

Circular Economy

SQ - raising the Sustainability Quotient



Circular Economy

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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

Bombay Chamber of Commerce and Industry (BCCI) and Environmental Management Centre LLP have been publishing a quarterly newsletter called Sustainability Quotient (SQ) for the past four years. These newsletters have been greatly appreciated by the members of BCCI. This year onwards we decided to focus the newsletters on the subject of Circular Economy. The newsletter will be issued bi-monthly carrying 10 pages as against the earlier SQ that was quarterly with 16 pages.

Today, Circular Economy (CE) has attained a significant international attention. CE encourages "circularity" of the material and energy flows through Reduce, Reuse, Recycle, Repair, Refurbishing and Remanufacturing. It makes governance effective, businesses more competitive, generates employment, increases "green investment" flows and stimulates innovation. Importantly CE helps to achieve environmental sustainability while improving the sustainability quotient.

In the CE newsletter, we plan to feature articles that present the CE concept and highlight international experiences at both policy and practice levels. We will present Indian case studies and update the readers with latest news and events. Application of CE across various sectors such as Water, Waste and Energy will also be described. Potential and experience of CE in cities and industrial estates will be featured through case studies.

We hope that this Circular Economy newsletter, will help the readers in appreciating and adopting Circular Economy.

I would urge all the members of BCCI to contribute to this newsletter and provide us with your comments and suggestions. This will help us to make this newsletter more effective and serve as a useful resource.

- Prasad Modak

CIRCULAR ECONOMY: IN THE CONTEXT OF SMEs



- Jessica Bernard & Dr. Prasad Modak

 ${
m C}$ ircular Economy (CE) has taken over the development debates, growth discourses, resource security related discussions and sustainable development. Similar to the "triple bottom line" concept of sustainability, CE addresses economic, socio-cultural and environmental factors. With European Union and countries like Japan, South Korea and China upholding the concept, CE has received even bigger acclaim. However, the concept is yet to reach both policy and practice levels across the development sectors and regions world wide. To get a closer view of circular economy, it is important that we understand its evolution and understand what does Circular Economy entail and what promise does it hold for Small and Medium Enterprises (SMEs)?

CE revolves around a "system" that is based on restorative and regenerative principles. It is a shift from the traditional 'take-make-dispose' models and offers sustainable modes for resource use and reutilization. The concept of waste is eliminated, and instead a continuous circulation of materials is envisaged. According to Ellen Macarthur Foundation, "a circular economy is restorative and regenerative by design and aims to keep products, components, and materials at their highest utility and value at all times¹". It entails gradually decoupling resource consumption from economic growth. A circular system represents a systemic shift that builds resilience, creates business opportunities and jobs, enables communities and ensures good environmental performance. In view of the looming threat to our resource security due to climate change, mainstreaming CE in our governance, businesses and investments and in education becomes extremely critical.

To illustrate a transition to circular economy within sustainable manufacturing, it has been a journey over decades. Following figure shows the transition from pollution prevention to circular economy.



Evolution from pollution prevention to circular economy

The Constituents of Circular Economy

The concept of circular economy can be broken down into 6 main activities². These activities can enable companies to reduce resource consumption, improve their resource use efficiency, production or outputs while minimising waste. By practicing these activities, circularity gets addressed across the "life cycle" and concerned stakeholders and so there are larger environmental, economic and social benefits. Employment in the form of green jobs, innovations and increased investment flows are some of the major benefits apart from waste reduction and resource conservation. Box 1 provides more description of these activities

Activities in Circular Economy

Regenerate: This means ensuring regeneration of resources and use of renewable sources. An example is use of solar power for manufacturing processes.

Optimise: This includes improving the efficiency of supply chain and effective supply chain management to reduce waste. An example is green supply chain management in the company for resource efficiency.

Share: This calls for sharing products and resources through maintenance, design and innovative business models. The example is of a sharing model for appliance renting.

