Organised by

Confederation of Indian Industry
125 Years: 1895-2020

Supported by

Ministry of Electronics and Information Technology, Government of India

Ministry of Environment, Forest and Climate Change

Digital India

GREENE

Supporting Associations

CEAMA

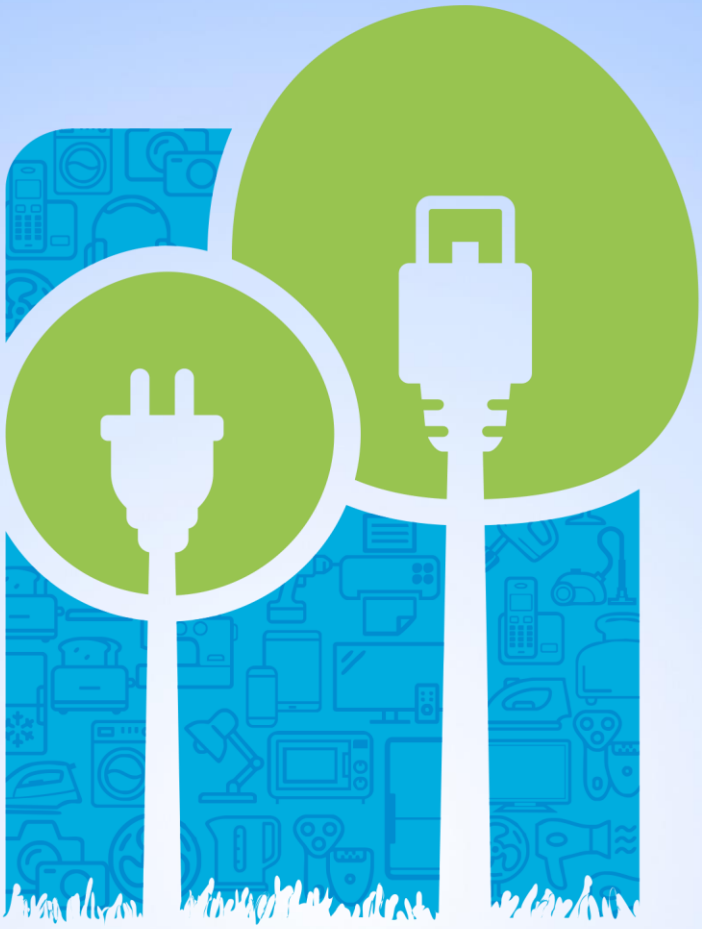
IWMA

MAIT

Knowledge Partners

CII-ITC Centre of Excellence for Sustainable Development

Greenco



E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

A VIRTUAL CONFERENCE
24th September 2020
Webex Digital Platform

A REPORT

Event Sponsor

World Scrap Recycling Solutions Pvt Ltd

Gold Sponsor

Adatte
E-Waste Management Pvt. Ltd.

Associate Sponsors

GREENWAVES

recykal

www.cii.in

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

A VIRTUAL CONFERENCE
24th September 2020
Webex Digital Platform

Thank you Supporters

Supported by

Ministry of Electronics and Information Technology
Government of India

Ministry of Environment, Forest and Climate Change

Digital India
Power To Empower

GREENE

Supporting Associations

CEAMA

IWMA

MAIT

Knowledge Partners

CII-ITC Centre of Excellence for Sustainable Development

Greenco

Thank you Sponsors

Event Sponsor

World Scrap Recycling Solutions Pvt Ltd

Gold Sponsor

Adatte
E-Waste Management Pvt. Ltd.

Associate Sponsors

GREENWAVES ENVIRONMENTAL SOLUTIONS

recykal

Organised by

Confederation of Indian Industry
125 Years: 1895-2020

Supported by

Ministry of Electronics and Information Technology
Government of India

Ministry of Environment, Forest and Climate Change

Digital India
Power To Empower

GREENE

Supporting Associations

CEAMA

IWMA

MAIT

Knowledge Partners

CII-ITC Centre of Excellence for Sustainable Development

Greenco

Virtual Conference on

E-Waste Management in India: New Business Opportunities

24th September 2020: Webex Digital Platform

Index

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

E-Waste Management in India: New Business Opportunities
24th September 2020: Webex Digital Platform

A REPORT

The Confederation of Indian Industry (CII) organized a virtual conference on `**E-Waste Management in India: New Business Opportunities'** on 24th September 2020 over Webex digital platform.

India ranks fifth amongst the largest e-waste producing countries, after USA, China, Japan & Germany, with over 3.2 MT of e-waste generated in 2019. With continuous growth of consumer electronics & appliances year-on-year, India has been witnessing a faster e-waste generation in recent times, which is growing at a compound annual growth rate (CAGR) of about 30 per cent in the country. Only 20 per cent of the global e-waste is currently recycled. This indicates that India has the potential, with the available manpower, infrastructure and by using advanced technologies, to be the E-waste Recycling and Managing hub of the world.

The total value of all raw materials present in e-waste is estimated at approximately $61.05 billion, which is more than the GDP of most countries in the world. Since India is highly deficient in precious mineral resources while untreated e-waste goes to landfill, there is need for a well-designed, regulated e-waste recovery regime which would generate jobs as well as wealth.

A United Nations (UN) report on E-Waste, indicates that due to poor extraction techniques, the total recovery rate of cobalt (the metal which is in great demand for laptop, smart phone and electric car batteries) from e-waste is only 30 per cent. The report cites that one recycler in China already produces more cobalt (by recycling) than what the country mines in one year. Recycled metals are also 2 to 10 times more energy-efficient than metals smelted from virgin ore. The report suggests that lowering the amount of electronics entering the waste stream and improving end-of-life handling are essential for building a more circular economy, where waste is reduced, resources are conserved and are fed back into the supply chain for new products.

E-waste collection, transportation, processing, and recycling is dominated by the informal sector. The sector is well networked and unregulated. Often, all the materials and value that could be potentially recovered is not achieved. In addition, there are

serious issues regarding leakages of toxins into the environment and workers' safety and health. This provides an opportunity for experts and technology innovators to play a key role by bringing innovative solutions in addressing the concerns and thereby opening avenues for new businesses.

Against this backdrop, the CII Conference was an attempt to bring all stakeholders under one platform to deliberate and explore appropriate solutions and business opportunities in this sector.

Eminent speakers from Government, Industry, Associations and Academia, have shared their views and expertise during the conference. While Dr. Prashant Gargava, Member Secretary, Central Pollution Control Board (CPCB) and Mr. Arvind Kumar, Group Coordinator & Senior Director, Ministry of Electronics and Information technology (MeitY), delivered their special address, Dr. Sandip Chatterjee, Director, MeitY,and Mr. Anand Kumar, Additional Director, CPCB, shared their vision on future of E-waste Management in India.

In addition, speakers from relevant organizations/companies, viz. India Cellular & Electronics Association (ICEA), CII, Manufacturers' Association for Information Technology (MAIT), Consumer Electronics and Appliances Manufacturers Association (CEAMA), European Union – Resource Efficiency Initiative (EU-REI) in India at GiZ, Industrial Waste Management Association (IWMA), Wipro Foundation, Centre for Materials for Electronics Technology (CMET), CSIR-National Metallurgical Laboratory, Adatte E-Waste Management, TES-AMM India, Karo Sambhav, Dell Technologies, Toxics Link, World Scrap Recycling Solutions, E-Parisaraa, Sofies Sustainability Leaders, and CII-Sohrabji Godrej Green Business Centre (GBC) addressed the conference sharing their views, expertise and future vision for E-Waste Management in India. A total of 23 speakers covered the following topics during the one-day conference:

- ✓ Government Initiatives
- ✓ Regulations, Challenges, Opportunities and Compliance Options
- ✓ Awareness and impacts of E-Waste Management Rules
- ✓ Business opportunities in E-Waste Management through EPR and Recycling
- ✓ Next Practices in E-Waste Management

Some of the key points emerged from this conference include:

- E-Waste is the topic of national importance - Huge Waste: Huge Opportunity
- E-Waste Management is on the verge of building an "Industry Sector"
- Government of India has already created Centre of Excellence for E-Waste, and is involving industry for creating appropriate policies and low cost technologies for recycling procedures – 50 SMEs to join the government for this initiative, under the Technology Transfer initiative. Government has created facility for extracting metals from circuit boards, and small players can avail this

facility with a minimum requirement of 100 number of boards. This opens a provision for start-ups to take advantage of government facilities. It is expected that the business of extracting precious metals from E-Waste will grow to US$6 billion by the year 2030, and this will be a big business opportunity for India.

- Rare materials from natural resources are depleting, there is a need to preserve these by re-using – 14 items can be recovered and re-used from an obsolete mobile phone.
- The beneficiaries of E-Waste Management includes, Recyclers, Private Sector, Informal Sector, Unemployed, Municipal Sectors, and Groups under Cooperative Societies.
- Provide CSR Funds to informal sector and make them efficient in E-Waste Management.
- In developed countries like US, E-Waste is known as “E-Scrap”, and it is a big resource.
- E-Waste Handling is a concern currently, which is affecting the environment and life. Due to the pandemic and Work-From Home situation, consumers are buying new electronic products, thereby putting extra load on E-Waste by adding more obsolete products to it.
- E-Waste management is a social responsibility. The sector needs more sustainable and joint awareness programmes among stakeholders and consumer about creating infrastructure, and creating wealth out of it. Government already created awareness programme and touched 21 crore population.
- Create awareness through Schools and Colleges; Industry associations should join hands with government to create awareness
- E-Waste, if not managed well, can pollute ground water, acidification of soil and add to air pollution
- Need to bring GreenCo Standards for E-Waste Recycling Process
- Government and Industry needs to come together for creating awareness, remove bottle necks and unleash the E-waste collection potential by addressing the lacunas in the legislation
- Government need to regulate E-Waste generation by producers
- Offer a well-defined regulatory system; leveraging digital technology for monitoring and better co-ordination between Industry and Governing bodies
- Promote Home-grown technology for effective E-waste recycling.
- Use the available workforce; work on technology upgradation
- Use government labs for creating affordable technologies and support small players
- Need investments for the Recycling industry
- E-Waste is hazardous – it is important to have proper precautionary measures, recycling facilities/compliance.
- Recycling to be paid for; and E-Waste to be given free of cost to recyclers
- High cost of infrastructure make E-waste recycling un-sustainable
- Need to look at innovators for new and low-cost technologies for the sector

