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Confederation of Indian Industry

CII-ITC Centre of Excellence for Sustainable Development

Industry Consultation on
Indian Resource Panel Policy Mapping on Resource Efficiency
8th December 2016, Hotel Shangri-La Eros, New Delhi

Report on the 1st Consultation

1. Brief Programme

0930 – 1000 hrs	Registration and tea/coffee
1000 – 1100 hrs	**Introductory Session**
Welcome	**Ms. Seema Arora** Member, InRP & Executive Director, CII-ITC Centre of Excellence for Sustainable Development
Importance of RE to the economy	**Dr. Tishyarakshit Chatterjee** Member, InRP & Director, Indian Institute of Public Administration (IIPA)
Introduction to the RE Project	**Mr. Uwe Becker** Project Director, Resource Efficiency & Management of Secondary Raw Materials, GIZ
Introduction to InRP vision and role	**Dr. Ajay Mathur** Member, InRP & Director General, TERI
Summary of findings from InRP Policy Mapping Draft Report	**Mr. Jai Kumar Gaurav** Associate, adelphi
Objectives and Expectations from the participants	**Ms. Seema Arora** Member, InRP & Executive Director, CII-ITC Centre of Excellence for Sustainable Development

1100 – 1115 hrs	Tea/coffee break

1115 – 1215 hrs	**Breakout Sessions**
Moderator	**Dr. Dieter Mutz** Senior Expert, GIZ
	Group Division 1. Automotive 2. IT 3. Cement 4. Iron & Steel
1215 – 1315 hrs	Group wise presentation of the outcomes
1315 – 1345 hrs	**Wrap up**
Next steps and way forward	**Ms. Seema Arora** Member, InRP & Executive Director, CII-ITC Centre of Excellence for Sustainable Development
Vote of thanks	**Mr. Uwe Becker** Project Director, Resource Efficiency & Management of Secondary Raw Materials, GIZ

1400 hrs onwards	Lunch

2. Background and Objectives

The German Federal Ministry of Environment, Nature Conservation, Building and Nuclear Safety (BMUB), under its International Climate Initiative (IKI), commissioned GIZ to implement jointly with the Indian Ministry of Environment, Forests and Climate Change (MoEFCC) a three year project until April 2017 titled “Fostering Resource Efficiency and Sustainable Management of Secondary Raw Materials” (in short: Resource Efficiency). The focus of the initiative is on resource efficient utilization of raw materials, especially minerals and metals, since they are critical to the fast-growing Indian economy.

The project aims to enable Indian key institutions responsible for the formulation of environment, climate, industry and resources policy to aid and establish institutional frameworks that improve resource efficiency. The project also underscores the link between conserving resources and recycling raw materials, while simultaneously saving costs and thus strengthening the competitiveness of industries and meeting India’s future demand for resources.

In October 2015, the Indian Ministry of Environment, Forest and Climate Change (MoEFCC) set up the Indian Resource Panel (hereinafter, InRP), comprised of 10 experts from government, industry, research

organizations, and civil society. The InRP has been set up to advice the Government of India (GoI) and relevant stakeholders on the potential for enhancing resource efficiency (RE) and productive use of secondary raw materials (SRM) in the Indian Economy.

The first task taken up by the InRP was to perform a comprehensive assessment of the Indian policy framework from the perspective of RE and SRM, and identify gaps and barriers. This assessment is expected to guide future policy recommendations. This initial assessment report was disseminated for consultation to government ministries as well as the private sector to solicit their inputs. In the course of the project further papers will be developed by the InRP for stakeholder discussions in the workshops reflecting on standards, business cases and an overarching framework for a national program on RE and SRM. Such wide stakeholder consultation will be extremely valuable for creating consensus and for the success of the process going forward.

A brainstorming workshop on the policy analysis was organized in June 2016. One of the key action points for finalizing the policy analysis is to organize consultations with Industry for inputs on the recommendations of the policy analysis. The members in the brainstorming sessions expressed the need of consulting businesses as they are important in implementing any policy recommendation.

The 1st Industry Consultation was held on 8 December 2016 in New Delhi. Around 46 industry representatives participated in the Consultation. Four focused groups i.e. Cement, Automotive, Iron & Steel and IT were formed to brainstorm the issues pertaining to resource efficiency.

3. Introductory Session

At the introductory session, Ms. Seema Arora, Member, InRP & Executive Director, CII-ITC Centre of Excellence for Sustainable Development welcomed all the panelist and introduced them to the participants. The distinguished speakers on the panel were Dr. Tishyarakshit Chatterjee, Member, InRP & Director, Indian Institute of Public Administration (IIPA); Dr. Ajay Mathur, Member, InRP & Director General, TERI; Mr. Uwe Becker, Project Director, Resource Efficiency & Management of Secondary Raw Materials, GIZ; and Mr. Jai Kumar Gaurav, Associate, Adelphi.