¹ Ellen MacArthur Foundation. (2015). Towards a Circular Economy: Business Rationale for an Accelerated Transition ² McKinsey and Company (2017). Mapping the benefits of a circular economy

CIRCULAR ECONOMY: IN THE CONTEXT OF SMEs



Virtualise: This supports virtual transactions, delivery of goods and services etc. An example is reducing paper use and encouraging virtual reporting, mails etc.

Exchange: This entails replacing old materials with advanced renewables or applying new technologies for continuous resource circulation. An example is replacing old appliances with latest versions with more energy efficiency.

Loop: This enables a 'closed loop' system of resources through remanufacturing, refurbishing and recycling. An example is of circular car battery which can be recycled and used for remanufacturing after end of life.

An industry that can gradually integrate these activities into its processes can aim for a circular economy model. Though all activities cannot be integrated at once, adopting them in stages has been found feasible. A partnership with stakeholders is necessary and Government support greatly helps.

Circular Economy for SMEs

CE offers many possibilities for SMEs to gradually shift to sustainable manufacturing.

As the world is taking the call towards CE, it is also the perfect time for Indian manufacturers to make the shift. It could help the firms to adopt resource efficient and cleaner production strategies at the earliest to improve competitive advantage in national and international markets. A circular economy based pathway can help India achieve its targets on GHG emission reduction, resource efficiency and waste management. It was found that following CE strategies could help the Indian economy to reduce GHG emissions by 44% by 2050 compared to the linear economic system followed now. Additionally, a CE model can reduce the consumption of virgin non-renewable materials by 38% in 2050³.

In India, SMEs contribute to approximately 45% of manufacturing input. Adopting circular economy in such a scale is not just about improving environmental performance. It aligns closely with improving resource efficiency thereby conserving materials in micro-economic and macro-economic considerations. These resource savings that can be realised via CE offers possibilities for using investments elsewhere and gives a globally competitive status for India SMEs. We need to develop and promote new business models for SMEs to achieve circular economy. These should go beyond the traditional Reduce, Reuse, Recycle and integrate more aspects related to Redesigning of products. For e.g. Product Stewardship or Extended Producer Responsibility is crucial in achieving many CE goals.

However, to realise circular economy in SMEs there are certain prerequisites to be met. Capacity building and support to providers of circular solutions are important. Government and research institutions must work together with the industry closely for converting innovations into viable business models. SME support organisations and associations have a bigger role to play in the transition. They could guide and facilitate the circular transition with collaboration from academia, policy makers and investment agencies. Thus, collaborative efforts with all stakeholders, competitiveness and innovation are the cornerstones for realising the circular transition.

³ Ellen Macarthur Foundation. (2016). Circular Economy in India. Rethinking growth for long term prosperity

ELLEN MACARTHUR FOUNDATION INDIA REPORT: A BRIEF REVIEW



- Jessica Bernard

ndia with an average of 7.4% economic growth per year in the last decade is expected to become the fourth largest economy in about two decades. The country is embarking on a growth journey which faces resource scarcity, rapid urbanisation, poverty and inequality alongside. At this juncture, India has the choice to follow the traditional linear model based on industries or a sustainable, circular path which emphasises on resource recovery and resource recirculation.

The report, Circular Economy in India: Rethinking Growth for Long-Term Prosperity, portrays a circular economic future for India*. It is a report that considers the rapidly changing economy in the country, urbanisation, rising middle class and so on. The report finds that many activities with circular potential are already taking place in the Indian economy. The repair and recycling of materials as well as many informal sector initiatives bring in resource recovery and circularity. However, a large number of such activities take place at the end of value chains and hence optimal resource recovery and value addition fail to be realised. Additionally, there are also environment and health risks associated with such resource recycling and reusing methods. There is also a need to link the informal and formal sectors engaged in Circular Economy

The report identifies circular economy opportunities in three focus areas: cities and construction, food and agriculture, and mobility and vehicle manufacturing. Household expenditure in these three areas taken together (housing, food, and mobility) accounts for more than two-thirds of average household spend in India, both in urban and rural areas. The report was prepared after interviews with national and international experts, workshops and meetings. The report includes a detailed analysis comparing costs and externalities between the current scenario and a circular economy scenario in the three focus areas in 2030 and 2050. In 2015 Ministry of Environment, Forests and Climate Change constituted Indian Resource panel to address resource efficiency and secondary material utilisation.