- Bring technologies for effective recycling of Li-ion batteries, which is currently a challenge in India.
- Commercial viability is important for sustaining the business
- Establish a formalized collaboration platform, bring E Waste players from the informal sector into mainstream, ensuring smooth journey ahead; develop channels to implement rules effectively
- Create customized standards to unique requirement of India
- Circular Economy – Need to decide from design stage to end of life.
- Need to promote Industry adapting circularity
- Need to create dismantling centres across the country
- Future Practices in Recycling; bring rules encouraging re-furbishment; recycled material to be re-used for re-manufacturing;
- REFURBISH – THEN RECYCLE should be the Mantra for the sector
- Recycling meets the requirements of `Swachh Bharat Mission'
- E-Waste Recycling is Urban Mining
- Need to look at ways to use the re-usable materials for re-production
- Industry body CEAMA is committed and adapting model to Refuse, Reduce, Re-use, Recycle, Re-purpose, by reaching out to 144 million consumers, and continuously striving towards innovation for sustainable models. Sustainability – Economic, Environment & Social. CEAMA recommends adapting of sustainable global models, as the formal sector is not growing
- Need to ensure there is no leakage of compliance implementation
- Recycling Industry needs Government support in terms of compliance relaxation, fast track approvals, Incentives against results based on GST, Creating Eco Recycling Parks, and priority on land allotment for setting up of new Recycling Facilities
- Technical Institutes to consider offering courses on E-Waste handling technologies, as we have shortage of manpower, experts and scientists in this segment. IIT, Hyderabad started M.Tech on E-Waste to create more experts
- Need for Technical and EHS Audits by Authorities,
- Recycling standards needs improvement, specially for the informal sector with upgradation, as they are the best collectors – hand holding of this segment is important. Need to work on enhancing the number of Recyclers to 10,000 from the current 312, as there is a need for players to manage large volumes in a sustainable manner
- Supports Business sustainability of MSME
- GBC is offering Voluntary Rating for E-Waste Recyclers and working on Developing a Rating Vision, involving all stakeholders.
- It is advisable for CII-GBC to work on a "Standard with categories – Platinum, Gold, Silver, etc. for making this sector to be more conscious about quality of services. This can be a CSR activity for manufacturers.
- There was a suggestion for all stakeholders to work together with CII, in creating "Actionable Points" for the government to bring appropriate guidelines

for E-Waste Management Industry in India, thereby helping the stakeholders in this sector to build a sustainable eco system.

The Event witnessed attendance of around 200 Delegates from across the country and have actively participated in all the sessions. Some of the Questions (reproduced below) raised by the delegates, reiterates the concerns and interest of stakeholders in this sector:

- When can we expect long due eco-parks?
- Do we have guidelines for e-waste in healthcare industry?
- When is CPCB expected to come up with the online system for the applicants to apply for the EPR?
- Is there any specific point on reuse/refurbishment in the present e-waste rule?
- Major brands and few responsible companies, most of the small brands are not bothered to fulfill their EPR target or register at CPCB. What steps can we take together to make them follow this mandatory compliance which is so critical to the environment?
- Could you please also discuss various startups working on e waste management and what are the entrepreneurial opportunities?
- What are the current recycling technologies available for lighting industries in India?
- How are PRO's dealing with lighting equipment waste collected, are there enough recycling units or even technology available for the same?
- How EPR complied by Producers of consumer electronics especially by lighting equipment? what support given for lamp recycling by Lamp Producers?
- What are the technologies/ strategies to be developed to incorporate informal sector in management of E-waste?
- What action initiated for Producers who have not applied EPR Authorization and is there online portal from CPCB to upload the Annual Reports directly by the Producers and Recyclers
- Do Producers support Recyclers through CSR? How do Recycler approach Producers for Financial support to collect their Brands and Repair?
- What support is given by MeitY to establish Eco parks for e-waste processing in States? Is it published in your website? How do we approach Meity to get support please?
- What financial supports/subsidies given to start e-waste business such as refurbishes/dismantlers/recyclers?
- Awareness is the need of the hour, for these more emphasis or dealers should be made accountable to aware customer and policies should be implemented to return electronic goods after certain life cycle and customer to be awarded. But question is what to do with the e waste. Each municipality must be made compulsory to build plants to recycle by providing incentive in the form of tax, electricity, water and land. Are there any such plans by the government?
- For 1000 kg per day, for a complete plant cost is how much?

- If there is no market for recyclable lithium & cobalt material in India, so do we export them?
- Is there any proper mechanism wherein CPCB keeps a check on PRO's as to where do they send the e-waste collected by them? If they do, then why are the informal market still prevalent.
- If we have standards like GreenCo implemented, then certified recyclers should be allowed to import e-waste to enhance our material reserves and boost industries? Can this be done in future?
- Customers are not sure if their product will be recycled. They feel it might get refurbished and get sold in the market. So how one can convince customers on proper way of recycle?

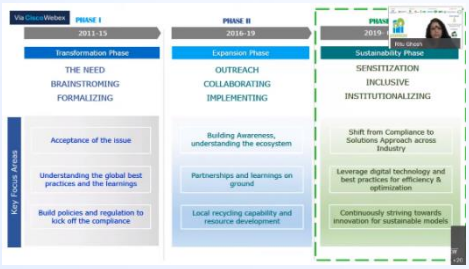
Ministry of Electronics and Information technology (MeitY), Government of India, has conducted pan awareness campaign in 31 States/Union Territories to create capacity building to the citizen on hazards of e-waste recycling in informal sector and also means of alternate methods of disposing their e-waste. MeitY is also exploring to establish Eco Park for E-Waste Management in Future in few States, where e-waste generation is significant. It was felt that there is a need to work out a Road Map for this sector involving all stakeholders – Industry, Government and Academia.

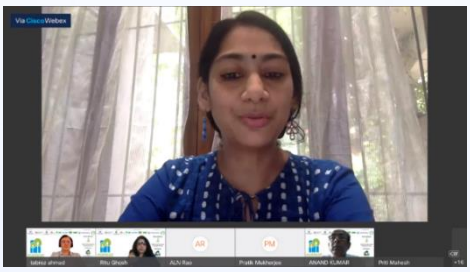
CPCB assured facilitation of speedy clearance of licensing for E-Waste Recycling Companies ensuring a transparent system for E-Waste Processing in India, while asking CII to create more such initiatives/opportunities, for bringing stakeholders under the mainstream.

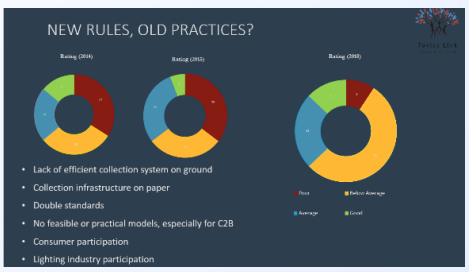
The Conference closed on a positive note with the relevant government agencies/departments congratulating CII for organising this event, which is important and timely, while offering full support and cooperation to the industry in its efforts for taking E-Waste Management in India to the next level in building a better, sustainable and healthy nation. Mr. Arvind Kumar, Group Coordinator & Senior Director, Ministry of Electronics and Information technology (MeitY), mentioned in his special address that MeitY is committed to work on E-Waste Management to provide cost effective environment-friendly solutions to the society for extracting precious metals, rare-earth materials other resource materials so that resource efficiency is achieved and circular economy is ensured.

****

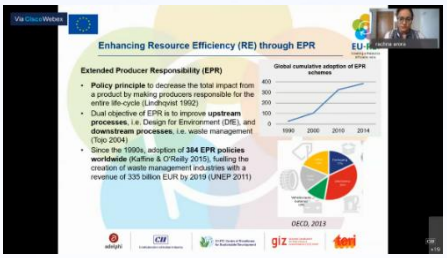
Glimpses of Conference

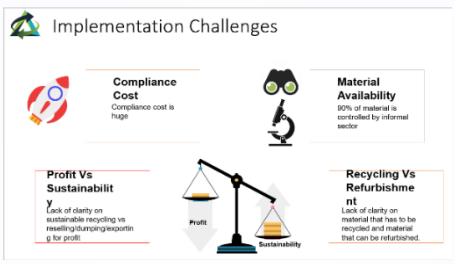


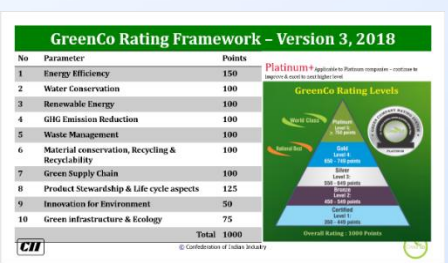




Glimpses of Conference







Organised by

Confederation of Indian Industry
125 Years: 1895-2020

Supported by

Ministry of Electronics and Information Technology
Government of India

Ministry of Environment, Forest and Climate Change

Digital India
Power To Empower

GREENE

Supporting Associations

CEAMA

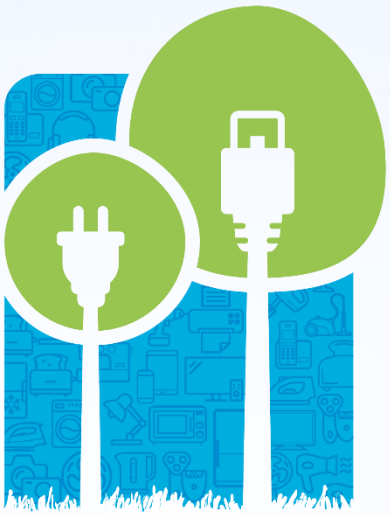
IWMA

MAIT

Knowledge Partners

CII-ITC Centre of Excellence for Sustainable Development

GreenCo



E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

A VIRTUAL CONFERENCE
24th September 2020 | 1100-1700 hrs.
Digital Platform

PROGRAMME

Event Sponsor

World Scrap Recycling Solutions Pvt Ltd

Gold Sponsor

Adatte
E-Waste Management Pvt. Ltd.

Associate Sponsors

GREENWAVES

recykal

www.cii.in

Organised by

Confederation of Indian Industry
125 Years: 1895-2020

Supported by

Ministry of Electronics and Information Technology
Government of India

Ministry of Environment, Forest and Climate Change

Digital India
Power To Empower

GREENE

Supporting Associations

CEAMA

IWMA

MAIT

Knowledge Partners

CII-ITC Centre of Excellence for Sustainable Development

Greenco

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

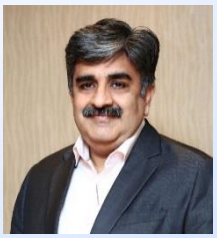
A VIRTUAL CONFERENCE
24th September 2020 | 1100-1700 hrs.
Digital Platform

INAUGURAL SESSION

Mr. Arvind Kumar
Group Coordinator & Senior Director
Ministry of Electronics & Information Technology (MeitY)

Dr. Prashant Gargava
Member Secretary
Central Pollution Control Board

Mr. Sundaresan Raghupathy
Deputy Director General
Confederation of Indian Industry



Mr. Pankaj Mohindroo
Chairman
India Cellular & Electronics Association (ICEA)

Organised by: Confederation of Indian Industry, 125 Years: 1895-2020

Supported by: Ministry of Electronics and Information Technology, Government of India; Ministry of Environment, Forest and Climate Change; Digital India; GREENE

Supporting Associations: CEAMA; IWMA; MAIT

Knowledge Partners: CII-ITC Centre of Excellence for Sustainable Development; Greenco