Ms. Arora also welcomed the Industry participants and the project partners, TERI and Development Alternatives for attending the Consultation. She said that the perspective and inputs from members of the industry will be very valuable and help in shaping the Indian Resource Panel policy mapping.

Dr. Tishyarakshit Chatterjee, Member, InRP & Director, Indian Institute of Public Administration (IIPA) introduced the Resource Efficiency Project to all present. He stated that this initiative is an important area of economic thrust, which will be significant in the next decade. The primary resources and growth rate intensity seems inversely related. The developed countries like Germany which are growing at 2-3% per annum are highly resource efficient due to high cost of primary resources, whereas developing countries like India with a growth rate of more than 7% have resource intense flows of production and consumption. The demand and supply in emerging economics are both high in primary resources and the price is very low. Dr. Chatterjee mentioned that the resources that are exploited in the country and other emerging economics are utilized from the stock resources. He highlighted that the research team at GIZ has found that rate of extraction per area in India being the highest in the world at 1579 tonnes/km^2 against the global norm of 454 tonnes. In some sectors, India is already facing price spikes and supply bottlenecks of primary resources, e.g., sand in the construction sector and iron ore in the steel sector. This is because China is no more buying those ores and they are still lying in piles after extraction. As per an Economic and Political Weekly (EPW) study of 2015, the Central Government's own public sector industries comprising about 250 capital intensive industries have higher Return on Capital Employed (ROCE) than India's private sector, i.e.13% to 6.2% respectively. But it is interesting to note that given the increase in primary resource use by these industries (especially in the thermal power sector using coal, steel sector using iron, oil and gas, aluminum using bauxite etc.) over the last few years and their vision for next 20 years is only to increase in production but not increase in productivity. He remarked that it is doubtful that good capital productivity comes at the cost of very fast depletion of ores, minerals and fossil fuels. For some critical resources, such as nickel and copper, India is already highly import dependent (i.e. more than 90%) and there is a risk of similar scenario developing for other critical resources in future.

There is another EPW research (2006-07) on India's Public Sector pricing policy which finds that while comparing the price deflator of all products of the Public Sector with the GDP deflator of that year, the public sector discounts its product price and user charges by 17% points below 1960-61! This shows that primary raw materials are not only over exploited, but also discounted. Dr. Chatterjee stated that the Public Sector is controlled by the Government at the Central and

State level and so public policy towards higher Resource Efficiency (RE) and Secondary Resource Management (SRM) is a must if a major resource guzzler of the Indian Economy is to be made productive. Policy intervention is required even to control India's carbon footprints and achieve Intended Nationally Determined Contributions (INDC). The RE/SRM approach is win-win as in the long run it is more cost-effective in a circular economy running on material flows more than on material stocks.

The provisions of India's Constitutional Directive Principles and Fundamental Duties of citizens in Articles 48A and 51A (g) talk about the protection and improvement of natural resources. The National Environment Policy document of 2006 (GoI) lays emphasis on RE and provides for valuing wastes as resource and natural resources having heritage and existence value. So, an overarching legal frame exists to support the economy veering away from resource intensity to resource efficiency. If not for anything else, India's global presence itself justifies a heightened policy thrust and action planning for RE and SRM in the manner as similar economies like China, Brazil, Thailand have already done.

Dr. Chatterjee said that the experience of the Ministry of Environment, Forest and Climate Change with pollution prevention and clean process technology applications especially in the chemical sector in MSMEs has produced commercially viable resource efficient methods in tanning, paints, electro and nickel-plating, Penicillin G, dye & printing, pesticide way back in the 1990s. Later, the Ministry's Clean Technology pilot-project financing has produced commercially viable road surface hardening, low-carbon technology by reducing the use of aggregates and bitumen in road and embankment construction (RBI-81). It is presently supporting the research in renewables by replacing fossil fuel based insulation inputs called Polyols (i.e. castor and cotton seed based polyol to replace ether polyol). He also mentioned that India's Research Institutes and Industry are already active in the green field sector by replacing coal with waste-to-energy, green-coal and briquettes, replacing mined metals with recycled scrap and diesel with bio-diesel. So, small and large industries in India are already at a nascent stage of finding business opportunities in RE and SRM having seen its long-term cost advantages. They can be enabled to enter the informal sector and learn the special trust based fiduciary relations of production and consumption that keep the wheels of the small-scale recycling economy turning. The implementation of the GST in the future may help in giving identity and legality to an important RE/SRM input in the Indian economy including job creation. InRP's policy analysis and suggestions would go a long way to expedite and create an enabling policy environment for RE/SRM. Dr. Chatterjee appreciated the monumental policy analysis conducted by the GIZ team for all stages of product life cycles that has suggested an 8-fold approach to formulate and implement RE/SRM in relevant sectors of the economy. He acknowledged the collaboration with Confederation of Indian Industry (CII) as a progressive step in that direction and highlighted that Industry and Government need to partner in this grand endeavor. Phasing in fiscal and procurement incentives, regulatory standards, expanding subsidized pilot and demo projects, developing sustainable Industrial areas and other initiatives must happen in policy and in action at the Centre and the States. These initiatives can take place through Make in India and Digital India platforms. Capacity building, training and research in RE/SRM methodologies would be required. For

