable public procurement as a way to leverage more demand for sustainable goods and services: a focus on Switzerland

Adriana ALZATE, Centro Nacional de la Produccion mans Limpis y Tecnologias Ambientales, Colombia
Sustainable Public Procurement in Colombia: an example

Clemens LANG, Chairman National Mirror Committee of ISO/PC 277 Sustainable Purchasing
New directions in standards for leveraging demand

Didier BERGERET, Global Social Compliance Programme
Towards a unified approach to environmental and social standards in sourcing

Sena PEIRIS, Director, NCPC Sri Lanka; and President, Asia Pacific Roundtable on Sustainable Consumption and Production
Sustainable supply chains

The guiding questions around which the discussion was articulated were:

- Considering success stories, what can and should be done to replicate those widely?
- How, concretely, can RECPnet and its members actively promote the scaling up of impacts?
- What additional needs exist to scale up RECP in terms of knowledge, methodologies, resources and policy and related instruments?

The participants discussed ways of leveraging demand for sustainable goods and services through public procurement. It was noted that public spending commonly represents a significant share of GDP. 'Leading by example' also represents an important factor for governments to engage in sustainable public procurement.

In terms of replication, the Sustainable Public Procurement Initiative encourages the cooperation between stakeholders with the view to promote the implementation of good-practices. There are excellent models in most world regions, and sustainable procurement practices are gradually making their way into national policy in a number of countries.

Standards also represent a key tool to mainstream Sustainable purchasing. They assist in this case in integrating the economic constraints and the principles and issues of social responsibility. In a similar vein, eco-labeling fosters a greening of small scale manufacturers.



RECP and Technology Transfer

Further progress towards resource efficiency is contingent on transferring and adapting techniques and technologies that are appropriate and affordable to target enterprises and other organizations. Likewise, further action on implementation of international agreements is also contingent on scaling up technology transfer, for which amongst others the Climate Technology Centre and Network is being set up. The session will provide an update on CTCN and present case studies of exemplary approaches to guide and direct technology transfer and deployment.

Moderation: **Jürg GRÜTTER**, CEO, grütter consulting; Member, Advisory Board, CTCN

Patrick NUSSBAUMER, Cleaner and Sustainable Production Unit, UNIDO
Climate Technology Centre & Network

Garrette CLARK, Business and Industry Unit, UNEP
Platforms to encourage energy-related technology transfer

Permod GUPTA, Chief Technical Advisor, NCPC, Cambodia
Waste Agricultural Biomass and Small Scale Biomass Gasification in Cambodia

Thi Nga NGO, Deputy Director, Vietnam National Cleaner Production Centre
Green Handicrafts from Viet Nam: case study on technology adaptation

Kiran Ananth PAGADRAI VENKATESH, Sohrabji Godrej Green Business Centre
Indian Cement Industry: case study on technology road mapping

Rene VAN BERKEL, Chief, Cleaner and Sustainable Production Unit, UNIDO
Green Chemistry & Engineering: case study of innovation platforms

Patrick NUSSBAUMER presented the Climate Technology Centre and Network (CTCN) origins since COP15 in Copenhagen until COP18 in Doha with the formal selection of UNEP-led consortium as the host of CTCN. He introduced the CTCN mission statement as "To stimulate technology cooperation and enhance the development and transfer of technologies to developing country parties at their request." He provided detailed information about the CTCN functions, the consortium members and expertise, the institutional set-up of CTCN, the role of national designated entities and the roles of the network. He provided an overview on the CTCN structure and the delivery approach to beneficiary countries.

Garrette CLARK provided information on existing platforms to encourage energy related technology transfer such as the UNEP-GEF Enlighten Initiative and REN 21. The Enlighten Initiative was established to accelerate a global market transformation to environmentally sustainable lighting. It provides the expert guidance, technical support and tools to assist countries. This initiative led to the genesis of global public-private partnerships with the involvement of Philips, Osram and National Lighting Test Centre in China. The methodology is based on an integrated policy approach. Specific tools were developed to assist countries to prepare country lighting assessments and training on environmentally sound practices. The example of El Salvador was highlighted with involvement of El Salvador NCPC to develop the regional status report for Mesoamerican region and the regional efficient lighting strategy. REN 21 is a multi-stakeholder policy network grouping to promote renewable energies.



