



WORKSHOP
ON
RESOURCE EFFICIENCY AND CIRCULAR ECONOMY
APRIL 3-4, 2018, TAJ BY VIVANTA
PANAJI, GOA
PROCEEDINGS

Background

With an aim to enhance resource efficiency (RE) and resource security of the Indian economy and industry, NITI Aayog along with European Union Delegation to India have developed a Strategy on RE along with an action plan. The plan of action for implementation of RE Strategy is receiving due support from the European Union (EU) funded Resource Efficiency Initiative (EU-REI) led by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in consortium with The Energy and Resources Institute (TERI), Confederation of Indian Industry (CII) and adelphi. The strategy recognises the emergent need to use resources judiciously in order to sustain long-term development and well-being in the Indian society. Under the core action plan of the Resource Efficiency Strategy. The objective of the regional workshop on “Resource Efficiency and Circular Economy” is to support the capacities of the Goa government along with its different departments, industry and other major stakeholders for enhancing RE in the State, and towards supporting the implementation of the RE Strategy released by the Niti Aayog. As an outcome of the workshop, it was decided that a circular economy strategy paper will be prepared for the state of Goa that will not only identify sectors/resources that need immediate attention, but also present possible ways how a resource efficient path can be developed for the state.

Discussion

The aim of the workshop was to do awareness creation and capacity building on RE and CE under the Strategy on Resource Efficiency in State of Goa. Over the course of the workshop, expert participants from government, industry and academia discussed the building blocks and elements for developing a Status Paper on RE and CE in the Status along with a Strategic plan of Action of the State.

Day 1 – April 3, 2018

Inaugural Session/Session 1: Orientation, Key Concepts, Trends, Opportunities & Challenges



Mr B N Satpathy, Senior Consultant, Niti Aayog – presented the Resource Efficiency Strategy, and said that that ‘Resource Efficiency’ (RE) is not only about environmental laws and regulations and their implementation, but also encompasses core economic and developmental issues and is very critical to NITI’s ongoing activities. The relevance of the coastal states in India’s economy is extremely important and Goa is no different. However, there are challenges with regard to resource use and their management in these states. This calls for an understanding of the existing issues with regard to resource efficiency specific to coastal states. A strategy paper needs to be prepared for Goa that will not only identify the existing challenges, but also the opportunities in sectors/resources where interventions are required based on local, national contexts along with examples of global good practices. Mr. Satpathy also highlighted the importance of mainstreaming the topic of RE in Indian education system and for that matter the topic has already been introduced in Ministry of Human Resource Development’s Global Initiative of Academic Networks (GIAN) in Higher Education which is aimed at tapping the talent pool of scientists and entrepreneurs internationally to encourage their engagement with the institutes of Higher Education in India.



Mr. Swayandipto Pal Chaudhuri, Managing Director and CEO, Imagine Panaji Smart City Development Limited – in the keynote address highlighted the relevance and the timing of the workshop in the state. Growing consumerism and urbanization may have improved quality of life but has resulted in degradation of environment quality. Hence appropriate mitigation strategies are required. There are schemes like AMRUT that can help in bringing resource efficiency in an effective and affordable manner. While the country has local innovations, the scalability has been an issue and consequently the benefits have been limited and confined. He also highlighted the fact that technologies are becoming more affordable and India has the ability to develop new technologies at one tenth of the global costs. This will bring transformational impact in resource consumption across various sectors and along value chains.

Dr Rachna Arora, Deputy Team Leader, EU-REI – underlined that increasing economic

development and higher standards of living have impacts on the resources and the environment. Growing aspirations will lead to higher consumption leading to greater resource consumption in the future. A resource efficient approach along the life cycle stages not only has environmental benefits but also has significant financial benefits in the form of reduced cost of production in businesses and industries. While the



government of India has already introduced policies and programs like Swachh Bharat, Zero Effect and Zero Defect (ZED), future efforts and initiatives including policies can be linked to existing ones. Further, it will help in achieving the United Nations Sustainable Development Goals and in particular, SDG 12 that relates to the sustainable consumption and production (SCP). One of the effective ways of creating market for resource efficient products are introducing standards and labelling. She finally shared RE practices in selected sectors in India.