awareness creation and demos, the National Consumer Helpline located in the IIPA can be used. Institutional linkage with the programme over the long term would be useful to hand-hold and make the interventions sustainable and convincing.

Mr. Uwe Becker, Project Director, Resource Efficiency & Management of Secondary Raw Materials, GIZ started by giving relevant fact about GIZ India that it is an Indo-German Corporation established in India for 50 years, and it has about 300 national employee and 50 external experts. They are working in more than 37 projects in sectors like Energy, Sustainable Economic Development, Environmental Policy, Conservation and Sustainable Use of Natural Resources. Their clients are Ministries in Germany like Environmental Ministry, Developmental Ministry or the Economic Ministry, the Government of India and the Private Sector.

Mr. Becker emphasized that the material consumption of the future i.e. by 2050 means that humans can expect an increase in 4-5 folds of consumption in comparison to the year 2008. To satisfy this demand, people will need more than one earth and it will not be possible to rely on primary resources. Introducing the project, Mr. Becker stated said that it is bilateral project running on behalf of the German Federal Ministry of Environment (BMUB) together in partnership with Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India. This is funded by International Climate Initiative (IKI) of the German Government commencing from 14 May 2014 for a duration of 3 years. The knowledge partners are VDI, IFEU from Germany and TERI, DA from India. The selected sectors for the project are construction and mobility industry, which have high growth rates and high consumption patterns. The overall objective of the project is to develop recommendations for a National Strategy and Action Plan on Resource Efficiency (RE) and to improve Secondary Raw-materials Management (SRM) to Government of India. They have three work packages in the project i.e. 1. Develop a detailed understanding of material flow patterns and resource use, 2. Promote policy and institutional framework on enabling resource efficiency, 3. Demonstrating projects in selected industries and capacity development for stakeholders. He informed that the work package 1 is done i.e. Market scan of the automotive sector focusing on car component production; Market scan of the construction sector focusing on C&D waste; Baseline Study: Material flows and resource use in both sectors and Executive Summary of Baseline Study. The projections of baseline study states that the consumption pattern of the iron & steel, aluminum, copper, plastic, zinc and nickel is projected to increase from 14.5 million tonnes in 2015 up to 102 million tonnes in 2030. Similarly, in the construction sector, the demand for built up area for residential, commercial & office, hospitality and retail ending up 10 million m^2 by 2030 in comparison to 2 million m^2 in 2005.

In work package 2, Indian Resource Panel (InRP) with support from the MoEFCC has been launched in November 2015. The objective of the panel is to set the agenda for overall legislative framework for secondary resource utilization and to provide recommendations to the Government of India for a legislative framework on RE.

In the work package 3, pilot interventions were carried out in the automotive sector that focused on the reduction of resource consumption in production; energy & water savings as co-benefits. He indicated that GIZ has partnered with Automotive Component Manufacturers Association (ACMA-ACT) to undertake RE assessments and improvements as a long-term measure by using RE Assessment Tools developed for SMEs by VDI-ZRE. For implementations of these pilots, interventions on ground is ongoing among 10 companies in 2 automotive clusters (Pune and Delhi). He highlighted that evaluation of material recycling focusing on metals from ELV in semi-formal sector will be carried out next year. So, in the first quarter of 2017, GIZ plans to document the results i.e. the positive economic & environmental impacts of these pilots and further in next quarter disseminate the results through capacity building workshops to motivate the Companies for replication. Similar pilot is also carried out in the construction sector where the focus is on utilisation of secondary resources from construction and demolition waste for green products. Detailed feasibility assessment has been conducted in Bangalore and Ahmedabad and collaborative agreements with industry partners. E.g. AEP in Ahmedabad have been developed for improved market approach. There are several interventions done like:

