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Reader's Column

We invite feedback suggestions and articles from our readers, please write to: sustainability@bombaychamber.com

Note : General articles published in this Bulletin do not necessarily reflect the views of the Bombay Chamber of Commerce and Industry

Editorial.....

India faces many environmental problems today. Our limited resources are under threat due to intensive depletion and serious degradation. Further, we realize that risks to our resource security are compounded due to looming threats of climate change. Policies and strategies to respond to these challenges need mainstreaming of sustainability across all developmental sectors.

Circular Economy offers a platform for all stakeholders to get involved for sustainable and inclusive development. In addition to addressing environmental sustainability, Circular Economy improves the businesses competitiveness, generates employment, increases green investment flows, builds on partnerships and helps in establishing a transparent and inclusive governance.

Based on the work carried out by the Indian Resource Panel, set up by the Ministry of Environment & Forests and Climate Change (MoEFCC), Niti Ayog, Government of India published a strategy paper on Resource Efficiency in 2017. Currently, Niti Ayog is working on preparation of status and strategy papers on circular economy focusing on Steel, Aluminum, E-waste and Construction and Demolition Waste. This work will greatly help to come up with a coordinated national level action plan. Here the private sector and the research & academia will need to play an important role by operating sustainable business models and fostering innovation.

While there is no debate on the benefits of Circular Economy, one of the major challenges faced not just in India, but globally, is lack of leadership who can accelerate transition or transformation to circularity. In addition to the leadership, we need to build knowledge networking platforms on circular economy across government, business, investors, academia and communities and offer experiential learning. We hope that this newsletter will continue to provide information and share experiences to help us towards the transformational journey on circular economy. We look forward to your contributions.

- Dr. Prasad Modak



GLOBAL LEADERSHIP PROGRAM ON CIRCULAR ECONOMY IN SOUTH AUSTRALIA

- Dr. Prasad Modak
Environmental Management Centre LLP



Green Industries South Australia (GISA), Ekconnect Knowledge Foundation and Circular Economy Alliance Australia (CEAA) organized the first pilot course on Global Leadership Program on the Circular Economy between June 17 to 23 in Adelaide in Australia. The program was developed in partnership with the United Nations Centre for Regional Development (UNCRD). Besides me, Hemant Chaudhari of CEAA, Rudra Mohanty of UNCRD and Prof Brajesh Dubey of IIT Kharagpur contributed as resource persons.

South Australia has a global reputation for leadership across a wide range of circular economy issues. These include container deposit legislation, the plastic bag ban, high-performing kerbside systems, investment in resource recovery infrastructure, wastewater and stormwater recycling and reuse, renewable energy (in specific solar), innovation districts with incubators.

The program attracted leaders from the government, industry and not-for-profit sectors in India, Japan and Australia. Program participants had a hands-on experience to see Australian circular practices through visits to different industries and operations relating to water, waste, energy and materials management. A unique point of difference was that the program was developed for practitioners. At each facility, short presentations were made leading to discussions and better understanding. Several handouts were shared during the visit.

The companies that participants visited included Peats Soils and Garden Supplies; ResourceCo; Jefferies Group; Advanced Plastic Recycling; Northern Adelaide Waste Management Authority and South Australia (SA) Water. There was also a

presentation from Salisbury city on the massive program they have on harvesting and reusing stormwater.

Highlights of some of these companies are described below.

Peats Soils and Garden Mulches

Peats Soils and Garden Supplies produces and sells as much as 150,000 tonnes of compost, soil and mulch products in South Australia each year. Peats has developed its own proprietary process to manufacture compost products which improve crop yield and quality for viticulture, broad-acre and horticulture. BiobiN® is an on-site, capture and containment system used for organic material processing (starting the composting process) in an odour-free, easily accessible vessel. Peats has begun producing biodiesel from grease trap waste – the mixture of cooking oil and wash down waters that cafes, restaurants and takeaway outlets funnel into underground waste tanks.



