



Summary Report: Joint UNIDO-UN Environment Programme on Resource Efficient and Cleaner Production (RECP) in Developing and Transition Countries- Final Workshop

2 October 2018 - Bangkok, Thailand

Opening remarks

UNIDO opened the meeting by welcoming all participants and outlining the expected outcomes of the workshop. They acknowledged the critical role that the National Cleaner Production Centres (NCPs) had played in bringing RECP to their countries and expressed their confidence in the NCPs' ability to play a key role in the implementation of the Global Eco-Industrial Parks Programme (Global EIP Programme), which shall bring to scale the RECP Programme's most successful methods. Similarly, they noted that this was also a significant time for the RECPnet, which shall be taking on its new form of a self-sustaining independent entity from 2019 onwards.

UNIDO highlighted the success of the RECP Programme, emphasizing the role that the Network had played as the primary institutional basis through which green industry had been implemented. UNIDO concluded its opening remarks by thanking the Swiss Government for their support, without which they felt that inroads could not have been made into helping industries around the world to become more resource efficient and cleaner.

SECO in turn expressed its gratitude to UNIDO for organizing the workshop, remarking that UNIDO had long been a trusted partner of theirs. They presented their views on the importance of the Programme to the Sustainable Development Goals, highlighting that many of the SDGs-in particular 8 and 9-were closely linked to the Programme's mandate. This significance, they noted, would only increase over time, as would the importance RECP. Although the RECP Programme was ending, SECO signalled their continuing support of RECP and UNIDO, through the Global Eco-Industrial Parks Programme, which in turn, would help to create the conditions for more sustainable businesses, with better managed jobs and the attendant social benefits.

Findings of the Independent Terminal Evaluation

Following the opening speeches, the RECPnet Secretariat Coordinator provided an overview of the main finding of the Independent Terminal Evaluation. Amongst the many successes of the Programme identified - it was acknowledged that a number of challenges had beset the Programme, chief amongst them, the lack of a coherently managed and continuously assessed Theory of Change. From the data that was gathered throughout the Programme, a very strong picture however emerged of the vast potential benefits RECP implementation can have for industries in developing and transition economies. The enabling and accelerating factors for this positive change were isolated and will be scaled up through the forthcoming Global Programme on EIPs.

Achievements of the Joint RECP Programme

UNIDO delivered a presentation on the evolution of the Programme and its main achievements. The SECO-funded RECP Programme, they noted, had been of particular value in UNIDO's hands, generating half a billion dollars' worth of spin-off or otherwise related RECP-themed projects over the Programme's duration. UNIDO next outlined the Global Programme on EIPs detailed the countries that were being considered in which to pilot the programme.

In terms of the future RECPnet, UNIDO cautioned that there would be no more exclusivity in regards to obtaining contracts, that instead members would be subject to an open bidding process. For RECPnet members

this would mean that they would have to increase their funds-mobilization capacities and become more strategic when approaching bidding processes, for instance by applying in consortia. Despite this, UNIDO expressed their confidence in the RECPnet member's ability to win contracts, as they had already built up a strong global position through their in-depth knowledge of RECP tools and methods, as well a contact network with donors. This exposure and experience resonates with international organizations; however, UNIDO stressed that the RECPnet would need to improve how it works as a network – providing more value collectively than individually - in order to really benefit from this advantage.

Roundtable discussion

Participants were then invited to share their views and perspectives on the results of the global RECP Programme. Participants exchanged experiences and reflected on the critical role that the Programme had played in bringing the benefits of RECP closer to industries and communities in their respective countries. They also highlighted a number of the wide-reaching impacts of the Programme, which had helped to assist hundreds of enterprises directly and thousands indirectly in making their operations economically, environmentally and socially sustainable.

The Regional Executive for the Arab Region stressed the importance of South-South cooperation, which he noted, was also a prominent recommendation made in the Terminal Evaluation of the RECP Programme. UNIDO agreed with this, remarking that anecdotal evidence had shown that the reaction time through South-South cooperation had been faster and more cost-effective than with North-South. The application of pyrolysis technology in the coffee sector was drawn on as an example to demonstrate this point. This also highlights that exchanges between NCPCs must not always be a purely commercial transaction, but rather a more long-sighted strategic exchange within the network, aiming to establish longer-term commercial engagements with government and industry.