- Testing and certification of existing products (e.g., GRIHA, ECOMARK)
- Marketing and public procurement of green products
- Guiding SMEs interested in Construction and Demolition Waste utilization
- Deconstruction manual for industry and private investors focusing on certification of materials on source
- C&D Waste Management tender support to ULBs
- Capacity building workshops for ULBs and private economy

The way forward is that the policy mapping developed by GIZ along with InRP, other InRP input papers on business models, resource efficiency standards and the outcomes of the pilots demonstrating economic, environmental, social viability will all together feed into the Stakeholder Consultations. This will help to develop an Overarching Policy Framework towards a National RE Program/Strategy. With further stakeholder consultation, they will start a Political Decision Process on National RE Strategy. This resource efficiency project will be continued in India for another three years with the support from European Union. Mr. Becker concluded with a hope to have a fruitful discussion during the brainstorming session of the consultation and receive feedback on the importance of resource efficiency on the focused areas and businesses.

Dr. Ajay Mathur, Member, InRP & Director General, TERI began his address, by sharing a best practice from Tata Steel where the waste that settles down after pickling of steel were taken out and converted into pigments that can be used in paints, It was in the year 1919, that Tata Group formed a company called Tata Pigments to utilize the above said waste material. The fact that business models revolve around resource efficiency is something that is recognized and there are enough business and technological models that make sense. Dr. Mathur, talked of InRP vision and role, he mentioned that the Indian Resource Panel was formed with the overarching objectives of setting the agenda for overall legislative framework for secondary resource utilization, provide recommendations to the Government of India towards a legislative framework on RE, and finally develop an action plan on sustainable secondary resource management and material resource efficiency for the consideration of the GoI. He highlighted the fact which Dr. Chatterjee also emphasized that, “There is a need to move from enhancing production to enhancing productivity”. This means that the incentive or the rewards that the Companies make on enhancing resource efficiency is enhanced.

The resource panel is composed of 10 leading experts from India with representation from civil society, business associations, research institutions and the government (former secretaries). The InRP work flow includes:

- Inputs prepared by the Secretariat, GIZ & knowledge partners
- Inputs review by InRP members
- InRP outputs are then shared with various stakeholders for exchange, discussion and suggestions like Inter-ministerial discussions

Dr. Mathur summarized the work undertaken by InRP till now, as given in the points below:

- Conducted **policy mapping exercise** to identify the gaps/opportunities in the Indian Policy framework in context of RE and SRM; focus was given on using a life cycle stage approach
- Recommendation was made for developing an **overarching framework on RE and SRM in India**; a reference document for line ministries to develop their plans and recommend measures to trigger policy and implementation
- Papers on **creation of standards** that will lead to mainstreaming of RE and SRM in the industry, and that on appropriate **business development models** that will encourage RE and SRM in different sectors
- Members have been using their various **channels of communication**, including their organizations, to create awareness regarding the ongoing activities/ outcomes of the InRP

- Members have **engaged with stakeholders** including the MoEFCC as well as other Ministries to bring to their attention the outputs of the Panel

Finally, Dr. Mathur stated, “As per InRP mandate, they are looking at communicating the results, engaging the policy makers in helping change happen. However, change happens when all of us want it.”

Mr. Jai Kumar Gaurav, Associate, Adelphi presented the summary of findings from InRP Policy Mapping. He started with the Indian context where rapid economic growth over the last two decades has relied heavily on high rates of natural resource extraction. With a growing population of 1.2 billion that accounts for 17% of the global population has resulted in enormous pressure on natural resources leading to unavailability of

resources and import dependencies for critical minerals; risk of increasing / fluctuating costs; higher rate of forest and ecological degradation; and reduced availability of agricultural land. Thus, there is a need for enhanced resource efficiency (RE) and making better use of secondary raw materials (SRM). Therefore, InRP has decided to conduct a policy analysis based on the life cycle approach that is based on all the stages like mining stage, production and manufacturing stage, consumption stage and post consumption stage. The analysis of mining stage shows that the National Mineral Policy includes zero waste mining goal. There are different initiatives by GoI where there is star rating system for mining companies. Similarly, State Government of Rajasthan has mandatory mining plans in case of minor minerals. In case of EIA & EMP, there is inadequacy in implementation of regional environmental and social impacts. Mr. Gaurav mentioned that the opportunities in the mining stage are to strengthen policies to incentivize co-production of associated metals and introduce BATEC technologies which has less cost; promote R&D for green mining and include RE in star rating system and mandatory mining plan submission required across country; enabling legislative provisions to revive traditional cooperative societies for mining of minor minerals at the State level, wherever feasible.