ResourceCo

ResourceCo is South Australia's largest specialist processor of construction and demolition, and commercial and industrial waste. It recovers and processes over two million tonnes of mixed construction and demolition waste materials per annum, producing recycled concrete/aggregates/asphalt products for use in construction and road

GLOBAL LEADERSHIP PROGRAM ON CIRCULAR ECONOMY IN SOUTH AUSTRALIA



base, and grinds combustible materials for use as an alternative fuel to fossil fuels.

Advanced Plastic Recycling

Advanced Plastic Recycling manufactures wood plastic composite (WPC) products which are used in many parts of Australia and internationally. Its products can be found in parks, gardens and schools,



by the side of the nation's roads and throughout the transport, mining and agricultural industries. One of the major recent innovations has been creation of composites of plastic and saw dust to make railway sleepers. A great way to gobble up the plastic waste!

Northern Adelaide Waste Management Authority

The Northern Adelaide Waste Management Authority (NAWMA) is run by the Playford and Salisbury Councils in metropolitan Adelaide and the nearby Town of Gawler, NAWMA co-ordinates a comprehensive waste collection service that focuses on encouraging and supporting households to separate recyclable and green materials from other waste. In addition, its Waste Recovery Centre includes a drive-through Waste Transfer Station for people to deliver other waste products, a recycling service for bottles and cans and a retail outlet. As a result, more than half of the waste collected in its core region is diverted from landfill.

SA Water

The Virginia Pipeline Scheme is a successful wastewater reuse project in South Australia. The scheme involves an innovative public private partnership approach to providing sustainable recycled water infrastructure for the Virginia area,

The program gave ample opportunities to discuss experience of policies in practice such as South Australia's Container Deposit Legislation. The participants attended an actual session of teachers

coaching the students on waste segregation and recycling. They got exposed to the iconic non-government organization Keep Australia Beautiful (KESAB).

Finally, the high point was the visit to the Tonsley Innovation District. This innovation district is one the first in Australia. It was fascinating to meet with eco-entrepreneurs who set up and scaled up their businesses with mentoring support from Innovyz.

The pilot global leadership program gave us a valuable insight to further refine the program design. Feedback received from participants was extremely positive.

We will be launching a 3 weeks e-learning program on Circular Economy before end of the year. The modules will include glimpse of the companies in the form of video clips.

The next leadership program may take place between November-December over 4.5 days duration in Adelaide. We may do a two days precursor program in India to cover essentials on circular economy as a primer to the participants. The participation will be on a competitive basis following an application and selection procedure. We are exploring part sponsorship to deserving candidates.

I thoroughly enjoyed my stay in Adelaide as a speaker and as a coach. For subjects like Circular Economy, a blend of theory and experiential learning is certainly the way. The program should not only confine to "learning" but on "how to lead and transform the organization" and make "connections" leading to partnerships, innovations and investments.

I congratulate GISA for developing such an innovative apparatus and running a truly inspirational Global Leadership program. My sincere appreciation for partnering with Ekconnect.

I am sure you will be interested to know more. Do write to me at prasad.modak@ekconnect.net and I will be happy to respond.



MEASURING CIRCULARITY

- Sunita Purushottam,
Treeni Sustainability Solutions



Circular Economy is a hot topic in Industry Circles these days and we are seeing a spate of conferences in India.

We know that circular models are regenerative in nature and are restorative since materials are recovered instead of using virgin materials leading to lesser embodied carbon. This approach results in reduction in negative externalities. While most businesses are trying to figure out what CE means to their business, many have understood that CE helps to achieve most of the SDGs. However very few in India are talking about how CE should be measured.

Circularity indicators can be leveraged to reduce business risk associated with market price volatility associated with scarce resources and stringent upcoming regulations. They help provide insights on how value can be generated both social and environmental which can provide tremendous economic benefits as well as enhance brand image. Circular economy indicators provide us with summarized, focused and condensed information. The indicators can provide objective, credible information on the status of the 'system' which is useful for governments, industries and societies to

clarify and reach desired outcomes through thinking.