Virtual Conference on

E-Waste Management in India: New Business Opportunities

24th September 2020: Digital Platform

Inaugural Program : 1100 hrs – 1145 hrs		
1100 - 1103 hrs	Opening Remarks	**Mr. Sundaresan Raghupathy** Deputy Director General Confederation of Indian Industry
1103 - 1113 hrs	Industry Perspective	**Mr. Pankaj Mohindroo** Chairman India Cellular & Electronics Association (ICEA)
1113 - 1128 hrs	Special Address	**Mr. Arvind Kumar** Group Coordinator & Senior Director Ministry of Electronics & Information Technology (MeitY)
1128 - 1143 hrs	Special Address	**Dr. Prashant Gargava** Member Secretary Central Pollution Control Board (CPCB)
1143 - 1145 hrs	Vote of Thanks	**Mr. Sundaresan Raghupathy**
1145 - 1200 hrs	Break	

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

Organised by

Confederation of Indian Industry
125 Years: 1895-2020

Supported by

Ministry of Electronics and Information Technology
Government of India

Ministry of Environment, Forest and Climate Change

Digital India

GREENE

Supporting Associations

CEAMA

IWMA

MAIT

Knowledge Partners

CII-ITC Centre of Excellence for Sustainable Development

Greenco

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

A VIRTUAL CONFERENCE
24th September 2020 | 1100-1700 hrs.
Digital Platform

SESSION 1: 1200 HRS – 1315 HRS
REGULATIONS, CHALLENGES, OPPORTUNITIES AND COMPLIANCE OPTIONS

Mr. Tabrez Ahmad
Group Director
Dell Technologies

Mr. Anand Kumar
Additional Director
Central Pollution Control Board (CPCB)

Mr. ALN Rao
Member
Manufacturers' Association for Information Technology (MAIT) and CEO - Exigo Recycling

Ms. Ritu Ghosh
Chairperson
CEAMA Waste Council and Head Corporate Affairs & CSR – Panasonic India

Ms. Priti Mahesh
Chief Program Coordinator
Toxics Link

Mr. Mohd. Umar Farookh
Co-Founder, Plant Head & Chief Technology Officer
World Scrap Recycling Solutions Pvt. Ltd.

Event Sponsor

World Scrap Recycling Solutions Pvt Ltd

Gold Sponsor

Adatte
E-Waste Management Pvt. Ltd.

Associate Sponsors

GREENWAVES

recykal

www.cii.in

Organised by: Confederation of Indian Industry, 125 Years: 1895-2020

Supported by: Ministry of Electronics and Information Technology, Government of India; Ministry of Environment, Forest and Climate Change; Digital India; GREENE

Supporting Associations: CEAMA; IWMA; MAIT

Knowledge Partners: CII-ITC Centre of Excellence for Sustainable Development; GreenCo

Virtual Conference on

E-Waste Management in India: New Business Opportunities

24th September 2020: Digital Platform

Session 1: 1200 hrs – 1315 hrs Regulations, Challenges, Opportunities and Compliance Options		
1200 - 1203 hrs	Opening Remarks	**Mr. Tabrez Ahmad** Group Director Dell Technologies
1203 - 1218 hrs	Effective implementation of E-Waste management rules	**Mr. Anand Kumar** Additional Director Central Pollution Control Board (CPCB)
1218 - 1228 hrs	Presentation on E-Waste - " Decade Gone By and Way Forward"	**Mr. ALN Rao** Member Manufacturers' Association for Information Technology (MAIT) and CEO - Exigo Recycling
1228 - 1238 hrs	Positive Environmental Footprint: Scalability to Sustainability	**Ms. Ritu Ghosh** Chairperson CEAMA Waste Council (Head Corporate Affairs & CSR – Panasonic India)
1238 - 1248 hrs	Challenges and Opportunities in efficient e-waste management practices	**Ms. Priti Mahesh** Chief Program Coordinator Toxics link
1248 - 1300 hrs	E-Waste recycling in India – challenges and way ahead	**Mr. Mohd. Umar Farookh** Co-Founder, Plant Head & Chief Technology Officer World Scrap Recycling Solutions Pvt Ltd.
1300 - 1310 hrs	Question & Answers	
1310 - 1313 hrs	Closing Remarks	**Mr. Tabrez Ahmad**
1315 hrs	End of Session	

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

Organised by

Confederation of Indian Industry
125 Years: 1895-2020

Supported by

Ministry of Electronics and Information Technology
Government of India

Ministry of Environment, Forest and Climate Change

Digital India

GREENE

Supporting Associations

CEAMA

IWMA

MAIT

Knowledge Partners

CII-ITC Centre of Excellence for Sustainable Development

GreenCo

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

A VIRTUAL CONFERENCE
24th September 2020 | 1100-1700 hrs.
Digital Platform

SESSION 2: 1315 HRS – 1415 HRS
AWARENESS AND IMPACTS OF E-WASTE MANAGEMENT RULES

Mr. George Paul
Chief Executive Officer
Manufacturers' Association for Information Technology (MAIT)

Dr. Sandip Chatterjee
Director
Ministry of Electronics & Information Technology (MeitY)

Dr. Rachna Arora
Deputy Team Leader & Coordinator
European Union – Resource Efficiency Initiative (EU – REI), India at GiZ

Mr. K. Baskaran
Chairman
Industrial Waste Management Association (IWMA) and CEO - Aarthi Industries, Electroplating units.

Mr. Abhimanyu Ajay Mehra
Co-Founder
Adatte E-Waste Management (P) Ltd.

Event Sponsor

World Scrap Recycling Solutions Pvt Ltd

Gold Sponsor

Adatte
E-Waste Management Pvt. Ltd.

Associate Sponsors

GREENWAVES

recykal

www.cii.in

Organised by: Confederation of Indian Industry, 125 Years: 1895-2020

Supported by: Ministry of Electronics and Information Technology, Government of India; Ministry of Environment, Forest and Climate Change; Digital India; GREENE

Supporting Associations: CEAMA; IWMA; MAIT

Knowledge Partners: CII-ITC Centre of Excellence for Sustainable Development; GreenCo

Virtual Conference on

E-Waste Management in India: New Business Opportunities

24th September 2020: Digital Platform

Session 2: 1315 hrs – 1415 hrs Awareness and impacts of E-Waste Management Rules		
1315 - 1318 hrs	Opening Remarks	**Mr. George Paul** Chief Executive Officer Manufacturers' Association for Information Technology (MAIT)
1318 - 1335 hrs	E-Waste Awareness – How to ensure Compliances	**Dr. Sandip Chatterjee** Director Ministry of Electronics & Information Technology (MeitY)
1335 - 1345 hrs	Resource efficiency through E-waste Management	**Dr. Rachna Arora** Deputy Team Leader & Coordinator European Union – Resource Efficiency Initiative (EU – REI), India at Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
1345 - 1355 hrs	E-Waste - Awareness & Social Responsibilities	**Mr. K. Baskaran** Chairman Industrial Waste Management Association (IWMA) and CEO - Aarthi Industries, Electroplating units.
1355 - 1405 hrs	E-Waste Rules: Implementation and Challenges	**Mr. Abhimanyu Ajay Mehra** Co-Founder Adatte E-Waste Management (P) Limited
1405 - 1410 hrs	Question & Answers	
1410 - 1412 hrs	Closing Remarks	**Mr. George Paul**
1415 hrs	End of Session	
1415 - 1430 hrs	Break	

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

Organised by

Confederation of Indian Industry
125 Years: 1895-2020

Supported by

Ministry of Electronics and Information Technology
Government of India

Ministry of Environment, Forest and Climate Change

Digital India

GREENE

Supporting Associations

CEAMA

IWMA

MAIT

Knowledge Partners

CII-ITC Centre of Excellence for Sustainable Development

Greenco

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

A VIRTUAL CONFERENCE
24th September 2020 | 1100-1700 hrs.
Digital Platform

SESSION 3: 1430 HRS – 1530 HRS
BUSINESS OPPORTUNITIES IN E-WASTE MANAGEMENT THROUGH EPR AND RECYCLING

Mr. Lingaraj Dinni
Group Manager, Sustainability
Wipro Foundation

Dr. R. Ratheesh
Director
Centre for Materials for Electronics Technology

Mr. Divye Kohli
Vice-President
TES-AMM India Pvt. Ltd.

Mr. Pranshu Singhal
Founder
Karo Sambhav

Dr. Manis Kumar Jha
Senior Principal Scientist
CSIR-National Metallurgical Laboratory

Event Sponsor

World Scrap Recycling Solutions Pvt Ltd

Gold Sponsor

Adatte
E-Waste Management Pvt. Ltd.

Associate Sponsors

GREENWAVES

recykal

www.cii.in

Organised by | Supported by | Supporting Associations | Knowledge Partners

Virtual Conference on

E-Waste Management in India: New Business Opportunities

24th September 2020: Digital Platform

Session 3: 1430 hrs – 1530 hrs Business opportunities in E-Waste Management through EPR and Recycling		
1430 - 1433 hrs	Opening Remarks	**Mr. Lingaraj Dinni** Group Manager, Sustainability Wipro
1433 - 1445 hrs	Cost Effective Technology and Affordable infrastructures	**Dr. R. Ratheesh** Director Centre for Materials for Electronics Technology (C-MET)
1445 - 1455 hrs	E-Waste recycling in India – Challenges and Way Ahead	**Mr. Divye Kohli** Vice-President TES-AMM India Pvt.Ltd
1455 - 1505 hrs	Case study: PROs for effective implementation of EPR	**Mr. Pranshu Singhal** Founder Karo Sambhav
1505 - 1520 hrs	Presentation on E-Waste: Status, Business Opportunity and developed technologies at CSIR-NML	**Dr. Manis Kumar Jha** Senior Principal Scientist CSIR-National Metallurgical Laboratory
1520 - 1525 hrs	Question & Answers	
1525 - 1527 hrs	Closing remarks	**Mr. Lingaraj Dinni**
1530 hrs	End of Session	
1530 - 1545 hrs	Break	

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

Organised by

Confederation of Indian Industry
125 Years: 1895-2020

Supported by

Ministry of Electronics and Information Technology
Government of India

Ministry of Environment, Forest and Climate Change

Digital India

GREENE

Supporting Associations

CEAMA

IWMA

MAIT

Knowledge Partners

CII-ITC Centre of Excellence for Sustainable Development

Greenco

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

A VIRTUAL CONFERENCE
24th September 2020 | 1100-1700 hrs.
Digital Platform

SESSION 4: 1545 HRS – 1700 HRS
NEXT PRACTICES IN E-WASTE MANAGEMENT

Ms. Ritu Ghosh
Chairperson
CEAMA Waste Council and Head Corporate Affairs & CSR – Panasonic India

Dr. Sandip Chatterjee
Director
Ministry of Electronics & Information Technology (MeitY)

Mr. Anand Kumar
Additional Director
Central Pollution Control Board (CPCB)

Dr. P. Parthasarathy
Founder and Managing Director
E- Parisaraa Private Limited

Ms. Deepali Sinha
Managing Director
Sofies Sustainability Leaders Pvt Ltd

Mr. N Muthusezhiyan
Principal Counsellor
Confederation of Indian Industry,
CII – Sohrabji Godrej Green Business Centre

Event Sponsor

World Scrap Recycling Solutions Pvt Ltd

Gold Sponsor

Adatte
E-Waste Management Pvt. Ltd.