Ms Henriette Faergemann, Counsellor, Energy, Environment & Climate Change, EU Delegation to India – highlighted the relevance

of the project and how it can strengthen partnerships between India and EU on RE. Globally, RE has significant economic benefits, and it is estimated that USD 2.9 trillion can be saved based on RE initiatives. At the same time, there are opportunities for job creation and reducing environmental damages. As part of its continuous effort to transform Europe's economy into a more sustainable one and to implement the ambitious Circular Economy



Action Plan, the European Commission has adopted a new set of measures that deals with plastics, food waste, critical raw materials, construction and demolition wastes, bio-based products, etc. EU also introduced the plastic strategy to promote production and design for ease of recycling / limiting the quantity per person. She stressed that innovation is key for demonstrating circular economy transition and EU is interested in forging research and development partnerships through the Horizon 2020 project which focusses on water, circular economy and technology development.

Mr. A. Joglekar, of Goa State Pollution Control Board (GSPCB) – presented case studies



from industries that demonstrated RE practices in the state. These examples were largely drawn from some of the ongoing and past initiatives in the agrochemical sector, steel industries as well as from the plastics sector. When it comes to municipal wastes, a substantial volume of plastic waste is generated in the state. Due to limited opportunities of plastic waste management in the state, Goa is giving away non-recyclable plastics to Karnataka for co-processing in cement plant.

Session 2: Plenary on Initiatives and Activities

to Support Implementation of RE Strategy

The plenary was moderated by Dr Rachna Arora, Deputy Team Leader, EU-REI and the speakers highlighted different activities and initiatives underway that can support the implementation of the RE Strategy.



Mr. Bharat Kamat, Chairman, Goa



Chapter, Indian Green Building Council (IGBC)

– informed the audience that in a country like India majority of the built environment will be constructed in the coming decades. Hence, the workshop is appropriately timed to promote RE in the C&D sector. He highlighted the role of the IGBC that offers a wide array of services like developing new green building rating programs, certification services and green building training programs, etc. He listed, some of the benefits of Green Buildings like improved productivity and enhanced indoor environmental quality, water

savings, energy savings. Further utilization of waste material in construction of green buildings is an area that is directly connected to resource efficiency. He also highlighted that existing buildings can be remodelled and readapted to present modern amenities and green adaptations.

Dr Shalini Sharma, CII – made an overview of the current e-waste management in India. Given that there are applications of critical metals in manufacturing various electronic products, it is extremely important for proper and scientific recycling of these resources. Since many of these resources are imported at high costs, it also makes economic sense for their recycling. There is a need to have a sound and effective reverse logistics network. This will enable formalization of recycling activities and thereby resource recovery. She mentioned about the presence of the E-Waste Exchange which is a digital platform to connect the last mile Government authorised e-waste recyclers and build circular economy in e-waste management sector. Use of hazardous materials need to be banned, as they pose environmental threat during the products end of life.



Dr Mahua Saha, Senior Scientist, National Institute of Oceanography – raised the concern of growing plastic pollution in oceans and other river bodies. It poses significant threats to marine ecosystems. Marine macro plastics degrades into micro plastics and then into nano plastics which are most harmful. Unless it is controlled, their proliferation can threaten many marine bio-resources and as well pose chemical and environmental risks.

Mr Sanjit Rodrigues, Managing Director, Goa-Waste Management Corporation (G-WMC)

– also echoed the concerns raised earlier by Dr. Saha. The growing inflow of tourists and the consequent increase in volume of waste generation is making it difficult for the corporation to dispose the waste. He underscored the importance of the closed loop waste management practices that will help to contain the burgeoning growth in waste generation in the city. Non-recyclable plastics are currently being sent to cement kilns



operating in Karnataka, as was also mentioned by Mr. Joglekar of the Goa State Pollution Control Board. Reduction at source and segregation for recycling are two most important interventions that are required at the state level. Further campaign and awareness particularly among younger generation is go a long way in bringing behavioural changes among the current and future generations.

The panel discussion was followed by lunch.