Three prominent types of frameworks are reported for measuring CE.

(1) Material flow accounting (MFA): Determine the flow of materials and energy through the economy on multiple scales.

(2) Eco efficiency indicator frameworks: Measure environmental performance related to economic performance.

(3) Hybrid indicator frameworks: An integrated environmental and economic measure can be developed which determines cost-effectiveness rather than efficiency.

Measuring the circularity efforts through Key Performance Indicators (KPIs) is critical in supporting internal decision making or informed investment choices. Table 1 is a simplistic starting point for indicative KPIs and plausible initiatives. Each enterprise will need to choose the appropriate indicators based on their business.

1. Ellen MacArthur Foundation. (2013). Towards the Circular Economy: Economy and business rationale for accelerated transition. *Journal of Industrial Ecology*, 1(1), 4–8

2. Ghisellini, P., Cialani, C., & Ulgiati, S. (2015). A review on circular economy: the expected transition to a balanced interplay of environmental and economic systems. *Journal of Cleaner Production*, 1–22.

3. Dietz, S., & Neumayer, E. (2007). Weak and strong sustainability in the SEEA: Concepts and measurement. *Ecological Economics*, 61(4), 617–626.

4. Ellen MacArthur Foundation and Granta Design, and integrated with the MI:Product Intelligence package, which enables users to analyse and evaluate a range of environmental, regulatory, and supply chain risks for their designs and products.



Table 1 : Indicative KPIs and Plausible Initiatives

Waste in Linear Economy	Where in value chain	Description	What can be measured	What initiatives can be embraced to move to circularity
Wasted Resource	Sourcing, Manufacturing, Logistics	Elimination of wasted resources by introduction of renewable energy and bio-based fuels, chemicals and materials Elimination of wastes during sourcing and manufacturing	Percentage of renewable/bio-based energy not only in manufacturing, but also in sourcing and logistics Material Consumption per unit Resource Productivity: Mass balance of materials procured w.r.t production output, Loss of revenue due to inefficient production process	RE 100, EP 100, EV 100, green freight logistics Materials inventory and mass balance, improved production efficiency – adoption of 6 sigma approach, 5-S in context of wastes.
Wasted capacities	Logistics, Marketing and sales and product use	Elimination of wasted capacity: increase in sharing, co-owning, and other forms of resource pooling	Services procured instead of assets (ex. Print services, lighting services) – Total Cost of assets vs services over time Avoided carbon emissions due to route optimisation and utilisation of capacity of freight, Frequency of car/freight-sharing by journey and type	Procurement of services instead of assets Freight optimisation due to collaboration with other industries – Industrial ecology projects
Wasted lifecycles	Product Use, end of life disposal	Elimination for waste lifecycles: Remanufacturing, refurbishing, products that last	% of product taken back % of products refurbished % of products remanufactured Product repairability Average product life Average Spending on product repair and maintenance	Remarketing of refurbished and remanufactured products Establishment of partner ecosystem of takeback Increased focus on design for product repairability, Focus on high quality longer lasting products Warranty and customer care
Wasted embedded values	Reverse logistics	Elimination of wasted embedded values: Increase in recycling, upcycling, component harvesting, energy recovery	% of products recycled after end of life % of products upcycled % of components/materials recovered % of products co-processed or waste to energy FTE generated due to circular economy	Establishment of collection and take back Working with designers for upcycling end of life post-consumer use Co-processing for hazardous wastes in Cement plants Generate jobs that are part of circular economy and CE enabling sectors.



THE CIRCULAR ECONOMY: A POWERFUL FORCE FOR CLIMATE MITIGATION

- Jessica Bernard
Environmental Management Centre LLP

Much has been discussed and debated on resource efficiency, waste management and smart cities in the context of Circular Economy (CE). There have been several reports and symposia emphasising on these aspects. Climate Change has been mentioned at times, though it was not analysed holistically in the context of CE so far. The Material Economics report of 2018 illustrates a new take on circular economy focusing on Climate Mitigation. The report discusses on placing climate mitigation within CE so as to achieve low carbon and resilient societies.