Associate Sponsors

GREENWAVES ENVIRONMENT SOLUTIONS

recykal

www.cii.in

Organised by

Confederation of Indian Industry
125 Years: 1895-2020

Supported by

Ministry of Electronics and Information Technology
Government of India

Ministry of Environment, Forest and Climate Change

Digital India

GREENE

Supporting Associations

CEAMA

IWMA

MAIT

Knowledge Partners

CII-ITC Centre of Excellence for Sustainable Development

GreenCo

Virtual Conference on

E-Waste Management in India: New Business Opportunities

24th September 2020: Digital Platform

Session 4 : 1545 hrs – 1700 hrs Next Practices in E-Waste Management		
1545 - 1548 hrs	Opening Remarks	**Ms. Ritu Ghosh** Chairperson CEAMA Waste Council (Head Corporate Affairs & CSR – Panasonic India)
1548 - 1600 hrs	Circular Economy, Resource Efficiency	**Dr. Sandip Chatterjee** Director Ministry of Electronics & Information Technology (MeitY)
1600 - 1610 hrs	E-Waste Recycling and Resource Efficiency	**Mr. Anand Kumar** Additional Director Central Pollution Control Board (CPCB)
1610 - 1620 hrs	Future Practices in Recycling	**Dr. P. Parthasarathy** Managing Director E- Parisaraa Private Limited
1620 - 1630 hrs	Product Take Back Program	**Ms. Deepali Sinha** Managing Director Sofies Sustainability Leaders Pvt Ltd
1630 - 1640 hrs	GreenCo Recycler Rating System & other compliances	**Mr. N Muthusezhiyan** Principal Counsellor CII – Sohrabji Godrej Green Business Centre
1640 - 1655 hrs	Question & Answers	
1655 - 1658 hrs	Closing Remarks	**Ms. Ritu Ghosh**
1700 hrs	End of Programme	

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

Organised by

Confederation of Indian Industry
125 Years: 1895-2020

Supported by

Ministry of Electronics and Information Technology
Government of India

Ministry of Environment, Forest and Climate Change

Digital India
Power To Empower

GREENE

Supporting Associations

CEAMA

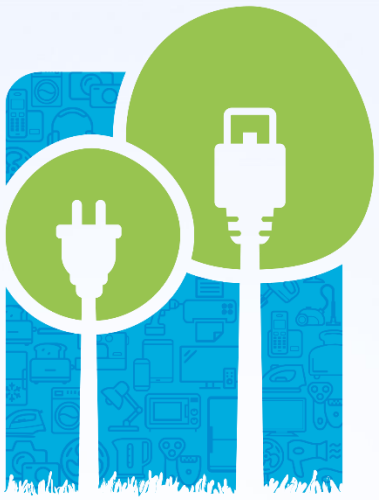
IWMA

MAIT

Knowledge Partners

CII-ITC Centre of Excellence for Sustainable Development

Greenco



E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

A VIRTUAL CONFERENCE
24th September 2020 | 1100-1700 hrs.
Digital Platform

SPEAKER PROFILES

Event Sponsor

World Scrap Recycling Solutions Pvt Ltd

Gold Sponsor

Adatte
E-Waste Management Pvt. Ltd.

Associate Sponsors

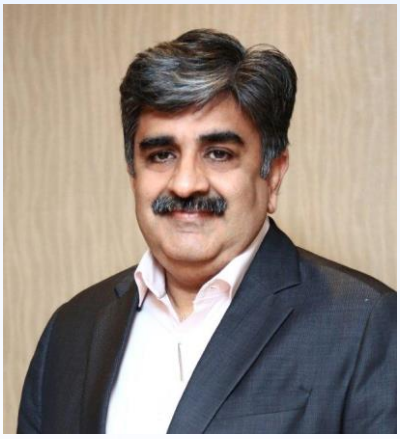
GREENWAVES

recykal

Mr. Sundaresan Raghupathy

Deputy Director General
Confederation of Indian Industry

- Raghupathy is the Deputy Director General of CII. He is also the Head of 9 CII Centres of Excellence
- Raghupathy is also a Board Member of WorldGBC and Chair of Asia Pacific Network (APN)
- He is a Gold Medalist in Chemical Engineering from Annamalai University (1976-81)
- Raghupathy has 33 years of work experience in the areas of - energy management, green buildings, water management, waste management, renewable energy and urban landscaping
- He was selected as “National Expert – Energy Conservation” for the prestigious UNDP- Government of India energy audit project
- It was under his leadership, CII-Godrej GBC building gained the unique distinction of becoming India’s first Platinum rated Green Building in 2004
- As part of IGBC, he was instrumental in triggering the National green building movement. Under his leadership, IGBC has catalysed over 5,409 projects, amounting to 6.92 billion sq.ft of footprint, thereby making India the 2nd country in the world in terms of largest registered green building footprint
- India is one of the founding members of WorldGBC and Raghupathy has been representing India, right from its inception in 2002
- Raghupathy, in addition to promoting green buildings is also is leading a team of experts to facilitate energy efficiency and Green Company (GreenCo) movement in the country
- He is leading a team of 160 professionals



Mr. Pankaj Mohindroo
Chairman
India Cellular & Electronics Association (ICEA)

"Mr. Pankaj Mohindroo is the Chairman of India Cellular & Electronics Association (ICEA), the apex industry body representing the entire electronics sector in India with a special focus on development of mobile handset and its component eco-system. Mr. Mohindroo's contributions as a tall, visionary and a nation builder and his yeomen's services and selfless contributions rendered to the industry and to the nation are well articulated and captured in the annals of the mobile handset industry's history of India.

Whether contributions made related to establishment of a significant and flourishing legal market operations from the clutches of grey through enactment and streamlining of tariff structures, establishment of a robust standardization regime to counter counterfeit and substandard products, establishment of a globally benchmarked mobile handset manufacturing eco-system (which is currently ranked as the second largest in the world after China), establishment of the Telecom Sector Skill Council (TSSC), Mr. Mohindroo's contributions as a visionary with profound and unquestionable commitments towards nation building are well established and well appreciated.

Mr. Mohindroo has had a distinguished career spanning over three and a half decades during which he served in various Indian industries including Sugar, Food,

Telecom, Information Technology, Retailing, Media & Broadcasting, DTH, International Trading, Infrastructure (Industrial Parks, Port Infrastructure), Steel, Woolen Knitwear, Textiles, Personal Care, Oleo-Chemicals, Paints, Pigments and Dyes etc.

Mr. Mohindroo has been strenuously supporting the Government of India's vision to establish India as the Global manufacturing HUB for Mobile Handsets and Components in sync with the "Make in India" and "Digital India" initiatives. In December 2014 Mr. Mohindroo was nominated as the Chairman of the Fast Track Task Force (FTTF), which was established by the Ministry of Electronics and IT (MeitY) with the objective to promote significant manufacturing activity related to mobile handsets and its components eco-system in India – with various identifiable targets such as 1,50,000 crores mobile handset production(from 18900 crores), exports of 120 mn handsets, establishment of a sizable components manufacturing eco-system with production of 50000 crores and generating 1.5 mn jobs by the year 2019-20.

Mr. Mohindroo's strong intent, quest and determination towards establishment of a Trillion Dollar Electronics Industry through establishment of Global scale manufacturing eco-system in India related to the entire electronics sector whether related to consumer electronics, medical electronics, automotive electronics, IoT, emerging technologies, Electric Vehicles, Agricultural Electronics, Defence Electronics, IT Hardware and R&D infrastructure to support manufacturing etc. both to cater to the growing requirements of India as well as of the world with a strong focus on exports are well received and acknowledged with strong commitments by the Indian Government and industry stakeholders from various geographies. The first and foremost objective is to establish India as the no.1 global hub for mobile phone manufacturing by raising production a further 650% from 2,10,000 crores to 13,50,000 crores by 2025.

Mr. Mohindroo is also a successful entrepreneur donning many caps on his entrepreneurial successes starting with the Founder and Editor in Chief of My Mobile Info Media, which is India's oldest Magazine focused on mobile handset and its eco-system and many others. Mr. Mohindroo is also an Angel Investor in several technology startups. He is also the Promoter and Chairman of a transformative 20,000-acre agriculture and Agro Processing Project. He has now taken up challenge of Agritech i.e. use of Electronics, Information Technology and Software in Agriculture, Animal Husbandry, Aquaculture etc.

Mr. Mohindroo is also Co-founder and Hon. Secretary of Telecom Sector Skill Council (TSSC). For reference TSSC is the skill regulator functioning under the Ministry of Skill Development and Entrepreneurship, which is mandated to do skill training for people engaged in the Telecom sector "

Mr. Arvind Kumar
Group Coordinator & Senior Director
Ministry of Electronics & Information Technology (MeitY)

Shri Arvind Kumar, Scientist and Senior Director, Ministry of Electronics and Information Technology, Government of India, is Group Coordinator for R&D in Electronics & Cyber Security in MeitY and heading different divisions like Electronics System Design, Electronics Materials Component, Microelectronics Development, Medical Electronics, Nano Technology etc. and also looking after the C-MET autonomous society. He is also the Programme Director of National Super Computing Mission (NSM) and indigenous development of Microprocessor.

2. He joined Department of Electronics in 1986 (now Ministry of Electronics & Information Technology). He has worked in STQC Directorate where he was involved in various capacities including standardization & quality assurance, safety and cyber security. Shri Arvind Kumar has rich working experience in the field of Cyber law and Cyber Security and has functioned as GC (Cyber Law and Cyber Security) and was responsible for implementation of National Cyber Security Policy operations in Government India.

3. Presently, he is engaged in Promotion of Research & Development in the country to promote indigenous development of products/ prototypes for strategic and commercial sectors. Providing solution to indigenous requirements at cost effective manner, to avoid dependence on import of spare/ material and lifetime support to the

deployments. Promote development of indigenous expertise and skills under national/ international recognition in terms of paper publication/ patents and copy rights in the areas of Electronics.

4. He has many research articles to his credit and has received certificate of appreciation from National Institute of Standards and Technology (NIST). Department of Commerce, USA provided a Certificate of Appreciation for the outstanding contributions as a Guest Researcher in the exchange of experts program between the United States Government and the Government of India.

5. Under his leadership Center of Excellence (CoE) on Rechargeable Battery (pre-cell) has been established at Centre for Materials for Electronics Technology (C-MET) with industry participation to nurture local manufacturing industries. Attempt is being made to provide cost-effective end-to-end indigenous batteries based on Li-ion and Na-ion technologies, specially suitable to SME businesses and startups. Products will suite to Indian condition like temperature, humidity, product usage pattern, recyclability etc.

6. Centre of Excellence (CoE) on Electronics Waste has been established at C-MET Hyderabad with the participation of State Government of Telangana and industry to create infrastructure and knowledge hub for developing cost-effective e-waste recycling technology, promoting start-ups and SMEs with suitable technologies, disseminating knowledgebase to other organization, training human resources for recycling industries etc.