The Regional Executive for the African Region concurred with the portrayal of South-South cooperation, remarking that these kinds of activities encourage members to lead national or even international projects. He expressed his belief that this had the effect of strengthening a lot of NCPCs, making them more sustainable and more likely to be competitive in the long term. He remarked that it had also led to more like-minded exchanges making it easier to transfer knowledge and learn from each other. In contrast, he expressed the view that involving northern partners sometimes made the process more complex. The representative from the Vietnamese Ministry of Planning and Investment remarked that this latter point was less of a concern for them, rather that it depended on the enterprise. What is a fundamental requirement for them was compliance with regulations.

This set the stage for UNIDO to discuss the need for RECP activities to achieve a greater impact on policy. UNIDO noted that policy is a crucial component in order to upscale and integrate at the national and the global levels, and ultimately, the objective is to develop bankable projects and attract investment. They stressed that whilst these were not the only objectives, they needed to be placed in the context of encouraging policymakers and financial institutions to support this work.

Country-Level Impact of the Joint RECP Programme

This session was dedicated to RECPnet members from SECO priority countries working directly on the implementation of the RECP Programme that provided – through case studies or aggregate data – a summary of the impact of the Programme and its related interventions in each country since 2012.

National Cleaner Production Office, Cambodia

The representative from the National Cleaner Production Office, Cambodia outlined the project work that his centre had undertaken, which has a particular focus on influencing Cambodian policy. He detailed the challenges that his centre had faced. Turning to the impact of the Programme, he felt that the RECP Programme had been useful in extending opportunities to additional sub-sectors, principally in the agro-industrial sectors, also giving his centre the opportunity to undertake training on RECP, leading them to a position where they are now less dependent on international experts.

In conclusion, the Cambodian representative noted that his country would continue to work on RECP through UNIDO's Programme for Country Partnerships.

Centro Nacional de Producción más Limpia y Tecnogías Ambientales Colombia

Colombia presented their main achievements from 2012-2018, which included 10 projects funded by UNIDO, 75 companies supported and 16 case studies applications made for the Chemical Leasing award with two going on to obtain awards. The Colombian representative then went on to provide a detailed overview of their EIP work through the Parque Industrial Malambo PIMSA (Barranquilla) and the Ciudadela Industrial Sabaneta (Medellin), amongst others.

Fundación Centro de Gestión Tecnológica e Informática Industrial-CEGESTI

The representative of Fundación Centro de Gestión Tecnológica e Informática Industrial – CEGESTI, Costa Rica, outlined the various areas that his organization works on, from Eco-Industrial Parks the improvement of solid waste management strategies and policies in Costa Rica; and sustainable public procurement, amongst others. CEGESTI stressed that the network had opened up information and networking channels for them in the RECP domain, which had not been particularly easy to access for his centre to access in the past.

Egypt National Cleaner Production Centre

The Egyptian representative explained the evolution of his centre, from its beginnings as a service provider to the Egyptian Industry in 2005, with a vision of being a Centre of Excellence of green industry and RECP to now. With the support of their various donors, the Centre had focused on providing technical assistance to Egyptian industry; industrial chemicals management; industrial waste management, recycling and zero waste; the provision of financial assistance; on the job training; and undertaking joint and international projects.

The representative then outlined some of the ENPC's projects, from low carbon and climate resilient industrial development, to participation in the MEDTEST Programme and local manufacturing of local solar hot water heaters. In addition, the ENPC had led the preparation of more than 20 RECP policies and strategies and, with the support of UNIDO, had supported the establishment of the a Cleaner Production Centre in Sudan, through the provision of technical training, amongst others. Its success in many areas had led to the Egyptian Centre being recognized as a Centre of Excellence.

Looking into the future, the centre will focus on technical trade and capacity building. They will also focus on EIPs and plan for their provision of RECP services to be used as a tool for a number of foundational services.

Fundación Centro Nacional de Producción más Limpia

The representative of the Fundación Centro Nacional de Producción más Limpia, El Salvador, provided a timeline of the evolution of its focus areas, from the early years of establishment, where the priority was cleaner production, which then progressed into EMS, the provision of green loans in 2005, with activities shifting then shifting to focus on energy efficiency and different forms of renewable energy. 2014 witnessed a change again in priority, with emphasis placed on innovative chemical solutions. Recent activities have focused on water footprinting, entrepreneurship development and the Chemical Leasing Awards. Going into the future, the Centre signalled its intention to focus on policy development and address electronic waste.