Europe has been facing environmental problems arising from industrial emissions. Greater contribution in industrial emissions is by heavy industry which produces basic materials. Four key material categories in Europe that contribute to more than 66% of industrial carbon emissions are Steel, Plastics, Aluminium and Cement. Mobility and Buildings account for more than 50% of emissions from steel, plastics, aluminium and cement. In order to achieve the climate related commitments, use of low carbon energy is not the only solution. Managing industrial emissions also plays a greater role.

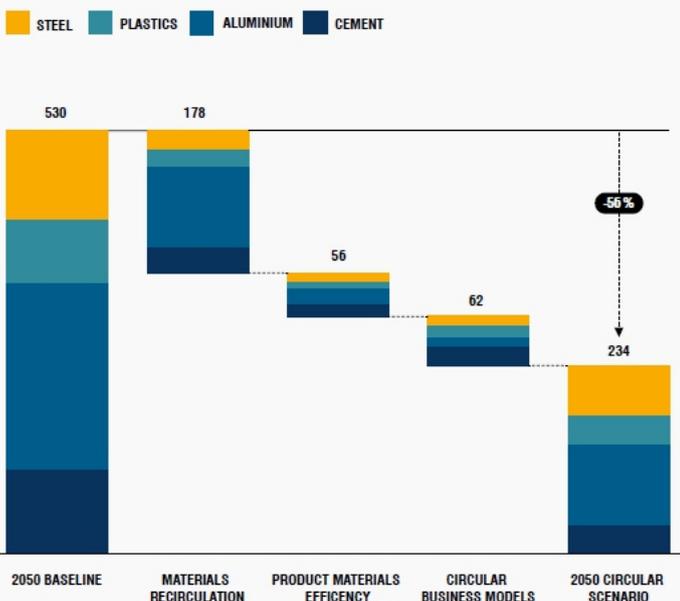
The report emphasises on three circular strategies to cut industrial emissions. These are materials recirculation, more material-efficient products and new circular business models. Material recirculation aims for increasing both the volume and the quality of secondary materials. Material-Efficiency can reduce the total materials input required to produce a given product or structure, through light weighting, reduced waste, high strength materials, and other strategies. New CE business models can be promoted to tackle emissions from the priority sectors: mobility and buildings. Circular economy can increase the benefits derived from each building or vehicle through shared use and measures to prolong their lifetime. These measures collectively can help the EU economy achieve their emission targets.

The circular shift can bring forth several benefits to the European economy. It can increase productivity and reduce costs. There will be reduced pressure on already dwindling resources. There will be other co-benefits like lesser pollution and degradation. The circularity strategies can increase efficiency and reduce emissions while creating profit.

The report concludes that a more circular economy can make deep reductions in the emissions from heavy industry: in an ambitious scenario, as much as 296 million tonnes CO₂ per year in the EU by 2050, out of 530 in total – and some 3.6 billion tonnes per year globally. The CE future calls for effective use of both supply-side and demand-side measures. However, the report reiterates the need to increase the demand-side efforts. Circular Economy can thus pave way towards an economically and resource efficient, low carbon as well as sustainable society.

The review is based on The Circular Economy: A Powerful Force for Climate Mitigation. You may find the full report here:
<https://www.sitra.fi/en/publications/circular-economy-powerful-force-climate-mitigation/>

EU EMISSIONS REDUCTIONS POTENTIAL FROM A MORE CIRCULAR ECONOMY, 2050
Mt OF CARBON DIOXIDE PER YEAR





academia, civil society and consulting sector. The roundtable was chaired by Mr. Vijay Srirangan, DG, BCCI and Dr. Prasad Modak representing the IMC. In session I, Dr. Prasad Modak, briefed the participants on the concept and evolution of CE. This presentations was followed by a panel discussion consisting Mr. Ulhas Paralikar- Director Geocycle India- ACC Limited, Mr. Balaji Gurusurthy- Responsible Banking, YES BANK, Mr. Selvakumar Ramasamy- Group Sustainability Cell, Aditya Birla Group and Dr. K N Rao, Director Energy & Environment, ACC Limited.