7. At present under the Electronics Components & Material Development (EMCD) Programme has been promoting research and development activity since 1986 to nurture electronics development in the country to boost local manufacturing. The current focus of the program is development of technologies in the areas of energy storage and harvesting, semiconductor and printed circuit board, information display, optical technologies including optical fiber, indigenization of optical components, optical computing, silicon photonics and quantum communication etc., environment, resource efficiency & E-waste and process technology development leading to product development and technology transfer to industries.

Dr. Prashant Gargava
Member Secretary
Central Pollution Control Board (CPCB)

Dr. Prashant Gargava is an environmental professional with more than 30 years of progressive and varied experience in the field of Environmental Management, particularly in environmental policies; sector specific statutory requirements and regulations; development of standards and compliance mechanism; air quality policy, strategy and action planning; and various pollution prevention & control programs with substantive analytical, administrative and leadership skills and expertise and extensive international exposure.

A Ph.D. in Environmental Engineering from National Environmental Engineering Research Institute (NEERI), India, Dr. Gargava is presently working as Member Secretary of the Central Pollution Control Board, India. He has held multiple responsibilities accomplished to his credit. He authored Graded Response Action Plan (GRAP) for Delhi NCR and has been guiding air pollution mitigation actions as head of the Task Force on GRAP. He spearheaded development of National Air Quality Index (AQI), National Ambient Air Quality Standards, and source apportionment studies in six cities that was a pioneer work on air quality management. He conceptualized and led development of a GIS and web-enabled decision support system for urban air quality management. On invitation from Clean Air Asia (a foundation supported by UNEP, ADB and WB), he has co-authored Guidance Framework for Better Air Quality in Asian Cities.

Besides his normal assignments in Central Board, as a visiting faculty to School of Planning and Architecture, New Delhi and Indian Institute of Technology, Delhi, he has been actively associated with academic activities. He guided more than 40 Masters' and two Ph.D. thesis, and published more than 50 peer reviewed research papers and technical reports. He has served as member of Editorial Board of Indian Journal of Air Pollution Control Board for six years. Dr. Gargava sits on many important Committees including ISO Technical Committee on Green House Gas Emission Management, Domain Expert Committee of MoHRD for Uchchatar Avishkar Yojana, Advisory Committee BAQ 2020, and Central Government's High Level Committee on air pollution control technologies. He has travelled widely and delivered several invited talks on air quality management at International forums. Dr. Gargava is recipient of prestigious Fulbright-Nehru Fellowship on Environment Leadership, and was honored by Indian Association for Air Pollution Control (IAAPC) and NEERI Alumni Association for his outstanding contributions to air pollution control in India and Environmental Enginnering.

Mr. Tabrez Ahmad
Group Director
Dell Technologies

Tabrez Ahmad is Group Director at Dell Technologies. He has over 25 years of diverse experience in legal practice, business development and public policy in India, China and America.

Prior to Dell, Tabrez worked at multiple organizations, most notably AB InBev, Flipkart, eBay, OPPI, FICCI, George Washington University, Reed Elsevier and Microsoft. At FICCI, he has promoted Indian tech industries in US, Japan, UK, Germany, France, Sweden, Latvia, Saudi Arabia, UAE, Oman, and ASEAN countries with federal ministries, Government of India.

He did pro bono for the Partnership for Safe Medicine, assisted multiple artisan groups/micro enterprises and counselled on protection of women rights in Louisiana and Washington DC.

Tabrez chairs public policy and start up committees of the Indian National Bar Association and environment committee of the MAIT.
He did EMIT from IIFT, MCA from Bharat University, LLM from George Washington University and courses in Artificial Intelligence, Internet of Things and Blockchain from MIT Sloan School of Management.

Mr. Anand Kumar
Additional Director
Central Pollution Control Board (CPCB)

Shri Anand Kumar, Additional Director in CPCB.

He has been working in CPCB for more than 25 years. He had done B. Tech in Civil Engineering from NIT Patna and Master in Environmental Planning from SPA Delhi.

He was involved in the framing of road map of e-ewaste management, e-waste (Management & Handling) Rules 2011 and also e-waste (Management) Rules 2016.

He was involved in the formulation & development of implementation guidelines for implementation of E waste rules including specific guidelines on EPR, Storage, transportation, collection centres, refurbishing, dismantling and recycling of e-waste and guidelines for bulk consumers. He was also involved in development of guidelines for PRO. He was also involved in formulation of Action Plan for implementation of e-waste rules. He was involved in the development of guidelines for recycling of hazardous waste and other waste.

He is presently heading WM -III Division of CPCB.

Mr. A. L. N. Rao
Member
Manufacturers' Association for Information Technology (MAIT)
and CEO - Exigo Recycling

Mr. A.L.N. Rao is the Chief Executive Officer of Exigo Recycling, India. Prior to this he held leadership positions in Attero Recycling, Aditya Birla Retail and Videocon group. Three decades of experience in the Electronics industry in India and Abroad. A specialist offering solutions in the B2B and B2C space in electronics Refurbishing and E-waste Recycling & Refining. An Environmentalist at heart and a leader in the waste management Industry-E-waste, plastics and key cutting-edge future technologies. Winner of many distinguished awards in India. A Proven change-agent consistently refining and revitalizing Business strategies, introducing innovation, and facilitating solutions, team driven collaborations locally and globally. Objective of life - continue offering valuable services to human mankind that brings in a change and a smile.

Ms. Ritu Ghosh

Chairperson
CEAMA Waste Council and
Head Corporate Affairs & CSR – Panasonic India

Ritu Ghosh is an 'Information Communication Technology' (ICT) public policy expert with over 22 years of experience. She has been driving CSR initiatives for the adoption of Information Communication Technologies as the transformation tool in emerging and developed economies. The focus has been to reduce cost of access to Information Technology by aligning government policies in the interest of the community.

Ritu Ghosh has been instrumental for creating next generation of solutions and models to facilitate the innovation and awareness on technology and has worked with leading brands like Panasonic, Vodafone, Hewlett Packard, Sun Microsystems.
She has been a research associate with Indian Institute of Technology (IIT) and was instrumental in setting up the Centre for Excellence in e-Governance at IIT Delhi campus with an objective to carry research activities and showcase the latest technology initiatives and innovation to the government.

Achieved adoption of (Open Document format) ODF as government policy in the state of Kerala.

She has been responsible for successfully seeding in the advanced open technologies in the school education system.

She has co-authored papers and articles on affordable healthcare solutions and the role of technology. She has been instrumental in institutionalizing innovative IT solutions with the Government which have been recognized and applauded at Global Platform.

Currently chairing the environment council at CEAMA, Ritu Ghosh has also been actively engaged with the government on environment sustainable strategies.

Ms. Priti Mahesh
Chief Program Coordinator
Toxics Link

Priti Mahesh is an environmentalist and has been involved in various environment issues for almost two decades.

She is currently working as a Chief Program Coordinator at Toxics Link, a not-for-profit environmental organization based in India and has been responsible for conceptualizing and putting into action many environmental initiatives and campaigns, especially on waste and chemical issues.

Priti has been engaged in various researches on quantification, hazards, practices related to E- waste and has great understanding of international best practices on E-waste management. She has worked extensively on the policy and legal aspects of E-waste and has been deeply involved in the formulation of E-waste Rules in India. She has in- depth knowledge on the informal recycling sector in the country.

Mr. Mohd. Umar Farookh
Co-Founder, Plant Head & Chief Technology Officer
World Scrap Recycling Solutions Pvt Ltd.

Shri. Mohammad Umar Farookh, is young and dynamic leader who is been working in the field of e-waste recycling industry since 2010. Further he is the finest networking architect and data science professional, with his one decade of experience and research he had helped the recycling industry leading brands to develop their own process line & technology for e-waste recycling.

Now his focus is to develop the reliable technology platforms to enable the industry to control the waste being landing in land field or in informal sector. Thus will enable the recycling industry growth and also will attract more and more industry players to join hands with the industry to contribute to the circular economy of our country & sustain the greener world for the future.

Mr. George Paul
Chief Executive Officer
Manufacturers' Association for Information Technology (MAIT)

George Paul brings 30 years of industry experience in IT Hardware Products, Electronic Subsystems, Mechatronics, Avionics, Mechanical Engineering, Aerospace & IT Services. He has led operations in the functional domains of Marketing, Corporate Affairs, Public Relations, Manufacturing, Hardware Product Engineering, Training & Capacity Building, Research & Development. As part of the Industry, he was actively involved with MAIT and other industry bodies towards fostering R&D and manufacturing in India. Prior to this role, Mr. Paul was the Executive Vice President of HCL Infosystems. At HCL, he has managed and led a variety of roles in Marketing, Manufacturing & R&D. In his career, he has had stints with leading organizations including Larsen & Toubro, HCL-HP & HCL Peripherals.

Dr. Sandip Chatterjee

Director

Ministry of Electronics & Information Technology (MeitY)

Dr. Sandip Chatterjee, Scientist, Director & Head of the Department of Electronics Materials & Component Development Division, Ministry of Electronics and Information Technology, Government of India, is engaged in implementing R&D projects on electronics material, components.

2. He is Master in Science (Physics) from University of Calcutta and Doctorate from University of Delhi, India for successful completion of Research work on the materials of rare earth oxides and rare earth oxysulfide phosphors from National Physical Laboratory, New Delhi, India. Phosphor, luminescent material applied in display devices like picture tube, flat panel, fluorescent tube, x-ray intensifier screen were his interest area. During his research career, he had published more than 10 research articles in International/ National journals.

3. He is the nodal officer in the Ministry for developing Recycling technologies of Electronic Waste management and successfully completed 5 projects till technology demonstration stages. His work has been recognised and thereby received President's award from Hon'ble Former President of India in 2014. He had published more than 70 research articles in reputed journals, 2 patents and 2 books from international publishers, viz., "Electronics Waste Management: An India Perspective" by international publisher Lambert Academic Publishing Co, Germany and a chapter on "Sustainable Recycling Technology for Electronic Waste", of the book "Sustainability in the Mineral and Energy Sectors", published by CRC Press, Taylor & Francis, USA, September 8, 2016.

4. Dr. Chatterjee has also rich working experience in electronic component industry for 5 years (1995-2000) at M/s. JCT Electronics, Vadodara, Gujarat, India, a colour picture-manufacturing company. Design, R&D, new product development, indigenization, process improvements etc. was his prime responsibility.

5. Presently, he is engaged in creating Centre of Excellences (CoEs) on the area of lithium ion battery, e-waste recycling technology, additive manufacturing technology for electronics components, low cost power pack for mobile industry, silicon photonics, Quantum Materials etc. for creating ecosystem of indigenously developed technologies for Indian manufacturers.