At the design stage, the focus is mainly on quality and safety. There is a lack of design policy which emphasizes the issue of resource efficiency and secondary resource management except for the Pradhan Mantri Awas Yojana (PMAY) that focuses on ecological design standards for building components, materials and construction methods. There is a suggestion from the InRP members is to have a policy on eco-design. The eco-labelling schemes are being revived by the Ministry and there may be a focus on RE and SRM. There is also lack of R&D in innovation and design in the overall product lifecycle. The opportunities in the design stage includes integration of science, technology and innovation policies, emphasis on product design blueprints to be incorporated in manufacturing policies, and Bureau of Indian Standards should mandate emphasis on RE and SRM standards and guidelines. In the Production/Manufacturing stage, the Make in India initiative have Technology Acquisition and Development Fund (TADF) that supports pollution control

technologies that can be extended to RE and SRM. Like in the design stage, the production stage also lacks standards to promote RE and use of SRM and there is limited traction of schemes like 'Corporate Responsibility for Environmental Protection' by MoEFCC. In opportunities at the production stage, there is Consent to Operate conditions to which cleaner production programmes can be linked; in Concept of Industrial Symbiosis where waste from one industry is used as a raw material for another industry. In the consumption stage, there is limited standards for promoting RE and SRM. The Public Procurement Bill (2012) could promote procurement of RE and SRM products. In fact, the Construction & Demolition (C&D) Waste Management Rules, 2016 states that urban local bodies must utilize 10-20% material from C&D waste. In terms of opportunities in this stage, awareness and providing incentives to take responsible purchase decisions; develop product quality standards and Eco-Labels that consider RE and SRM; and Sustainable Public Procurement policies to be developed on a priority basis. In the post-consumption or end-of-life stage, there is a lack of financial incentives, limited enforcement of penalties/fees mechanisms like EPR enforcement challenge; lack of capacities, infrastructure and technologies at State level to implement waste rules and waste management policies need to focus more on mainstreaming the informal sector. The opportunities in this sector is to develop standards for recycling, create extended producer responsibility as a fundamental principle for waste management. Mr. Gaurav concluded that most importantly waste management needs to be made the key element of industrial policy and other government initiatives like Make in India and Digital India.

Ms. Seema Arora, Member, InRP & Executive Director, CII-ITC Centre of Excellence for Sustainable Development thanked the panel members for their valuable inputs, which helped to set the agenda for the following brainstorming discussion. She shared the definition and importance of RE and the expectations from the participants during the group discussions, as given below:

<u>Definition and importance:</u>

Resource efficiency can be defined as generating the desired output in the economy with a lower level of resource input including the utilization of secondary resources (wastes), thereby also reducing the impact on the environment.

With rapid economic growth, population growth, and urbanization, India is also witnessing enormous increases in resource demand which is leading to supply constraints, price spikes, worsening environmental impact often leading to bans and restrictions, and increased import dependence for critical materials. Increased emphasis on RE would provide multiple benefits:

- Reduced supply constraints and price volatility
- Increased industry competitiveness
- Increased entrepreneurship and job creation in the waste recycling/reuse sectors
- Reduced import dependence and thus improved trade balance
- Reduced environmental impact from mining to disposal including climate mitigation benefits under India's commitment to the international climate agreement

Expectations from the industry participants during the group discussion:

1. What is your view of the importance of RE specifically in your industry sector?
2. What steps/strategies are your company already taking to enhance RE?
3. Are there any showcase efforts that enhance RE in your sector that could be used as a success story for documentation in the national resource strategy?
4. What challenges are your sector facing when trying to enhance RE during production?
5. What do you think are the policy gaps and opportunities related to promoting RE, especially related to your sector? Do you have any comments on the gaps and opportunities identified in the draft report?
6. What in your view is/are the most important priority/priorities for promoting RE in your sector?

Brainstorming (Breakout) Session

Dr. Dieter Mutz, Senior Expert, GIZ moderated the breakout session, he requested the participants to be innovative and flexible during the group discussion and said that the focus should be on India. He spoke about the earth overshoot day this year was on 8 August and till date i.e. 8th December, we people are already using those resources which are already exhausted. Overshoot day means that from 8 August 2016, people have begun to use more resources from the nature than our planet can renew in the whole year. He emphasized that India should look forward to use resources wisely than others are doing it.