Fundación Centro Guatemalteco de Producción más Limpia's (CGP+L)

The Fundación Centro Guatemalteco de Producción más Limpia's (CGP+L) will be launching a new Environmental Performance Programme and from this they will be creating new software for companies to use. The centre's strategic goal for 2018 is to create a performance/benchmarking tool or ranking. Following that they intend on creating an Environmental Performance label for energy and water, which they intend to include in their Environmental Performance Programme.

The new tool will be available through an app and aims to reduce the time that consultants spend in companies measuring efficiencies, with an estimated saving of 40-60% of the time spent on measurement. The centre plans

to verify and then launch the new label/certification *Oficina Verde* in 2019. The Guatemalan office is also working with the UN offices in Guatemala in order for the UN offices to obtain the label.

Gujarat Cleaner Production Centre

The representative for the Gujarat Cleaner Production Centre, India, provided an overview of a diverse range of projects and programmes that his centre is undertaking in the RECP domain. He opened his presentation with an outline of the economic and resource savings made or anticipated to be made in various industrial sites and sectors due to his centre's work. The Centre is also promoting the inclusion of RECP in academia through the inclusion of cleaner production in the course curriculum of colleges in Gujarat. It has also compiled a text book on cleaner production and a certificate course on cleaner production under the "Green Skill Development Programme, ENVIS" with the Government of India. The Centre has also been sponsoring a cleaner production award since 2004.

The Cleaner Production Unit of the Royal Scientific Society, Jordan

The Cleaner Production Unit of the Royal Scientific Society, Jordan works with partners to strengthen national capacity in the ESCWA region on developing green production centres. They have also partnered to implement "Environmental Performance in the Industrial Sector; Green Lending Programme; and is partnering with SMEs to address Sound Management of Harmful substances and Hazardous Waste.

The CPU had been involved in the Transfer of Environmentally Sound Technology (TEST), SwitchMed Programme, and quantified the impacts of this work. They also informed the workshop participants that they will also participate in a GEF Project, which aims to encourage 40 countries to develop and implement legislation to restrict the use of lead in paint, which is expected to start in early January 2019.

The Centre outlined a number of instances in which it had been involved in South-South cooperation with a number of other RECPnet members, such as with the Egyptian NCPC on innovative approaches for the Sound Management of Chemicals and Chemical Waste, and on green chemistry.

During the workshop, Jordan also expressed their interest in implementing green chemistry principles, as the chemical industry had expanded in the last year, thus the centre thus views it as a promising industry for green chemistry in Jordan.

The representative from Jordan then outlined the benefits of having been part of the Programme and the RECPnet. They thought that having the brand and the reputation of UNIDO and UN Environment attached to their name had helped with their reputation, helping to build confidence and credibility in the level of their expertise and technical skills. As a result, many UN, other organizations and local entities had approached them to conduct RECP related studies and activities. In turn, they believed that this had resulted in increasing awareness of the concept and methodologies of RECP and its benefits. They were also able to produce good case studies, which further helped them to cement their reputation. He also believed that the RECP Programme had helped his organization to generate real, on the ground economic savings and positive environmental impacts from the implemented RECP projects.

Jordan concluded its presentation, noting their belief that the Programme had been a good opportunity for the CPU to cooperate with other Cleaner Production centres to implement projects, attend workshops, facilitate networking opportunities for experts and centres and transferring of know-how and experiences.

National Cleaner Production Centre, South Africa

The representative for the National Cleaner Production Centre South Africa, provided an overview of his centre's strategic objectives, which he noted, were divided into main thematic areas addressing water; materials and waste; and energy. In turn, he noted that each of these areas were being driven through a flagship project or programme and are in turn, broken down into focus areas: assessments and implementation; skills development; RECP tools and advocacy.

He noted that measurement and reporting via case studies had been a particular focus for the Centre. Additionally, the Centre had placed an emphasis on developing the skills of the next generation, with a deliberate focus on developing the RECP skills of African and developing countries in their training. In this regard, the centre has closely aligned with PhD and Master studies in order to develop capacity in the country and the region.