It offers data on status of renewable energy (technologies, Policies, Market industry and trends and investment flows). NCPC's are invited to contribute to REN 21 by providing in-country data on renewables and case studies either at the national, regional or global levels.

Permod GUPTA delivered a presentation on projects promoting technology transfer in Cambodia through the implementation of industrial energy efficiency (IEE) projects as well as the agro-residue based cogeneration in Cambodia. The projects focused on promoting south-south cooperation on low carbon technologies replacing fossil fuel with biomass. The first project on IEE achieved an investment amounting to USD 6,270,760 with a payback period of 15 months and GHG reduction of more than 30,000 tons per year. The second project on agricultural biomass for sustainable energy solutions focused on the conversion of biomass to energy via the fluidized bed combustion technology with atmospheric circulation. The project has so far identified the technology suppliers and carried out the technical and financial feasibility studies. In both cases, the technology transfer is encountering various challenges in the country due to the significant fluctuation in energy demand, the non-availability of national grid for synchronization and the absence of the policy mechanism for promotion of renewable energy vs feed-in tariff.

Kiran Annath PAGADRAI VENKATESH provided insightful review on the performance of cement industry in India and the development of the low carbon technology roadmap for the Indian cement industry to achieve climate change country objectives. The objective of the roadmap is to reduce carbon emissions from 0.712 tCO₂/t of Cement in 2010 to 0.35 tCO₂/t of Cement in 2050. The Green Business Centre (GBC) in India prepared technical papers to support the roadmap through identification of key levers, technologies, necessary policy and financial support. The technology papers focused on energy efficiency options, alternate fuel utilization, waste heat recovery, clinker factor improvement and newer developments on R&D. The key findings of GBC investigations are that cement industry has achieved CO₂ emission levels from 1120 Kg in 1996 to 719 kg in 2010. Moreover, technologies, policy framework and investment needs outlined in the roadmap do require additional investment ranging between USD 29 and USD 50 billion.

Rene VAN BERKEL provided a presentation on green chemistry and engineering as a platform for innovation in chemical products and processes. He first presented the developments in chemicals management starting from the international policy frameworks (SAICM, REACH, etc.) to the innovation strategies such as bio-mimicry. He introduced the drivers of the development of green chemistry and green engineering by parallel sets of 12 normative sustainability principles, which could be interpreted as high level design heuristics. He illustrated the industrial success story of innovative solutions such as: Atom Efficiency (which increased from 40 to 77% with subsequent reduction of reaction level process waste from 148 to 29%), Novel solvents and supercritical CO₂, Catalysis with applications on nanotechnology, microwaves, Hydrogen Peroxide to Propylene Oxide applications, Process intensification, Eco-efficient plant design and bio-mimicry. He concluded on the proven sustainable industrial development and innovation strategy of Green chemistry and engineering. He listed some areas of interest to RECP net members to be involved in such as bio-plastics, bio-ethanol, and supercritical extraction with CO₂ and enzyme technology which provide application opportunities in the industrial sectors.



Closing Panel: Future opportunities for RECP Programme

This session reflected on the technical programme and considered anticipated opportunities and challenges for promotion and implementation of RECP in developing and emerging countries. Panellists presented their perspectives on expected future thematic trends and potential funding opportunities. That session did result in broad strategic guidance for further development, management and implementation of the RECP Programme in cooperation with broad range of stakeholders

Moderation: **Cesar BARAHONA** RECPnet President

Anthony CHIU, Member, Technical Expert Group, Global Green Industry Platform

Branko DUNJIC, Director, Cleaner Production Centre of Serbia

Viera FECKOVA, ECA REF Program Manager, International Finance Corporation

Puji LESTARI, Professor, Institute for Technology, Bandung (Indonesia)

Heinz LEUENBERGER, Director, Environmental Management Branch, UNIDO

Elisa TONDA, Head, Business and Industry Unit, UNEP

Anthony CHIU, technical expert for Green Industry Platform, emphasized that within the region, East Asia and Oceania have made more progress than other parts of Asia. However there is a scarcity of data for benchmarking. Key ingredients are to promote life cycle thinking, preservation and capitalization on cultural heritage and value chain development. There is not much action in regard to focusing on final consumption. Poverty eradication could be better incorporated into RECP initiatives. From a business perspective, differentiated approaches for SMEs and large business are needed for mainstreaming and scaling up of RECP concepts and applications. There is potential to increase synergies with existing networks, including academic, industry and government. At the suggestion of the expert group, the Green Industry Platform will focus on awareness raising and outreach, pilot projects and research, with focus on food and textile sectors.