Dr. Rachna Arora
Deputy Team Leader & Coordinator
European Union – Resource Efficiency Initiative (EU – REI), India
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Dr. Rachna Arora is working as a Deputy Team Leader in the Resource Efficiency project of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH funded by the European Union on issues related to fostering resource efficiency and secondary resource utilization. She has been working with GIZ since last 13 years under the bilateral projects, combi-finance projects of the European Commission and the partnership projects with the private sector with relevant Ministries and government departments. She has been supporting the Government of India (GoI) on policy formulation and its implementation particularly on electronic waste management, resource efficiency, Construction and demolition wastes, end of life vehicles and circular economy. She has recently delivered a TEDx talk on Circular Economy.

She is a doctorate degree in environmental chemistry from Indian Institute of Technology (IIT) Roorkee. She is a member of the Task Force and Inter-departmental committee set up by Niti Aayog (Policy think tank, GoI) on Resource Efficiency strategy implementation in India. She is also a part of the Research and Development (R&D) committee set up by the Department of Information Technology and Communication (DeiTY), GoI on electronic waste management. She is also a working group member of the FICCI Circular Economy Group constituted in 2017 to support industry research and dialogues on Circular Economy.

Mr. K. Baskaran
Chairman
Industrial Waste Management Association (IWMA) and
CEO - Aarthi Industries, Electroplating units.

Mr. K. Baskaran has served as an Executive Member in IWMA and presently the Chairman of IWMA.

He is also holding the position of Secretary in Kakkalur Industrial Estate Manufacturing Association.

He is A6 District Chairperson for E-Waste Management in Lions Club.

Our Chairman is a CEO of Aarthi Industries – an electroplating unit Located in Ambattur, kakkalur & Padappai located in Tamil Nadu

Mr. Abhimanyu Ajay Mehra
Co-Founder
Adatte E-Waste Management (P) Limited

Abhimanyu Ajay Mehra leads Adatte E-Waste Management Pvt. Ltd with a mission to help companies and individuals to dispose of e-waste responsibly and to embed circular thinking.

In 2017, he returned from France after his MBA graduation and co-founded Adatte E-Waste Management Pvt. Ltd. He established a state-of-the-art facility in Delhi-NCR to recycle electronic waste. The company offers services ranging from collection to dismantling & recycling with ferrous, non-ferrous and precious metal recovery.

Prior to Adatte, he has worked in the Automotive and Construction industry. He is a second-generation entrepreneur with his family-owned construction business.

Mr. Lingaraj Dinni
Group Manager, Sustainability
Wipro Foundation

Dinni Lingaraj is Senior Program Manager at Wipro Foundation. He currently leads the business sustainability and ecology domain charter for Wipro. In business sustainability, this includes programs on climate change and environmental issues, human rights, sustainable procurement, employee engagement and customer advocacy. The urban ecology programs are in the areas of urban water, waste, small grants program and the newly initiated multi-partner city platform - Bengaluru Sustainability Forum. He has been associated with the Wipro earthian program – the national environment education program, since its inception. Dinni has been anchoring the sustainability disclosure program for Wipro for the last 10 years, which includes Annual Integrated Report, GRI report, DJSI, Carbon Disclosure Project, FTSE4Good and other key investor and customer led reporting platforms. He is a post graduate in Chemical Engineering from IIT-Kanpur.

Dr. R. Ratheesh
Director
Centre for Materials for Electronics Technology (C-MET)

Dr. R. Ratheesh completed Ph.D. in Physics from Kerala University in the year 1995. He worked as Scientist at Centre for Materials for Electronics Technology (C-MET), Thrissur from 1997 to 2016 and heading the microwave materials research activity. Currently he is the Director of C-MET, Hyderabad. He is recipient of many postdoctoral fellowships abroad which include Alexander von Humboldt fellowship at University of Osnabrueck, Germany, BOYCAST fellowship at State University of New Jersey, USA, Lady Davis fellowship at Solid State Institute, Technion, Israel, DIST bilateral fellowship at Department of Physics, University of Western Australia, Australia etc.

His area of research interests are microwave ceramics, composites, ULTCC materials, recycling of spent PCB materials, Structure-property correlation etc. His research group has successfully developed a patented process jointly with VSSC for the fabrication of Super high Q Barium Magnesium Tantalate (BMT) dielectric resonators having more than 2,00000 quality factor for space communication applications under Indigenization of Space Materials Programme. BMT technology is transferred to two private industries viz. Shajanand Laser Technologies Ahmedabad and M/s. Ant Ceramics, Mumbai for commercial production. Currently indigenously developed BMT ceramics are used in INSAT for satellite communication applications

In addition, he has also successfully developed an indigenous process methodology coined as SMECH process for the fabrication of planar Cu-cladded microwave substrates which is an embargo item for Indian strategic sectors. A state of the art pilot plant production facility has been established at C-MET, Thrissur for the production and supply of these technologically important class of materials to critical end users. Two US patents and One Indian patent were awarded recently to protect the intellectual property rights of this innovation.

The current areas of research activities of him are development of cost effective and environmental friendly technologies for E-waste recycling, development of receiver antennas for Navigation with Indian Constellation, growth of SiC single crystal boules for power electronics applications etc.

Dr. Ratheesh has published more than 90 research papers in International Peer review Journals, 6 patents, two book chapters and delivered more than 100 invited lectures. Dr. Ratheesh bagged Young Scientist award from Government of Kerala in the year 2000, PSN National Technology Award in 2011 and ELCINA-EFY Award for excellence in outstanding R&D in 2016-17.

Mr. Divye Kohli
Vice-President
TES-AMM India Pvt. Ltd.

Working as Vice-President for a Multi National e-waste Recycling Company called Tes-Amm. An Experienced professional with a demonstrated history of working in the electronic waste industry since a decade now. Highly Skilled in Business Planning, Customer Relationship Management, and Strategic Planning. Currently heading Tes-Amm's Business Development in India. Being an Electronics Engineer by profession, he is currently working on a mission to transfer e-waste into socially and industrially beneficial raw materials like valuable metals, plastics using simple, cost efficient, home grown, environmental friendly technologies suitable to Indian Conditions.

Mr. Pranshu Singhal
Founder
Karo Sambhav

Pranshu is the Founder of Karo Sambhav which started its operations in 2017. Karo Sambhav is a producer led organisation which designs and implements transformative Extended Producer Responsibility (EPR) programmes for E-waste and Plastics Waste by collaborating with disintegrated players across the waste value chain. Karo Sambhav's technology platform and systems foster good governance, fairness, trust, transparency, and traceability.

Prior to Karo Sambhav, Pranshu was Director, Digital Learning Strategy in the Worldwide Education team of Microsoft for 3 years. He had worked with Nokia as Head, Sustainability for 11 years and was based in Finland, Singapore and India. He is a Aspen Fellow, a Ashoka Fellow, a Chevening Gurukul Fellow, and a Aspire Circle Fellow. Pranshu has a Master's in Environmental Management and Policy from International Institute for Industrial Environmental Economics (IIIEE), Sweden. He is a student and mentee of Prof. Thomas Lindhqvist who coined the term EPR.

Dr. Manis Kumar Jha
Senior Principal Scientist
CSIR-National Metallurgical Laboratory

Guest Editor, Hydrometallurgy, ELSEVIER, (Sp. Issue, IC-LGO 2015)
Editor-in-Chief, Manthan
Editor, Journal of Metallurgy and Materials Science (JMMS)
Editorial Board Member, Journal of Mines, Metals & Fuels
Co-ordinator, South Korean Internship (E-waste Recycling) at NML
Invited Scientist at KIGAM, South Korea
Visiting Professor at Univ. Sci. & Tech., South Korea
Steering Committee Member of World Recycling Forum (WRF)

Dr. Jha's current research focus is to develop and transfer the application oriented technology in area of metal extraction viz. Mn, Al, Fe, REMs (Rare earth metals), Cu, Ni, Co and precious metals (Au, Ag, Pd, Pt etc) from primary resources (Pyrolusite, Monazite, Bauxite, Sea-nodules, Molybdenite etc.), secondaries (Solid-Liquid Industrial Waste, Urban Ore (E-waste) and various newly launched e-waste (telecom, medical, signals and transmission devices) using Pyro-, Hydro-, Electro-metallurgical techniques. The above R&D work, since 24 years realises completion of 32 projects successfully with 09 Patents, 120 referred journal Publications, 06 Know-How/ Technology Transfer, co-ordination of 06 batches of Paid Korean Internship and 01 Nigerian Student visited NML for Ph.D. research work. Several technological Know-Hows, for recycling of E-waste have been transferred recently to national and international companies. Several awards such as Best paper RCR 30 in 30, ELSEVIER, Award, IIME Award 2018, IIME Best Paper Award 2016, ISCA Best Poster Award 2016, Skoch order-of-merit award (Best Technology 2015), New Delhi, India, Eco Reco Innovation Award, Mumbai, India, IIM-NMD Award 2012, India, Altekar Award-2011, RECOM Award-2011, South Korea. Undersigned is the Life Fellow of IIM, India, Fellow of Institute of Chemist, India, Member of IIME, India, Member of The Minerals, Metals and Materials society (TMS), USA and Steering Committee Member, World Recycling Forum (WRF), Switzerland.

https://scholar.google.co.in/citations?user=grVoB54AAAAJ&hl=en
http://eprints.nmlindia.org/view/creators/Jha=3AManis_K=3A=3A.html

Dr. P. Parthasarathy
Founder and Managing Director
E- Parisaraa Private Limited

P. Parthasarathy is a B.Tech., from A.C. College of Technology, University of Madras -1977 and M.S. in Chemical Engineering from IIT in Chennai - 1981 and Ph.D in Earth Science and Resource Management, Department of Applied Geology, Kuvempu University, Karnataka -2010. The Ph.D thesis "Ecologically Efficient Resource Recovery of Electronic Waste for Indian Conditions" was published by 'Lambert Academic Publishing', Germany. He has about 34 years experience in the field of precious metals coating, recovery and refining with about 15 years in recycling of Electronic Waste with a few papers and several national and international presentations in these fields.

Presently, Founder and Managing Director of E-Parisaraa Pvt. Ltd., located at Dobaspet which is 50km from Bangalore. Started during 2004 for Electronic Waste Management for first time in India with low cost, cleaner technologies and to implement 3R best practices. E-Parisaraa is engaged mainly in resource recovery of metals, plastics and glass in an environmental friendly way from E-waste. E-Parisaraa is certified ISO 9001:2008, ISO14001:2004, OHSAS 18001:2007 R2 Certified, CII Green Co Gold Certified Company. Also founder and CEO of Surface Chem Finishers, specialist in Electro Plating of Precious Metals and recovery and refining since 1995.

Significant Awards and Recognition:

- National Award – 2017, Winner of 7th National Award for Technology Innovation in Petrochemicals & Downstream Plastics Processing Industry, by Ministry of Chemicals & Fertilizers, Department of Chemicals & Petrochemicals, GoI, instituted by CIPET.
- National Award - 2010 Outstanding entrepreneurship - First Prize by The Ministry
- of MSME, from Her Excellency, The President of India, Dr. Mrs. Pratiba Devisingh Patil at New Delhi.
- 3R Excellence Award for E-waste Recyclers 2018 by Ministry of Housing & Urban Affairs, Government of India.
- CII-ITC Sustainability Award 2010, "Certificate of Commendation" for Significant achievement on the journey towards Sustainable Development for the first time for a Micro Business Organizations.
- "Innovative MSME Project Award" from the Hon'ble Union Minister Padma Vibhushan, Shri Pranab Mukherjee by SIDBI.
- "Glory of India Award" and Certificate of Excellence in Friendship Banquet in Bangkok- 2011.