For the last two years there has also been a focus on developing Eco-Industrial Parks, with the largest having 5000 companies. South Africa has the objective of converting 5000 industrial parks to Eco-Industrial parks.

Centro de Ecoeficiencia y Responsabilidad Social (CER) / Grupo GEA

The representative from Centro de Ecoeficiencia y Responsabilidad Social (CER) / Grupo GEA, Peru, opened her presentation by outlining her centre's three main focus areas, which address sustainable companies; cities; tourism and communities. Under these three pillars, the centre focuses on carbon management; eco-innovation; and social responsibility. All of which are underscored by research, financial assistance support and public policies.

The representative then provided an outline of the evolution of the centre's work, culminating in their recent work on chemical leasing in 2017. Workshop participants were then given an overview of the work that the centre had undertaken to support the development of a sustainable industrial zone in Callao, detailing the investments made and the networks established to support its development. The representative then detailed the centre's innovative chemical solution projects and highlighted the success of its Chemical Leasing activities, where they were able to identify 25 Green Chemistry case studies, including 12 new products, 7 product improvements and 6 re-valorization of waste projects. The presentation was concluded with an overview of the centre's country-wide impacts, which had focused on 8 regions, broken down into sectoral impacts, with over 193 industries assisted.

Viet Nam Cleaner Production Centre

The representative of the Viet Nam Cleaner Production Centre outlined how the centre had evolved from focusing on cleaner production to "cleaner production+" with a focus on supply chains. They explained that, in the Vietnamese context, cleaner production is applied with a focus on sustainable design and integrating Occupational Health and Safety as well as Corporate Sustainability Reporting into Cleaner Production. As with the other countries, Vietnam outlined the main highlights of their work, which included the Joint Programme on Green Production and the establishment of a sustainable Pangasius supply chain in Viet Nam.

A key area of focus their work was under Work Stream 5-Industrial Waste Minimization for Low Carbon Production-in the rice and coffee sectors. The VNCPC elaborated on the application of the pyrolysis technology, which had been transferred from Switzerland and applied in Viet Nam, where it was also successfully promoted in the coffee sector. Looking ahead, VNCPC will be working with S&M, aiding them with their green growth strategy. The VNCPC will also be working with SECO and UNIDO through the Global EIP Programme. In regards to the latter, they noted that the national government had also created a policy environment conducive to the uptake of EIP, through the creation of preferential policies for EIP through certification, green financing, capacity building, investment promotion and database access.

Looking Ahead: The Global Programme on Eco-Industrial Parks

This segment focused on outlining the objectives of the Global Programme on Eco-Industrial Parks, which will succeed the RECP Programme as of 2018.

The Ministry of Planning and Investment of Viet Nam

The Ministry of Planning and Investment of Viet Nam outlined the work that had been achieved in the EIP domain to-date. They outlined their 5-year roadmap for EIP implementation, which includes the completion of legal documents to support EIP implementation in Viet Nam; designing and implementing an EIP Index to

classify EIPs and a national database for nation-wide rollout of EIPs; and the establishment of an EIP knowledge competence in Viet Nam.

UNIDO

Commenting on the Vietnamese presentation, UNIDO remarked that they had learnt a lot from the Vietnamese experience and that this experience had already been replicated in Thailand and in Peru. They also acknowledged that Viet Nam's moves to cement EIP at the national policy level would be of great relevance for the other countries in the Global EIP Programme. They also acknowledged the significance of the Vietnamese government's co-financing of a GEF EIP project, which they felt, demonstrated a viable means of upscaling financing through blended financing.

Zenata Eco-City: Zenata Eco-Industrial Park

The Head of Operations, Zenata Industrial Zone, provided workshop participants with an overview of the Zenata Eco City and the Zenata Eco-Industrial Park as part of the Eco-City. He explained the genesis of the Eco-City, which has a long-term vision of 30 years with an objective of unifying a wide range of environmental, economic and social objectives. The Zenata Eco-City was recognized as a model project and awarded an Eco-City Label by French international HQE certification agency, Cerway. They explained that the label now serves as a performance assessment model for comparable urban projects in a similar contexts, nationally and internationally, alike.