Main findings of the report	
Cost savings in GDP 30% by 2050	
Material Savings for Business	
Lower GHG emissions 44% lower in 2050	
Reduced congestion & pollution	
Leveraging digital technology	¢,
Gain competitive advantage	

The report concluded that Indian businesses are well-places to embark on a circular transition. Strong policy support and awareness can fasten this process. The report gives five recommendations for companies to adopt circular measures.

- ✓ Build circular economy knowledge and capacity
- ✓ Innovate to create new products and business models and demonstrate their success
- ✓ Integrate circular economy principles into strategy and processes.
- ✓ Collaborate with other businesses, policymakers, and the informal economy.
- ✓ Invest in circular economy opportunities

The NITI Aayog of Government of India is now looking on the policy and schemes to promote Circular Economy.

^{*} This Report can be accessed at https://www.ellenmacarthurfoundation.org/assets/downloads/publications/Circular-economy-in-India_5-Dec_2016.pdf

CIRCULAR ECONOMY A PATHWAY TO NEW JOBS AND ECONOMIC PROSPERITY IN SOUTH AUSTRALIA

- Green Industries South Australia



South Australia is a State of Australia, and has some of the most arid areas of the country and is the largest wine producer in Australia. It is home to the world renowned Adelaide oval, and has a land area of 983m sq km, and a population of 1.7m.

A major study released by Green Industries SA in 2017 showed how a Circular Economy in South Australia can create jobs and reduce carbon emissions. The study, Creating value, the potential benefits of a Circular Economy for South Australia (www.greenindustries.sa.gov.au/circular-economy) is unique to Australia. It provides credible evidence to show how a more Circular Economy can achieve economic growth while producing minimal waste and pollution. It conservatively estimates that by 2030 - compared to a "business-as-usual" scenario a circular economy could greatly expand and make a tangible difference to people's lives. An additional 25,700 fulltime jobs could be created by 2030 in diverse areas such as reuse, remanufacturing and leasing products through service systems – with the aim of keeping materials circulating in the economy as long as possible. A Circular Economy could also reduce South Australia's greenhouse gas emissions by 27% or 7.7 million tonnes of CO₂ equivalent making a significant contribution towards reducing future climate change.

Gaining momentum internationally, the concept is still being developed in Australia. The study however reinforces South Australia's reputation for leadership in innovative practices and reforms in waste management, recycling and resource recovery, it already has a significant head start. Circular Economy aligns with the South Australian State Government's focus on stimulating employment, building resilient local economies, and developing a low carbon economy.

Green Industries SA Chief Executive Vaughan Levitzke says that the Circular Economy has the potential to support the State's transition from an 'old' to a 'new' economy. "Lasting changes can be made – from our economic prosperity, to protecting the environment and maintaining the quality of life we value, to reducing carbon emissions. South Australia's recycling rate is a success story, as we currently divert from landfill more than 80 per cent of the waste we generate. The resource recovery industry has an annual turnover of around \$1 billion, contributing directly and indirectly more than \$500 million to Gross State Product, and employing around 5,000 people. This puts South Australia in a good position, but it does not mean that our economy is as circular as it could be. Products that are reused or re-manufactured retain much more of the value created during manufacturing, than if these were only recycled."

Green Industries SA is helping to drive the circular economy agenda not only in South Australia but also internationally, through its recognition of the United Nations Sustainable Development Goals. It's just over 12 months since South Australia hosted the prestigious global forum – the Seventh Regional 3R Forum in Asia and the Pacific – a first for Australia. At the forum political leaders and decision-makers from 40 countries in the Asia-Pacific region agreed to the Adelaide 3R Declaration - 'towards the Promotion of Circular Economy in Achieving the Resource Efficient Societies in Asia and the Pacific under the 2030 Agenda for Sustainable Development'. This is a commitment from all participating nations to promote the circular economy to achieve resource efficient societies in Asia and the Pacific under the 2030 Agenda for Sustainable Development.