Dr. Mutz has shared the highlights of the European Resource Forum that took place in Berlin in November 2016 that is relevant to both public and private sector:

- Taxation income in Europe is 50% from labour and 6% from environmental taxes. There is a big interest from the private sector to reduce the labour tax to be more competitive and increase the resource tax. This will make companies more efficient with low cost.
- The EU and the member states are convinced to remove all subsidies which are in favour of resource depletion. There should be incentive brought in for resource efficiency and protection.
- There is a common understanding among the EU that there is need of pragmatic shift from ‘Energy Efficiency’ to ‘Resource Efficiency’ and energy efficiency is a part of resource efficiency.
- The Germans are successful in dealing with resource efficiency, being the strongest economic power in Europe despite having ambitious environmental objectives. Germany will reduce its GHG emission by 90% by 2050 which will be achieved through innovation and close cooperation between the private sector and public sector

- Need of objectives and targets to measure what we reduce and document it.
- In EU, the governance of resources is a national matter with strong principle of sovereignty. Dr. Mutz spoke to the delegates of the European Resource Panel regarding the initiative of India in establishing the Indian Resource Panel. The response of the delegates were supportive and they were eager to know the process how India is trying to be resource efficient. It is a unique opportunity for India in a positive sense to demonstrate that India is one of the leaders in resource efficiency. And there is no other resource panel in the world like India that is formally established at the national level.

The Industry participants were then divided into four groups based on their experience and interest focusing on Cement, Automotive, Iron & Steel and Information Technology.

The outcome of the group discussion have been summarized below:

Automotive Sector:

- Enablers need to be identified where technology like post shredder technology (PST) which separates the shredder waste is reused in various ways.
- Upgradation of informal sector to the formal sector, so there are standards applicable to the sector. E.g. During the resale of a used tyre, Rs. 300 is received from the authorized dealer whereas Rs. 500 is paid by an unauthorized dealer.
- Consumer awareness and incentives should be provided so that the consumer or the product-user is attracted to go to the formal sector.
- Extended Producer Responsibility (EPR) should be a shared responsibility i.e. after the end of life of a product, the take-back mechanism should involve government and another player in the related field.
- The used product should be traceable. This is because during change in ownership of a vehicle or an item; there should be a system in place to track where the product is lying and with whom.
- Toxicity of a material should be documented with proper standards developed through industry participation, e.g. toxicity should be kept in mind during plastic recycling as there are flame retardants
- Training should be conducted for the MSME sectors and the regulators.
- Reaching out to public and making them aware to make informed decision
- Good practices should be incentivized

Other suggestions received from attendees:

- Giving subsidy to the person who has disposed the product responsibly.

- Capacity building and sensitization of future leaders, e.g. taking the subject of resource efficiency outside industry basically to the syllabus of institutions (engineering and management) from where recruitment to the companies take place.

Cement Sector:

- Logistics is the key issue for Alternative Fuels and Raw Materials (AFR) mobilization. For example, the kilns in cement manufacturing process can utilize many kinds of wastes like automotive waste, steel waste, etc. but the logistics and slow and redundant regulatory approvals in the country prevents this to happen.
- Subsidies to cut CO_2 emissions from operations should be lucrative.
- Concentrating on composite cement solutions for specific applications to reduce the requirement of resources
- Review of BIS and Environment standards for use of AFR. For example:
    - The standards allows the use of 35% of fly ash while manufacturing Portland Pozzolana Cement which can readily go up to 40%.
    - Augment new composite cement in the Indian market which has proven resource efficiency, sustainability, durability and quality by standardising them.
    - Regulatory interferences to use the different kinds of waste such as chemical gypsum, expired medicines, expired food products etc.
- Use of locally available secondary raw materials and low grade limestone, renewable energy for cement power plants requirements, pet coke (petroleum coke) can be used for Captive Power Plants (CPPs).
- Use of 2D and 3D technology in the construction industry (cement users) for precast housing as the house is built in a controlled environment so the waste produced is low. Issues with government regulation for mass building of such houses.
- Green rating should be made mandatory for construction of houses. However the green building ratings of highest ranking (e.g. LEED Platinum) makes the houses costlier.
- Awareness among consumers about green buildings.

- Putting CSR money to create waste segregation enterprises at a city level. Secondary waste collectors need to be targeted.
- Harmonize the role of Central and State Government for an innovative approach.

Other suggestions received from attendees:

- On using CSR money in waste management of a product, a participant pointed out that this may not qualify under CSR rules.
- Willingness or political will to utilize the remaining 2% of the profits that is dedicated to the CSR money if we are not able to utilize the 98% of the profits. So, there is need to think of an alternative for waste management.