Branko DUNJIC, Cleaner Production Centre of Serbia, refers to approximation to EU is the key driver for the region and this provides an opportunity for RECPnet to assist government and enterprises in preparing for compliance with EU environmental policies and standards. However economic crisis is posing challenges. Energy Efficiency remains the key selling point. In the region, cooperation is being facilitated by regional project with focus on sustainable tourism, low carbon industry and sound chemicals management. He furthermore noted that companies remain reluctant to invest, even if financing is available, unless there are clear advantages in terms of saving water and energy.

Viera FECKOVA, spoke on personal title, drawing from her experiences in International Finance Corporate and Slovak Cleaner Production Centre. She reflected on the expansion of the NCPC network and the increased sophistication of methods and tools. Moreover, the economic drivers are stronger, in terms of resource costs, onset of emergence of climate change evidence, etc. RECP is even more relevant and urgent, and framework conditions have significantly improved, yet the scale of RECP uptake is not yet following suit at a similar pace. In reflection, individually and collectively, professional quality should be first class right across the board.



Greater appreciation for what is a public good and a private benefit is needed and the costing models should be differentiated accordingly. With 20 years experience, there is a gap in terms of measurement of the impacts. What have some 50 centres over 20 year period achieved? Greater emphasis is also needed to reinforce and justify the title of national centre, as this requires centres to be the very best in the country.

Puji LESTARI, Institute of Technology, Bandung, reflected on starting the RECP journey in Indonesia. The stable industrial growth has caused situation where there are many polluting enterprises. RECP however faces still significant challenges, in terms of lacking policy framework, misperception on costly nature of RECP, and difficulties in accessing technology, human resources and financing for implementation of RECP in Indonesia. As a positive development, she referred to the environmental performance rating system introduced by Government with five color scheme (referred to as PROPER). This would create further opportunities for RECP promotion. So far highest performance levels are only achieved by multinational corporations. There is work in progress on development of standards for industrial estates and for low carbon growth roadmap. In order to move forward, it is necessary to develop programmes in local language and foster linkages with technology transfer and green financing initiatives.

Elisa TONDA, UNEP, reflected on presentations during the conference. Firstly, there is no longer any doubt that Resource Efficiency and Green Economy are the way forward, and RECPnet members individually and collectively should facilitate its implementation at the national level. Secondly, being able to influence policy and national agenda is contingent on having first class expertise. There are opportunities for greater use of RECP associated tools and methods, including life cycle assessment, eco-design, public procurement, waste management etc. She invited participants to actively call on UNEP for support in those areas where needed from national perspectives, including where we could move beyond the low hanging fruit to more innovative and high impact solutions. Thirdly, she echoed the need to document impacts of the centres. She invited RECPnet to compile convincing evidence of implementation. She encouraged participants to work both with leaders and laggards in the sustainability transition.

Heinz LEUENBERGER, UNIDO, posed the question where the RECPnet would want to be in 5-10 years. Being at the top within the country is assumed in being member of the RECPnet. Yet what does that mean, in terms of expertise, human resources, knowledge management, and project and financial management. Key starting points are securing access to project incomes, having legal legitimacy, and investing in relationships with government, industry associations, financing schemes (including GEF as well as IFIs and commercial banks). Invest in relationship management, and get out of single donor dependency. He expressed appreciation for the new ideas presented by RECPnet members, including from Guatemala and South Africa. Innovation can also come from centres, not only at the programme level. Better and more active centres are also conditional for raising the relevance of the network. He encouraged participants to foster expansion of the network, including from non target countries in OECD (Japan, EU, Japan, Korea etc.). He applauded the integrated approach embedded in RECP – RECP is about all aspects, materials, water, energy, waste and all emissions.