Ms. Deepali Sinha
Managing Director
Sofies Sustainability Leaders Pvt Ltd

Deepali is an international expert on e-waste management with over 16 years of experience in the sector. At United Nations University, she was instrumental in setting up the capacity development programme on e-waste under the umbrella of the E-waste Academy. Currently based in Mumbai, she is the Managing Director of Sofies India, working with on a range of projects that are at the intersection of environmental and social impact, particularly in the domain of secondary resources. She holds a PhD from the University of St. Gallen, Switzerland, where her thesis was on modeling for forecasting waste flows of end-of-life consumer durables.

Mr. N Muthusezhiyan
Principal Counsellor
Confederation of Indian Industry,
CII – Sohrabji Godrej Green Business Centre

Muthu is an Energy & Environmental Sustainability expert, at the CII – Godrej GBC. He is involved in promoting the concept of Green Companies through GreenCo Rating System of CII.

He has work experience spanning over 24 Years in the areas of Energy & Environment.

He is an Engineer by profession & Post Graduate in Energy Management.

As part of the CII – Godrej GBC's project team, executed several national & international projects on energy efficiency, climate change, waste management, material conservation & Recycling, Extended Producer Responsibility, Green Packaging, Green Supply Chain and Life Cycle Assessment etc.

He is a Chevening Fellow from the University of Birmingham on "Economics of Energy".

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

A VIRTUAL CONFERENCE
24th September 2020 | 1100-1700 hrs.
Digital Platform

Thank you Sponsors

Event Sponsor

World Scrap Recycling
Solutions Pvt Ltd

Gold Sponsor

Adatte
E-Waste Management Pvt. Ltd.

Associate Sponsors

GREENWAVES
ENVIRONMENTAL SOLUTIONS

recykal

World Scrap Recycling Solutions Pvt Ltd

INITIATIVE TOWARDS SUSTAINED GREENER FUTURE

About us

World Scrap has set up India's largest, most sophisticated end to end E-Waste Recycling Facility at Tirupati, Andhra Pradesh erected 2 nos facility specifically for the End-To-End E-Waste recycling facility as unit-1 and Refurbishing, Dismantling & Servicing facility as Unit-2 in close vicinity and Importantly, this facility is so complete and sophisticated that there is zero Landfill or water contamination during the process. World Scrap has all the necessary approvals required to operate in India. World Scrap is entirely process driven (ISO Certified) to ensure hassle free client servicing and business Interactions. We are 100% in accordance with the laws, without any damages to the environment.

We have the ability and the willingness to accommodate special requirements as per specific industry and company norms.

Key Observations

1. Largest Authorized E-Waste Recycler In India

   First Recycler Of Andhra Pradesh with 31015 Mt. Ton Per Year. Authorized Combined Processing Capacity.

2. 2 Dedicated Plants as

   Unit 1- Recycling Unit for the processing of E-Waste & General Waste Dedicated Machinery are installed to process solid waste without any delay

   Unit 2- Dismantling Unit

3. State Of The Art Battery Processing, Storing facility

   Sate-Of-The-Art Panel Refurbishing & Recycling Unit

4. Big General Waste Processing & Safe Storage Facility

5. Automated Mobile Device Dismantling & Recycling Facility

   In House Developed Data erase and on the spot Media destruction mobile lab

6. Developing State Of the art Precious Metal recovery Idealistic R&D lab.

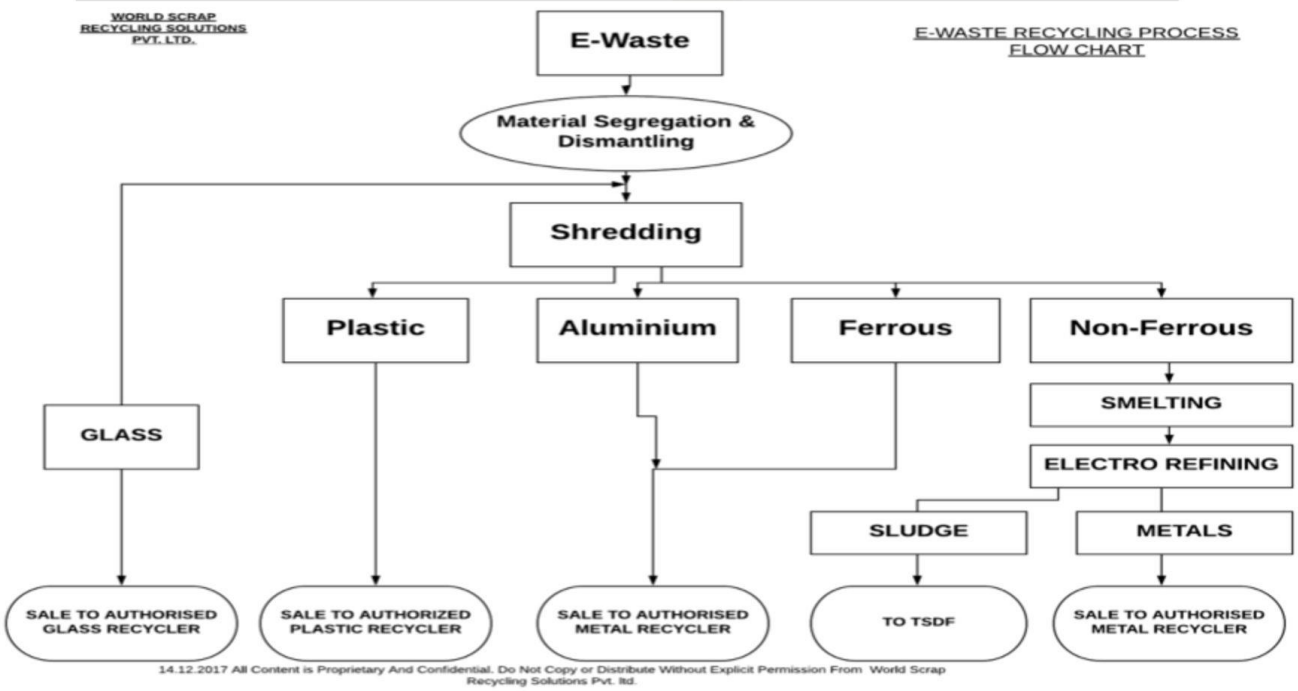
E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES

World Scrap Recycling Solutions Pvt Ltd

WHAT WE DO

RECYCLE → DISMANTLE → REFURBISH → SERVICE

Recycling Process



E-Waste Management is Critical for Nature Conservation

Abhimanyu Ajay Mehra
Co- Founder

"With truckloads of e-Waste generated every year in India, a synergy is required between the informal and formal e-Waste management sectors to ensure smooth collection of hazardous waste to dispose them in an environmental-friendly manner. Further, at Adatte, our philosophy is to provide end-to-end e-Waste management services, with specialisation in metal recovery from Printed Circuit Boards," say the duo Co- Founders ***Abhimanyu Ajay Mehra*** *and* ***Praveen Kumar Sundararaju*** *of Adatte E-Waste Management Pvt. Ltd.*

Praveen Kumar Sundararaju
Co- Founder

WHY IS E-WASTE MANAGEMENT IMPORTANT IN TODAY'S LIFE?

In today's life, electronics have become an integral part of our life. We have Smartphones, TV, Music system, household appliances such as fridge, washing machine, AC, etc. On a global scale, in 2019, 53.6 Million Metric tons of e-waste was generated. Of these, only 17.4% has been documented as collected and properly recycled. The remaining were either dumped or traded or recycled in a non-environmental-friendly manner.

As an emerging economy and the second most populated country in the world, our consumption has increased. We are the second-biggest market for smartphones. As you know, every product has its lifespan. The lifespan varies depending on the usage, consumer's personal choice, technology growth, repairability, etc.

Our country is the third-largest generator of e-waste in the world, and the formal sector recycles only 10% of this waste. The informal sector handles the rest. The informal sector plays a vital role in our economy and has a vast network across India. Any waste that's generated at home is usually disposed of through scrap dealers or kabadiwallas. It's convenient and they pay a hefty price. Considering the unethical disposal and recycling of waste by the informal sector, e-Waste Management was deemed necessary.

e-Waste in its complete form is not hazardous in nature; only the improper recycling/processing of e-Waste is dangerous and harmful to the environment. The improper recycling has had tremendous health and environmental impact in certain parts of India, and so does even now. However, proper recycling can reduce carbon footprint drastically and make our country cleaner and greener.

In a nutshell, proper e-Waste Management enables

- For proper disposal of e-Waste by consumers and companies
- To create awareness on how to dispose of, handle and recycle e-waste
- To set the responsibilities of different stakeholders, including the consumers.
- To conserve natural resources by proper recycling for recovery of the material, which attributes towards the circular economy.

WHAT KIND OF TECHNOLOGIES DO YOU USE FOR E-WASTE MANAGEMENT?

There are various processes involving various technologies available in the market to process e-Waste. In general, there are three necessary steps involved in the processing - Dismantling and Segregation (1st stage of recycling), and Material Recovery (2nd stage of recycling).

Dismantling is the first step, which is done on a semi-automated line. The dismantled material is then segregated to separate metals such as Iron, Aluminium and copper, non-metals such as plastics, ceramics, etc. and further recyclable material such as Printed Circuit Boards (PCBs), Copper wires, Batteries, etc.

The core of e-Waste management is efficient material recovery from the waste, especially the metals and the precious metals in PCBs. At Adatte, apart from the 1st stage recycling, we specialize in metal recovery from PCBs. As part of metal recovery form PCBs, we separate the components using an automated process. The components and board then undergo different physical and chemical processes to recover the precious metals.

We are among the few players in the industry providing end-to-end e-Waste management service and metal recovery from PCBs.

HOW DO YOU ENSURE A SAFER AND GREENER RECYCLING PROCESS?

Our recycling process is fairly automated, with human involvement only required for material handling. We use chemicals that are safe and approved for industrial use. Our state-of-the-art plant has an advanced air and water treatment system. Our plant has dust collectors to capture the dust generated during the dismantling and segregation process. There is an advanced air purification system to treat the fumes generated during the metal recovery process. Our air system is integrated with the process, so it prevents any emission of fumes in the work area. We leverage different wet scrubbers, UV treatment system, and dust collector that varies in size and treatment process to treat the air further before it's released in the environment.

In contrast, the informal sector's recycling process involves direct exposure to e-Waste without a glove and any safety tools. The open burning of e-Waste without any mask or air pollution treatment system is very hazardous due to the presence of carcinogenic gases in it. They use dangerous chemicals for metal recovery, dumped into water bodies without treatment, and that has resulted in severe health impacts on children and neighbours in certain communities in India.