Information Technology (IT):

- Major resources utilised in the IT industry are energy infrastructure, fuel, water, food for cafeteria, IT infrastructures, batteries, papers and wood. The waste generated from IT services are wastewater, air emissions, food & paper waste, e-waste, hazardous waste. There are various best practices in different IT industry like Wipro, Dell, TCS to promote RE and benefitted from it.
- Lots of IT companies do not discharge waste water into the environment, it gets treated and the treated water is utilized inside the facility.
- There should be a policy that promotes the reuse of treated wastewater by other companies.
- Take back program of various end of life products of IT companies such as Dell but they face huge competition from the grey market.
- The major consumption in the IT industry is of energy, requires initiatives to reduce energy load and by promoting usage and generation of renewable energy in the campuses and green energy purchase.
- Less usage of paper in office, go for digitization promoting paperless office
- There is an urgent need to have a component industry and a testing facility in the country so that there is less apprehension to reuse the used component into a new product so that it meets the global standard of the product.
- Standards should be made for utilizing a product, e.g., use of discarded products in India that has been imported from other countries who have stringent laws.
- Bringing change in the thought process of the people.

- Resource efficiency mechanism needs to be self-sustained.
- E-waste management should be shared responsibility between the Government and the Industry.

Suggestion from other groups:

- If we are to recycle a component to extend the life of any product, then a two-way path needs to be followed like:
    - The manufacturer should have an agreement with the supplier
    - There should be an understanding with the buyer/consumer regarding the cost associated with the product/component to extend the life of the product and it is beneficial for both the consumer and the company.
- One should introduce the concept of selling the service instead of selling the product.
- Query on how IT will be able to help other industries in their RE initiatives.

Iron & Steel Sector:

- The iron and steel industry has tried to improve the efficiency of materials it consumes.
- Energy is very high cost factor for iron and steel industry and in order to be competitive; steel sector would harness more and more waste heat. The Renewable Purchase Obligation (RPO) on waste heat does not incentivize the industry to harness more and more waste heat and improve the energy efficiency.
- The process of getting permission for a new mining activity on the existing mine is cumbersome.
- Domestic usage of material in a manufacturing unit is advantageous rather than importing them from other countries. E.g.: Domestically available sponge iron should be used as raw material instead of importing scrap.
- The InRP policy report captures only the steel ferrous scraps. It should also focus on the non-ferrous scraps. Non-ferrous scrap has a high potential as a secondary raw material use. However, cost of logistics of these materials is a critical issue that the policy needs to address.
- Policies should be made to enhance the utilization of LD slag for which technology transfer is needed, e.g., Sydney airport is made from LD slag
- The recent government policy on restricting of high ash coal beyond 500 kms is a bottleneck for its effective utilization

- The coke rate consumption has been brought down by incorporating various technological innovation.

Question from other group:

What are initiatives taken to utilize the scrap coming from the shipping industry?

- Steel industries utilizes those scraps provided they are well segregated, quality issues are addressed, and is moved to the production centre at a reasonably lower cost.
- The ship breaking industry in India is generating 8 million tons of scrap. There are quality issues due to the hazardous nature of the scrap. Due to the quality control orders set up by the government, industry is very conscious while utilizing scrap. Proper segregation of such scrap is a bottleneck as they are assembled in one place. For a steel manufacturer, it is very difficult to determine the composition of a product which is affecting the consumption of scrap generated from ship breaking.

5. Wrap Up

Dr. Dieter Mutz, Senior Expert, GIZ wrapped up the discussion and highlighted few points that evolved from the discussion:

- While talking about the secondary raw materials, there is a deficiency in the policy side and the social side
- Segregation of material, role of informal sector are important elements during the usage of secondary raw material
- There is need to professionalize the usage of secondary raw materials in India
- The informal sector alone cannot make the usage of secondary raw materials a big success. We will need more efficient, high qualified, innovative solutions with regards to technology as well.
- There should be a move from owning a product to using a product, such as Xerox. One should increase the lifespan of a product while selling a service. It is like sharing a car rather than buying it.
- Standardization is not really seen when it comes to resource efficiency but without standardization resource efficiency will not work specially in case of secondary raw materials.

- It is also important to think about resource sufficiency along with resource efficiency and focus on the increase in productivity rather than increase in production.
- Optimization of logistics, minimizing distance and efficient transportation is significant in India when one talks of resource efficiency
- The present Government is also supporting resource efficiency and initiatives like Make in India should be linked to resource efficiency for it to succeed.

6. Next steps and way forward

Ms. Seema Arora, Member, InRP & Executive Director, CII-ITC Centre of Excellence for Sustainable Development emphasized that lot of good ideas have come out of the consultation. She added that several inputs from the participants can be fed into the existing work. The next step would be to accept the suggestions and dig deeper into it. One can get in touch with the participants for any further details and factor those into the policy mapping paper. In the long run, there will be other consultation where the feedback from the private sector will be essential.