There are many examples of Circular Economy applications in South Australia. Some of the successful practices can be seen in Share N Save, Peats Soils and Garden Supplies and the Sundrop Farms. Some of these case studies will be published in the later issues of the newsletter.



http://www.sundropfarms.com/blog/



CIRCULAR ECONOMY IN TAIWAN

- Dr. Hwong-wen Ma

Professor and Director at the Graduate Institute of Environmental Engineering. (GIEE) National Taiwan University | NTU

The promotion of 3R (Reduce, Reuse, Recycle) is an urgent issue for Asian countries where waste generation is increasing along with economic as well as population growth. In Taiwan, the implementation of 3R and cleaner production measures was regarded as the starting point to offer environmentally friendly alternatives to deal with increasing generation of waste, and to contribute to the upgrading of Taiwan's manufacturing industries.

The focus was then turned to the management of resources on the basis of industrial ecology. Empirical cases have given priority to energy and water to establish a closed loop in specific areas, particularly in industrial parks. This model is then extended to various kinds of industrial wastes identified as "industrial symbiosis", by which waste is recycled to serve as the raw material for other processes. The exchange of waste heat, waste water and other waste streams among enterprises has led to the paradigm of an eco-industrial park architecture that facilitates the integration of energy, water and materials to enhance resource efficiency. Besides, cities also endeavor to form a sound material-cycle society, continuing to promote the integration of 'arterial' industry and 'vein' industries.

Recently, Taiwan Environmental Protection Agency (EPA) has initiated sustainable material management programs as the solution to decoupling environmental impact from economic development. Sustainable materials management focuses on the dynamics of materials in economic and environmental activities to optimize material use and consumption. Taiwan EPA established a web-based information system to analyze the issues of resource consumption and waste generation, enabling the country to manage resources and wastes from a life cycle perspective. This pioneering system can trace material flows through the associated production supply chain and consumption activities. Integrated with economic models, this system can predict the possible overloading on the current waste management facility capacities and provide decision support for designing strategies to approach resource sustainability.

In 2014, the Taiwan EPA has expanded 3R to 6R activities that include "energy recovery" and "land reclamation" (which means the use of waste materials as backfills), as well as "redesign". Redesign is closely related to circular economy, and is pivotal to optimizing the other 5Rs. The significance of redesign includes the following: it causes the reduction of the amount of resources used by a product, corresponding to the 1st R; redesign can make the product easier to maintain and easier to re-use, corresponding to the 2nd R; redesign for recycling and reassembling can prolong the lifetime of the product, corresponding to the 3rd R. The ultimate goal of the strategic direction is moving toward zero waste in Taiwan.



In 2016, the Taiwan government proposed "five plus two (5+2)" national economic development policy. Circular Economy is included as part of the new policies and incorporated into nationwide "Forwardlooking" Infrastructure Development Program at a scale of \$30 billion in the next 8-year. In order to accelerate decoupling between economic development and resource consumption, the Taiwan EPA has set a target of 6.1% of resource recycling rate by 2020, as well as increase of resource productivity by an annual average of 4.1% to go from \$1.5/kg in 2011 to \$2.3/kg in 2022.



Waste reduction and recycling derived from 3R activities provide a sound foundation for urban mining. Some enterprises have made efforts to enhance the high-value utilization of the recycling materials, and have developed high value-added recovery technologies such as the dismantling of waste electrical and electronic equipment or of scrapped vehicles. Those industries focus on advanced technologies in extraction and purification of recycling materials, and join venture with brand business to redesign and provide new business models. For example, Wistron and Dell Computer successfully launched Closed Loop PCR plastic notebooks. The post-consumer recycled material is blended with virgin plastics to promote the mixed resin that contains up to 35% recycled content, and this mixed resin is used as the module of new products.