Session 3: Focused Group Work on Status Paper on RE in Goa

It started with two input presentations made by the experts.

Dr Dieter Mutz, Team Leader, EU-REI – presented the role of natural resources played in



economic growth and development. However, the challenge is that we do not pay for the impacts on the environment that may arise along the value chain of using such natural resources. The real challenge is to implement the utilization of waste as a raw material thereby reducing impact on environment and climate change. Resource efficiency opportunities are everywhere: more efficient utilization is needed, not by banning products but through adopting practices and building in qualities of easy to recycle, developing products that are durable and reusable. This call for application of tools like life cycle

assessment, material flow analysis, etc. which will help consumers in making informed choices. Further these need to be standardized. A life cycle approach in policy intervention will help in promoting RE more effectively.

Dr Rachna Arora, Deputy-Team Leader, EU-REI – provided inputs on increasing Resource Efficiency in Construction, and extended producer responsibility (EPR) for managing E-Waste and Plastics. Dr Arora presented the overall focus of EU-REI project and shared with the participants the key components of the two studies: (i) Enhancing Resource Efficiency through Extended Producer Responsibility: Sector Study on Plastics, Packaging and E-waste Management in India, and (ii) Fostering Resource Efficiency in the Indian Buildings and Construction Sector: An Evaluation of Interventions in the Built Environment. She outlined the components of the study viz.: research on historical development and future trends of resource consumption and efficiency; Identification of concerns, priorities and opportunities and of improvement potentials (business models, technologies, policies and codes); provision of recommendations to policy makers, industry and civil society; and development of an action plan for policy reforms and identification of capacity building measures as well as potential pilot projects. She also presented the preliminary findings and policy options along with existing practices outlined in the two studies viz: EPR as a mechanism; development of labelling schemes and standards for products made from recovered resources; RE & CE codes and certifications; voluntary agreement & partnerships between various actors and stakeholders;

existing forums and platforms; public-private partnerships models; and existing alternatives for resources.

After the two presentations **Mr Souvik Bhattacharjya, Fellow, The Energy and Resources Institute (TERI)** – flagged some potential areas to guide the discussion on the development of the Status Paper on RE & CE in Goa with a focus on: (i) Objectives: strategic areas of focus, outcome; (ii) Situation Analysis: identification of priority sectors & challenges, critical areas for improvement, mapping of existing measures at different life cycle stages (policy programmes, scheme); (iii) Methods: Life Cycle Analysis, Resource-Flow mapping, industrial symbiosis, ecological footprint, green accounting, sustainable public procurement, (iv) Resources for Action Plan: Government schemes, Partnerships (Govt-Industry, State-International Agencies), Best Available Techniques, innovative financing measures and; (v) Major stakeholders in the State.



Following the presentation, there was a group discussion, where the participants were divided into four groups. The first and the third group brainstormed on objectives and scope of 'Status Paper on RE & CE for Goa', the key elements and building blocks to address the RE challenges in the prioritised sectors. The second and the fourth groups identified crucial actors who have to be consulted and involved in the decision-making process, tools that can be identified and its relative application across life cycle stages, capacity building measures, etc.



The first and the third groups identified priority sectors viz: construction, tourism, industry, and transport (mobility). Important measures highlighted were the networking platform of all stakeholders. The key RE related challenges in these sectors were presented. One of the challenges that were discussed repeatedly was the growing menace of plastics and the participants were of the opinion that there is requirement for

stringent regulations and implementation. Since tourism is a thriving sector in Goa, it is important to tap opportunities in converting hotels to eco-friendly with water efficiency, having sewage treatment plant installed, eco-friendly house cleaning chemicals, efficient use of heat in the kitchen, rain water harvesting, increasing green cover, etc. Good practice replication in

industries is low and industry associations and chambers need to play an instrumental role in awareness generation and facilitate implementation of RE measures.

The other groups identified that there is an immediate need for creation of a platform for engagement between civil society organizations and various economic groups. To incentivize enterprises having sustainable practices, it is important to recognize them. An ecosystem-based approach is essential in addressing RE related challenges in the above-mentioned sectors.