7. Vote of thanks

Dr. Uwe Becker, Project Director, Resource Efficiency & Management of Secondary Raw Materials, GIZ thanked and appreciated the audience who have shown their interest and through their active participation have made the consultation a success. He further thanked the representatives of EU, CII, speakers, InRP Members, Dieter Mutz who is the creator of the resource efficiency project, TERI, DA and the team in GIZ.

8. List of Participants

#	Name	Designation	Organisation
1	Koyya Reddy		Aditya Birla
2	Anurag Kumar Solankey	DGM- Environment	Ambuja Cements Limited
3	Vishwa Bandhu Bhattacharya	Group Manager, CSR	Apollo Tyres
4	Atul Kumar Gupta	Sr. Counselor- ACMA Centre for Technology	Automotive Component Manufacturers Association of India
5	Subhash Shetty	Sr. Manager- International sales	Bajaj Electricals Ltd.
6	Anil Kumar Varshney	Vice President	BSES Rajdhani Power Limited
7	Ashish Khanna	Senior Manager, Govt Affairs, Corporate Planning Division	Canon India Pvt. Ltd.
8	Vatsalya Shukla	Project Manager	Centre for Responsible Business
9	Vikrant Saraf	General Manager- Incubation	Dalmia Bharat Group
10	Ajay Kumar Gautam	Asst. general Manager- Corporate Affairs	Dalmia Bharat Group
11	Dr. N.J. Singh	Whole Time Director	DCM Shriram Consolidated Limited

12	Henriette Faergemann	Counsellor- Environment, energy and climate change	Delegation of the European Union to India
13	Cecile Leemans	Program Manager	Delegation of the European Union to India
14	Shalender Kumar	North India Management Advisor (EHS)	Dell International Services India Pvt Ltd
15	Dr. K. Vijayalakshmi	Vice President, Head- Innovation systems Branch	Development Alternatives
16	Pratibha Ruth Caleb	Deputy Manager- Urban Research	Development Alternatives
17	Sunil Wadhwa	Managing Director	IL&FS Energy Development Company Ltd
18	Umesh Kumar	Asst. Manager- CSR & Sustainability	Maruti Suzuki India Ltd
19	Malini Gupta	Vice President	RBS Services India Pvt. Ltd.
20	Hemantha Kumar S. S.	AVP- Sustainable Development(EHS)	Reliance Cement Company Pvt. Ltd.(RCC)
21	Sachin Raj Jain	Regional Director, South Asia & Middle East	Scientific Certification Systems (India) Private Limited
22	Amit Kumar		SIAM
23	Deependra Kashiva	Executive Director	Sponge Iron Manufacturers Association
24	Rakhi Sen	Senior Manager(EMD)	Steel Authority of India Ltd.
25	Dr. Pranab Das	General Manager- Corporate Sustainability	Tata Housing Development Company Ltd.
26	Alpa Gupta Mishra	General Manager- Sustainability-Corporate Sustainability	TATA PROJECTS LIMITED
27	Manish Mishra	Chief Regulatory Affairs, India	Tata Steel Limited
28	Souvik Bhattacharjya		TERI
29	Dr. Shilpi Kapur	Fellow & Area Convenor	TERI
30	Priti Mahesh	Chief Programme Coordinator	Toxics Link
31	Capt. N.S. Mohanram	Consultant	TVS Motor Company Limited
32	Vineet Goyal	Senior Manager	Wipro Ltd.
33	Ajai Nirula	CEO	IL & FS
34	Vaibhav Rathi	Deputy Manager- Environmental Management	Development Alternatives
35	Nandini Kumar		IIP India
36	B S Mathur		SIMA
37	N K Bajaj		SIMA
38	A K Gupta		SIMA
39	Dr. Surrinder K. Handoo	Advisor(Technical)	CMA
40	Arvind Bodhankar	Global Head- SHE and Sustainability	Tata Motors Ltd.
41	Harsh Jain		TERI
42	Ronjon Chakrabarti	Senior Scientist Senior Project manager	adelphi

Speakers:			
1	Jai Kumar Gaurav	Associate	adelphi
2	Seema Arora	Executive Director	CII-ITC CESD
3	Uwe Becker	Project Director	GIZ
4	Dieter Mutz	Senior Expert	GIZ
5	Tishyarakshit Chatterjee	Director	Indian Institute of Public Administration
6	Ajay Mathur	Director General	TERI

Organisers			
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2	Katharina Paterok	Technical advisor- Resource Efficiency & Management of sec Raw materials	GIZ
3	Reva Prakash		GIZ
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5	Dharmendar Kumar		GIZ
6	Deepak Juneja	Director	CII
7	Banajyotsna Baruah	Executive Officer	CII
8	Mohita Negi	Executive Officer	CII
9	Shagoon Preet Kaur	Executive	CII