A combination of process design and business models to create reverse logistic of recycled materials can profit the environment and economic markets under the prospective of circular economy. Because the commercial tactics of most Taiwanese manufacturers lean on large consumption and production, many products are difficult to repair for the reuse, which result in lots of waste from consumption. The government and enterprises nowadays are gradually paying attention to circular business model instead of linear economy that allows products to be reused by renting through the shared platform. For example, U-Bike, in conjunction of providers and bicycle manufacturers with a shared platform derived from the cloud information system, has successfully extended the life of the bicycle.

The Small and Medium Enterprises (SMEs) dominate the industrial structure in Taiwan, and are considered the backbone of the economic system. SMEs have good opportunities to grow and strive in the move to circular economy. Therefore, SMEs need to formulate a strategic blueprint for the innovation and transformation for circular economy. To be in line with the governmental pledge and endeavor to pursue circular economy, it is time for SMEs to innovate and move forward, and create social and economic value simultaneously.

LEADERSHIP PROGRAM ON CIRCULAR ECONOMY IN INDIA



A Memorandum of Understanding (MOU) was signed between Green Industries South Australia and Ekonnect Knowledge Foundation in January 2018 for a Program in Circular Economy Leadership. The signatories were Ian Hunter, Minister for Sustainability, Environment and Conservation, South Australia and Dr. Prasad Modak representing Ekonnect.

The 5-year MOU between South Australia and India provides a platform for both parties to collaborate in the development of an executive leadership training course related to the circular economy. Led by Dr Prasad Modak, will enable the development of a pilot E-learning and pilot F2F course to be delivered in Adelaide, South Australia in June 2018. The training will target people who seek to enhance their credentials and expertise in circular economy, resource efficiency and resource recovery areas and take a leadership position.

By linking into the knowledge and experience of South Australia, the leadership supports Government of India's recognition that waste management and the circular economy are key priorities". The key targets for the course will be leaders and decision makers from business, academia, community-based organisations and government. A special focus will be given to Indian Government's Smart Cities, Atal Mission for Rejuvenation and Urban Transformation -AMRUT program, Make in India initiative, Swachh Bharat Abhiyan (Clean India), Namami Gange (Ganga River Action Plan), Interlinking of Rivers and Climate Resilient Agriculture.

Leadership in Circular Economy

Online Course: Leadership in Circular Economy-Starts May 2018 - spread over 3 weeks

Face2Face Course: Leadership in Circular Economy- 7 days in June 2018

The F2F course will have a strong practice component with visits to Australian industries and CE centres.

For more details please contact prasad.modak@emcentre.com

NEWS & RESOURCES

Circular Economy Mapping week - 5-11 Feb 2018 A world wide event in 67 cities

Be a member of the Circular Economy Club https://www.circulareconomyclub.com/

Stay Updated http://circulatenews.org/

Circularity Gap Report

https://www.circle-economy.com/the-circularity-gap-report-our-world-is-only-9-circular/#.Wmmd60uYOb8

Circular Economy at World Economic Forum

https://www.weforum.org/agenda/archive/circular-economy/



Certificate Training in Electrical Safety "Learn the Theory, Master the Practice" (3rd batch) -23-24 November, 2017, at Siemens Ltd , Kalwa Works , Thane

There is no compromise when it comes to safety. Continuous training on latest equipment and techniques is the first step towards the **"Zero Harm Culture"** that enables individuals to work responsibly without any accidents. It is proven that Hazard Identification, Risk Assessment, Proper Planning of technically correct work procedures, Awareness, Vigilance and Ownership are the prerequisites for the "Zero Harm Culture". Recognizing the need to provide high-quality training on safety, Bombay Chamber in collaboration with Siemens India conducted a 3rd batch of Two Days Training in Electrical Safety.