The Zenata Eco-City representative noted that the city would also become a recycling hub for the region to address a gap in the market. They are currently undertaking studies in order to ascertain which wastes would be produced and processed.

Roundtable Discussion

UNIDO, commenting on the Zenata Eco-City presentation, remarked that it has been a learning process on both sides to integrate the EIP concept into an existing process. Egypt, also commenting on the last presentation, remarked that they were undertaking scoping for a similar recycling facility for which they are cooperating with a centre in Spain.

UNIDO expressed their belief that the RECP_{net} members had acquired considerable experience in industrial symbiosis and EIP which, they believed would be relevant to the GEF's work on sustainable cities. In this regard, they encouraged the RECP_{net} members working in this area to contact their local GEF counterpart to discuss potential collaboration opportunities.

UNIDO then provided an overview of the EIP activities that had been undertaken under the RECP Programme; the pilot projects, the scoping and the numerous publications and framework developed, for which there has been a strong cooperative element in order to propagate a common understanding and application of the EIP concept.

Participants were encouraged to provide comments or add their opinions to the discussion about EIPs. The representative for the Egypt National Cleaner Production Centre noted the importance for tools to be adapted to the local context and for it to be implemented with or by a local expert. UNIDO concurred with this point, noting that the Global EIP Programme would provide the global knowledge inputs and when applied or implemented, it would always be adapted to the local context. This, they emphasized, is the goal of the new Programme. Drawing on the example of CGP+L's environmental performance tool, they expressed their belief that the tool could be adapted to other contexts.

Future Trends for EIPs

The workshop then examined the future context of EIPs and RECP with Professor Suren Erkman, from the University of Lausanne, presenting his research on future global industrial systems. He opened the discussion by remarking on the fast pace at which the area was growing. He explained that Industry 4.0 (pervasive digitalization) was happening a lot faster than the green economy (sustainable development).

Professor Erkman then provided a detailed overview of the elements required to accelerate the green economy. He explained that there was a need for new governance and management structures; new ways to communicate and for more holistic approaches, encompassing a diversity of perspective, with NGOs, associations, real estate agents and a mix of private and public individuals inputs required.

Professor Erkman then outlined a number of major trends, which he believed would steer future industrial activities. He firstly noted that the integration of industrial activities with urban areas (smart cities and territories) would be a major trend that would dramatically alter the industrial landscape. He also highlighted the need for new information flows to implement industrial symbiosis, with trust being an essential ingredient. He stressed that activities would also need to be hybridized, especially agri-food industrial clusters (biorefineries). The last major trend outlined was the integration of climate opportunities such as carbon capture and utilisation (CCU), which formed the focus of the remaining part of his presentation.

Roundtable Discussion

The floor was then opened for comments and feedback from participants. UNIDO noted that EIPs could play a significant role in addressing climate change. The representative from Jordan remarked that CCS had been controversial, hence he expressed the hope that it would not be the same with CCU. In response, Professor Erkman remarked that the reduction of carbon dioxide levels could create new revenue sources, but that it would need to be viewed as a resource rather than a waste. Adding to this, UNIDO noted that there was a need in this regard for country support to help make the business case for CCS. Similarly, if the private sector were to be involved, they would be able to contribute with valuable inputs in the form of evidence and country-level support. UNIDO concluded their remarks by emphasizing the need for country-level inputs to aid in the development and implementation of CCS.

The Swiss Government representative concurred, remarking that they felt that there was already a very good business case for CCS. He then sought more clarification as to the role that governments could play in supporting this. In response, participants stressed that the role of the public sector at all levels was essential in starting this discussion. They further noted that there was a need for the (policy) framework to provide the incentives, as the current legislative frameworks in many jurisdictions were acting as a deterrent to the uptake of CCU. Hence, it was stressed that there was an urgent need for supportive policy and legislative frameworks, but that this would need to extend beyond merely providing subsidies.

UNIDO elaborated on the comments above and added that CO₂ utilization could be promoted as part of the circular economy. They noted that, although it was not a simple topic, if carefully done, it could be a very useful tool. They noted that renewable energy could also be a source of storage, i.e. through photosynthesis, and that Eco-Industrial Parks could also be viewed as an ecosystem, and thus could play a role in this.