The day ended with Dr Rachna Arora stressing that the discussions had brought forth key messages and has been successfully been able to identify some key areas that could be addressed in the Status Paper to be developed in future.

Day 2: April 4, 2018

Session 4: Measures for fostering resource efficiency in Telangana

Mr B.N. Satpathy, NITI Aayog – outlined that based on the focused group discussion, it was clear that as a first measure, a Status Report and an Action Plan from Goa can be developed, based on the sectors identified by the stakeholders. Further, the role of RE business can be developed based on their potential in the selected sectors and beyond. However, for that matter an assessment on ease of doing RE business is essential, that will help in identifying pressing issues and challenges in the sector and how can that be converted into opportunities.

Ms Henriette Faergemann, Counsellor, Energy, Environment & Climate Change, EU Delegation to India – informed about that the circular economy mission would be organized in India in September, 2018, where delegation of EU businesses that wish to partner in India would showcase what is being done and what can be done here to form partnerships at the CII's Sustainability Summit in September, 2018. The EU is keen to launch the state status paper on RE at the event.

Mr. Manguirish Raiker, Ex-Chairman, Goa Chamber of Commerce and Industry (GCCCI) – shared that in the context of Goa, due to tourist inflow implementing some of the regulation becomes challenging. Rather effective laws need to be devised for ensuring sustainability in the sector and then be strictly implemented. There is a strong interconnectedness between development and environment and they should be balanced at all costs. He highlighted the importance of engagement with stakeholders before any policies are made. Consensus is to be evolved with a participative process. The participation of stakeholders will help designing policies that are holistic and inclusive. A master plan is need of the hour which will be instituted and implemented over a given period of time. This will demonstrate forward thinking of the government, thereby making policy formulation clear and visible.



Session 5: Initiatives to support Implementation of RE Strategy



Dr Rachna Arora, EU-REI – shared with the participants the upcoming EU Circular Economy Mission to India in Sept 4-7, 2018 with the objective of (i) to increase cooperation between the EU and third countries in the field of environmental policy, (ii) To achieve a better understanding of the environmental challenges

faced by third countries, (iii) To promote green solutions through business partnerships abroad. To achieve this, several activities and events are planned for bridging demand and supply of solutions, raising awareness, assessing RE and CE needs of Indian businesses. The focused sectors are: Waste (plastics, construction, e-waste), Chemicals, Renewable energy (solar panels, biomass), Mobility (e-vehicles), Construction, and Others.



EUROPEAN UNION

Dr Srikanth Mutnuri, Role of Academia in Fostering Resource Efficiency, BITS PILANI – presented some of the new technologies that the institute has developed on water treatment and waste to energy sectors. These have the potential to address many of the SDGs and in particular 2, 6 and 13 that relate to hunger, clean water and sanitation, and climate action.



Dr Purnand Savoikar, Professor, Goa College of Engineering –presented the sustainability opportunities in the construction and demolition sector. His team has been working on the role of replacement of sand with plastics with promising results and has the potential to be replicated on pilot basis. This can prove to be viable option in controlling illegal sand mining in the state.

Finally, **Mr Baylon Gomes, Founder, Bavish, Waste Management Service** – urged participants to consider waste as a resource. He highlighted the services of his organization on waste collection from panchayats and schools. According to him, awareness among citizens is very important with regard to source segregation, recycling opportunities of household wastes among others. He cited examples of certain category of wastes that can be recycled in industries.



Session: Way Forward



Dr Dieter Mutz, Team Leader, EU-REI – provided a brief summary of the deliberations at the workshop. These included

- a. Developing a RE strategy paper for the state
- b. The urgent need for identification of the agency/ies
- c. Emphasis should be on more efficient utilization of resources
- d. Banning products may not be a solution

rather there is a need to adopt practices and building in qualities of easy to recycle, developing products that are durable and reusable

e. Engagement with different stakeholders holds the key for the development of such a strategy for the state

f. Finally, implementation and awareness need to go hand in hand

As an outcome of the workshop, it was decided that a circular economy strategy paper will be prepared for the state of Goa that will identify priority sectors/resources that need immediate attention, and also present possible ways for a resource efficient path can be developed for the state.