Recently, a vibrant international network of CE professionals was established as Circular Economy Club (CEC) (<https://www.circulareconomyclub.com/>). In order to promote CE on a global basis, Circular Economy Club coordinated a Mapping Week (7th-12th February 2018) across 60+ cities in the world. Ekonnnect, an active partner with CEC, conducted roundtables on CE in Ahmedabad, Pune and Chennai during the Mapping week.



These roundtables were organized in partnership with faculty of planning CEPT university, Maratha (MCCIA) and Madras Chamber of Commerce and Industry(MCCI). The roundtables also provided an opportunity to introduce the Leadership Program on Circular Economy, receive feedback and establish connections.

The participants engaged in an open forum discussion on the challenges towards implementation of CE and the need for capacity building.

Write to Dr. Modak at prasad.modak@emcentre.com if you want to receive a copy of this presentation.

The fourth and the largest roundtable in this series was held in Mumbai on 4th May 2018 in partnership with Bombay Chamber of Commerce and Industry (BCCI) and the Indian Merchant Chamber (IMC). The event was attended by representatives of industry,

A whatsapp group has been formed on recommendations of the roundtable. To know more and to join the Group, please contact Dr. Prasad Modak.





SUSTAINABILITY COMMITTEE ACTIVITIES

Activities

- Site Visit at the Manufacturing Facility of Schindler, Chakan on July 27, 2018
- One Day Certified Training Corporate Social Responsibility (CSR) Policy, Strategy & Practice on August 8, 2018
- Certificate Training in Occupational Safety August 9- 10, 2018

FORTHCOMING EVENTS : REGISTER

Certified Training in First Aid	August 28 & 29, 2018
Seminar on Machine Safety	August 31, 2018
Master Class for Public Speaking	September 5, 2018
Site Visit to Ambuja Nagar : Sustainability and Water Resources Development and Management in Gujarat Last Date of registration 10 September	October 4 & 5, 2018

For more details kindly visit website www.bombaychamber.com or contact Ms. Aneeha / Ms. Shruti csr@bombaychamber.com / ybf@bombaychamber.com

TRAINING COURSES OFFERED BY BOMBAY CHAMBER

Bombay Chamber of Commerce and Industry is 182 years old organisation, an oldest Chamber in the Country. It has been understood that the Sustainability of the business is dependent on the human resource of the organisation. The corporate are investing on their very important Human Resource to enhance their knowledge and skills. As a service to the members and potential members, the Chamber is offering following training courses in the Chamber's premises and organisation's premises as well.

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|--------------------------------------|--|
| 1. Women Safety | 16. Innovation and Creativity |
| 2. Prevention of Sexual Harassments | 17. Leading with Emotional Intelligence |
| 3. Management of Finance | 18. Personal Excellence and Branding |
| 4. Work-life balance | 19. Coaching and Mentoring |
| 5. Stress Management | 20. Customer Orientation |
| 6. Corporate Grooming | 21. Time Management |
| 7. Women Empowerment | 22. Transformational Leadership |
| 8. Spirituality | 23. Towards Winning Teams and Interpersonal Skills |
| 9. Training in yoga | 24. Corporate Etiquette & Professional Presence |
| 10. Women related Health Problems | 25. Oral & Written Communication Skills |
| 11. Ergonomics Safety | 26. High Impact Presentation Skills |
| 12. Leadership Skills | 27. New Age Manager |
| 13. Conflict Management | 28. Customer Complaint to Customer Loyalty |
| 14. Finance for Non-Finance Managers | 29. Leadership & Accountability |
| 15. Enhancing Productivity at work | 30. Effective Meeting Facilitating Skills |

We are sure that corporate will take advantage of the opportunity.

For more details contact:

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