This segment of the workshop concluded with UNIDO providing an overview of the work that had been undertaken on promoting EIPs under the RECP Programme; from assessing baselines, to developing tools and collaborating with partners such as the GIZ and the World Bank Group to develop an international framework for EIPs. They noted that the work undertaken would be brought to scale through the development of Eco-Industrial Parks in developing and transition economies through the Global Eco-Industrial Parks Programme.

Closing Remarks

The Swiss Government thanked UNIDO for what they referred to as tremendous work, leading the RECP Programme to be a showcase result of how sustainable industrialization can be promote in developing and transition economies. However, drawing on the results of the terminal and mid-term evaluation, and also based on their own experiences in dealing with the Programme over the years, they felt that UNIDO needed to strengthen policy dialogue going into the future. They also recognized the role that UNIDO had played in collecting some valuable experiences, with Viet Nam being a pertinent example of how to impact at the national level. In this regard, they recommended that future RECP work needed to place an emphasis on encouraging policy dialogue, hence they encouraged UNIDO to play a strong role in steering this.

The Swiss Government representative also acknowledged a need for the Programme to have created more bankable projects. Correspondingly, SECO encouraged the NCPCs to place a particular emphasis on this through their work. They then drew on the example of the work undertaken in Viet Nam through supply chain financing, which they felt was a strong example of how non-traditional sources of funding could be leveraged to support project implementation. He also noted that there was a need for systemic monitoring and evaluation to obtain data and to quantify the results and that this was an area that is extremely important to the Swiss Government.

In his concluding remarks, the SECO representative affirmed the Swiss Government's commitment to supporting UNIDO in promoting inclusive and sustainable industrial development through the upcoming Global Eco-Industrial Parks Programme, which, he noted, will also support the mainstreaming of profitable and sustainable businesses – contributing to the achievement of the 2030 Agenda on Sustainable Development.

In the concluding remarks of the workshop, UNIDO acknowledged the words of the SECO representative, noting that, although not always easy to obtain, data aggregation was an essential ingredient in its work. Addressing the second point made, UNIDO concurred that there was a need to bring in additional donors in order to better leverage financing for RECP. They expressed their opinion that members of RECPnet were making great inroads in working towards the sustainability of their respective countries' industries but stressed that they would also need to seek out new opportunities in order to scale these results.

On behalf of the Cleaner Production Centres, the representative from Jordan gave his thanks to SECO, UNIDO and UN Environment for supporting their work through the RECP Programme.

UNIDO thanked everyone for their participation and concluded this part of the workshop.

Focus Group Consultations – The Future of RECPnet

The workshop was followed by a session with focused deliberations on the future of the RECPnet, in light of the conclusion of the funding horizon for the RECP Programme. Gaia Consulting, presented the results of their analyses and sought the feedback from members on possible business models for a future iteration of RECPnet. The final results of their analyses will be used as a basis for the development of a concrete business plan around which to structure RECPnet in the future.

Prior to the meeting in Bangkok, Gaia had sought feedback via a survey from the RECPnet members on the future of RECPnet operations. Based on the kick-off meeting held with the Executive Committee, the survey responses and results from initial interviews, Gaia presented six business model outlines in Bangkok, that each had the potential to serve as a basis for a more concrete business plan for future RECPnet.

The discussions frequently turned from detailed business planning into discussions regarding the basic building blocks of the business plan, i.e. developing an optimal operational model for the RECPnet. Gaia felt that this strongly indicated that challenges related to the future organizational structure and the network's decision-making structures would need to be resolved before drafting the more specific income, budget details as well as offering related concrete business plan elements or cost scenarios (e.g. service offering, cost and income streams, etc.). Notably, there were differences between members in regards to the operational readiness and level of interest in developing the network, and moving towards becoming a strong contributor of an independent, business orientated self-sufficient RECPnet.

Based on the inputs and feedback from the collaborative sessions, and the recommendations by the Executive Committee members participating in the Bangkok working sessions, two frameworks for operational models and plans for the RECPnet were developed. In concluding their session, Gaia indicated that they planned to refine the plans to include more concrete aspects and elements of the shortlisted business plans, which would be presented at the next RECPnet Executive Committee meeting planned for November 2018.

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