Site Visit: Godrej & Boyce Mfg. Co. Ltd. -8 December 2017, at Godrej & Boyce Mfg. Co. Ltd.

Industry Site Visits are organised on regular basis by Bombay Chamber to learn by witnessing the best practice implemented by the organisations. Once again, the Chamber organised an Industry Site Visit for learning from Sustainability Best Practices effectively implemented by Godrej & Boyce Mfg. Co. Ltd. This was an opportunity created by Bombay Chamber to learn from peer experiment, best practices and replicate without any trial and error. The delegates witnessed during the Visit - Effluent Treatment Plant, Sewage Treatment Plant, Haz. Waste Management Site, Solid Waste Management Site, Rain Water Harvesting, Mangroves etc. Exploring Possibilities of Customised Integrated Reporting Framework for India - 18 January 2018, at Bombay Chamber, Dadar

The traditional Integrated Reporting (IR) framework that is practiced globally (and by some companies in India) essentially deals with linkages between the financial report and the Sustainability report, and a possible simultaneous release. What this meet discussed and explore was that an Integrated reporting framework designed for Indian context is the need of the hour wherein it (may) retain the traditional meaning of the IR. It also addressed the key concerns of the India Inc related to multitude of (similar themed) reporting requirements. If there can be one IR that addresses this, this makes the whole process efficient and helps release the bandwidth for more relevant tasks.

Corporate Social Responsibility Mosaic: New Age Models & Practices - 31 January 2018, at Bombay Chamber, Dadar

CSR has become mandatory in India. The industry has also realised the importance of CSR and understanding the relationship with stakeholders. It also increases its brand value as a responsible organisation. CSR transforms thinking by formulation of ethical governance practices while preparing business strategies for the organisation. This also influences social inclusion and sustainability of business and CSR.

CHAMBER'S SUSTAINABILITY COMMITTEE'S FORTHCOMING ACTIVITIES



Practical Training in Basic Fire Safety (One Day- 7 February 2018) & Practical Training in Advance Fire Safety (Two Days -8- 9 February 2018, at Siemens Ltd., Kalwa Works, Thane

Fire safety today requires a comprehensive understanding of safety needs and innovative solutions. Every fire safety market has different requirements when it comes to fire protection. That is why a solid fire safety concept is needed, customized to the individual on-site needs. Recognizing the need to provide high-quality training on safety, Bombay Chamber in collaboration with Siemens India is organizing a one day Basic and two days Advance training in fire safety. Certificate Training in Electrical Safety "Learn the Theory, Master the Practice" (4th batch) 22-23 February, 2018, at Siemens Ltd , Kalwa Works , Thane

Bombay Chamber in collaboration with Siemens India is conducting a 4th batch of Two Days Training on Electrical Safety.

For more details related to all training programs kindly visit www.bombaychamber.com

TRAINING COURSES OFFERED BY THE 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 corporates 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.

- 1. Women Safety
- 2. Prevention of Sexual Harassments
- 3. Management of Finance
- 4. Work-life balance
- 5. Stress Management
- 6. Corporate Grooming
- 7. Women Empowerment
- 8. Spirituality
- 9. Training in yoga
- 10. Women related Health Problems
- 11. Ergonomics Safety
- 12. Leadership Skills
- 13. Conflict Management
- 14. Finance for Non-Finance Managers
- 15. Enhancing Productivity at work

- 16. Innovation and Creativity
- 17. Leading with Emotional Intelligence
- 18. Personal Excellence and Branding
- 19. Coaching and Mentoring
- 20. Customer Orientation
- 21. Time Management
- 22. Transformational Leadership
- 23. Towards Winning Teams and Interpersonal Skills
- 24. Corporate Etiquette & Professional Presence
- 25. Oral & Written Communication Skills
- 26. High Impact Presentation Skills
- 27. New Age Manager
- 28. Customer Complaint to Customer Loyalty
- 29. Leadership & Accountability
- 30. Effective Meeting Facilitating Skills

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

For more details contact:

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