We are committed to the principle of zero liquid discharge. We have an Effluent treatment plant (ETP) for the treatment of wastewater followed by an evaporator. Our recycling process enables maximum recovery to contribute towards the circular economy. We help to reduce the carbon footprint through greener recycling. Compared with traditional mining, the metal recovery process reduces the carbon footprint of copper by 3 x, of Aluminium by 11 x, of precious metals by 24 x. Water and energy consumption are also significantly less. In general, urban mining (metal mining from e-Waste) is much greener and safer compared to traditional mining.

WHAT HAPPENS TO THE HAZARDOUS WASTE?

e-Waste, as such, is not hazardous in nature. Specific components such as PCBs, wires, CFL/Mercury lights (now obsolete), Batteries, etc. can be hazardous if not handled correctly.

Our recycling unit can process the entire e-Waste, including PCBs and wires. We generate less than 5% as process residue from our process, which is further disposed of responsibly through Treatment, Storage, and Disposal Facilities (TSDFs). For batteries, which is the other significant hazardous component, we have agreements with downstream recyclers.

WHAT TYPES OF SERVICES DO YOU PROVIDE?

We offer end-to-end e-Waste management services. As an authorized recycler, we offer

- Pan India Collection (Business)
- Dismantling of all e-Waste
- Printed Circuit Board Recycling
- On-site and off-site Data Destruction
- Compliance Documentation
- EPR fulfilment
- Green Certificate for Dismantling and Recycling.

If you have recycling and data destruction requirements, we are always there as your e-Waste Management partner. We offer a pan India service for Businesses and Corporates. You no more need to worry about data compliance. We provide both on-site and off-site data destruction.

As brands and corporates are more committed towards sustainability and proper recycling, we go a step forward to work with them as a recycling partner. We offer proof of recycling via video and time-stamped photos as per customer requirement as the commitment to transparency.

We offer customized services as per client needs with quick turnaround time.

Our recycling process enables maximum recovery to contribute towards the circular economy.

WHAT ARE THE CHALLENGES FACED IN THE INDUSTRY TODAY?

There are three significant challenges that the industry faces today.

Lack of awareness - What is E-Waste, how it has to be disposed of, the environmental and health impacts of improper disposal, and whom to contact in order to dispose of the waste responsibly. Any e-Waste, even the smallest ones such as charger, TV remote, AA/AAA batteries, wires, cartridges, etc. have to be disposed of properly, and must not be mixed with regular household waste.

Processing of Waste by Informal Sector - At present, most of the e-Waste in India flows through the informal sector. The informal sector is vital to our economy and plays a significant role in e-Waste collection. The informal sector haphazardly handles, dismantles, and recycles the e-Waste using processes that have a substantial environmental impact. Also, since the informal sector has minimal costs, it can offer better prices to the customers, especially individuals, who, at the moment, don't have any legal obligation to dispose of the waste responsibly.

Emotional attachment to the products - A smartphone today can have a hefty price tag on it. A consumer who spent thousands on a product does not want to accept a heavily discounted price after a few years so that the product can be responsibly disposed of. What users have to understand is that the hefty price tag is majorly because of the Brand name, R&D involved, product development costs, marketing etc., and not because of the hardware. The hardware is only of marginal value. With today's advanced technologies, electronic products have become compact and light, which means lighter hardware with lesser material constituents. The emotional attachment to the product and scrap value of the product play a primary role in keeping the obsolete waste at home for years or disposing it to the highest payer. If held at home for years, the product that can be recycled and put into use in the circular economy is no longer there for use, or when disposed to the highest payer, the material undergoes dangerous recycling with substantial environmental impact.

There are misconceptions between recycling and refurbishment. Not all products can be refurbished or sold as second hand. The product must be in good condition, and there must be a demand for such a product at present. Even if the product is in good condition and the technology is outdated, the product is a scrap to be recycled.

HOW DO YOU MAKE PEOPLE AWARE OF THE USEFULNESS OF E-WASTE MANAGEMENT?

Awareness cannot be created by one person or one company alone. There has to be collective effort by the Recyclers, Producers, NGOs, and the Government. The government plays a major role here. Through the producers, the government can create awareness regarding the recycling of the product, right when the consumer buys the product, which is the first step in E-Waste generation. This can be done through a simple flyer along with the product, buy-back programs etc.

Various stakeholders in the waste management industry such as Recyclers, NGOs, PROs etc. have been spreading the word through campaigns in educational institutions, housing societies, and companies, and also through articles like this one. Again, this strategy can also be adopted by the government and producers to reach a larger audience.

WHAT ARE YOUR EXPECTATIONS FROM THE GOVERNMENT?

The government has taken various measures to tackle e-Waste menace. Since the introduction of the E-Waste Management Guidelines, in 2016, there has been a lot of traction towards formal e-Waste management. However, the government has to take further steps to bridge the gap between formal and informal sector. The government has to take necessary steps in order to ensure that there is a smooth flow of material (especially hazardous components) from the informal to the formal sector, because as of today the informal sector is the biggest collector.

The e-Waste recycling industry in India is considered as a negative-return industry by Financial Institutions due to lack of synergy between various stakeholders and government support. The government has to support authorized recyclers through financial subsidies, Start-up India program, and ease of material availability.

FINALLY, PLEASE SHARE YOUR SUCCESS JOURNEY WITH US.

Before 2016, I didn't have much idea about e-Waste. I personally had a lot of used mobile phones and other electronic gadgets at home for years without disposing of. During my MBA at Essec Business School, France, me and my partner Mr. Praveen Kumar, who was also a part of the MBA program, participated in the Mai Bangkok Business Competition. We got introduced to the world of e-Waste by our Professor, who had close contact with a French recycling company. We learnt about the danger of improper e-Waste handling and the lack of infrastructure in India. Our business proposal at the business competition was much appreciated, and the feedback was overwhelming.

We realised that there was a huge gap between generation and formal recycling of e-Waste in India, and hence we returned from France to India in 2017, and registered Adatte E-Waste Management Pvt. Ltd. Many have asked us about the word "Adatte" and have confusion in pronouncing it. It's a Sanskrit word for "reclaim".

We had to undergo the traditional hurdle of establishing a business in India. We have started small with an initial capacity of 1,825 Tons per annum with our forte in the niche segment of material recovery from PCBs. We had our initial struggle and delays, but now we are reaching towards a steady state. We have catered our service to a lot of business clients, producers and individual consumers. We have conducted awareness program in schools, colleges and through social media.

Our commitment is to offer a haven for e-Waste through responsible recycling and help our clients to achieve sustainability. In the ongoing geopolitics between nations, natural resources play a critical role in the nation's development. I am confident with the metals that are extracted through proper recycling of e-Waste, our nation's growth can be supported to a certain extent.

Green Waves Environmental Solutions: Excelling in e-Waste Management through Continuous Innovations & Cutting-Edge Recycling Technology

E-waste is the Toxic Legacy of our Digital Age. Setting new benchmarks in maintaining the confidentiality of the business data and offering highly efficient e-Waste management services is GreenWaves Environmental Solutions - the first authorized (by Pollution Control Board, Andhra Pradesh) e-Waste collection and handling unit of Andhra Pradesh. Interestingly, besides a data destruction certificate, GreenWaves sends a video of storage device disposal to its customers. We consider e-Waste not as a waste but as a multiple-resource. It's a tool for social transformation giving paramount importance to the trust factor;

Focused on collecting all types of recyclable e-Waste, GreenWaves has built an app called ReByte. The app within mere touches ensures safe & environment-friendly disposal of recyclable wastes collected from the user's door-step, and also provides reverse-logistics. Additionally, clients are given a chart indexing the types of e-Waste and provided with assistance in custom clearance and filling of e-Waste's annual returns.

Through continuous innovations and implementing cutting-edge recycling technologies, GreenWaves has created a niche for itself. It engages in end-to-end operations – right from collecting electronic waste from various functional areas to storing, and dismantling. The company collects e-Waste from Corporate, Government, SMEs, Educational Institutions, Retailers, and Individuals among other sources. The dismantling process (including manual semi-manual & automatic) involves physical segregation of particles such as plastics, glass, steel, non-ferrous materials, wires, gases & printed circuit boards, and hazardous e-Waste like tube lights, sodium vapors lamps, and cartridges. All along the process, safe handling of elements and safety of its employees are given the first priority.

On the other hand, by passing-on the knowledge to its clients and the general public, GreenWaves is tirelessly creating public awareness. It regularly conducts workshops & several programs (E-Drives), in addition to framing creative portraits poised to inspiring people to utilize e-Waste in innovative ways. Furthermore, to impart the knowledge on the importance of proper e-Waste disposal and its ill-effects of mismanagement to every individual, the company has installed e-Bins in selected areas of Visakhapatnam for disposal & recycling of small electrical & electronic items.

Owing to such exquisite range of service offerings and delicate methodologies followed, GreenWaves has also won the National Awards for its excellence in e-Waste Recycling at Indian Industry Session (at 8th Regional 3R Forum in Asia and the Pacific). And yet another golden feather on its crown is the invitation it received from National Green Tribunal Conference to deliver a talk on e-Waste Management at Guwahati. On world environmental day we had been given Seva Puraskar award by Andhra Pradesh Pollution Control board for our great contribution towards sensitizing the people on Ewaste management and for effective recycling of ewaste. We aim to be the first company to provide an indigenous solution for e-Waste management to every individual. GreenWaves is well on its way to make this part of the world a better place to live in.

E - Waste Mukt Bharat

Swachh Bharat

Recykal - Digital platform for collection and channelization of E-waste

About Recykal

Recykal (Rapidue Technologies Pvt Ltd) is a digital technology company powering a marketplace and providing SaaS solutions for the Waste Management and Recycling Industry

Recykal's technology connects Waste Generators (Businesses, Consumers), Waste Processors (Aggregators, Informal Sector), Recyclers and enables transactions between them bringing transparency and traceability to the ecosystem. Recykal enables FMCG, Electronic brands run their consumer awareness, takeback programs and comply with the Extended Producer Responsibility (EPR) rules outlined by the Government.

Recykal has won accolades from Industry bodies for its work in the waste management, recycling sector

- **Winner Emerge 50 Awards 2019** by NASSCOM. Recognized among Most Innovative Software Product Companies in India
- **Indian Circular Economy Awards 2019** (Startup) by FICCI
- **Best Waste Management Digital Technology Provider 2019** by ASSOCHAM

With 5 regional offices, Recykal is currently operational in 25+ states, UTs across India. Our digital footprints including mobile, web apps have attracted 500,000 users including consumers, bulk waste generators, aggregators, recyclers and the informal sector. We are working with 70+ FMCG, Electronic companies for their EPR fulfillment. Hindustan Unilever, Pepsi Co, Amul, Marico, Pidilite, Godrej, Johnson & Johnson, Panasonic are some of the brands we are working with.

How we manage E-Waste

Recykal specializes in digital enabled e-waste collection and channelization. We have built tailor made solutions for consumers, bulk waste generators that enable them to dispose e-waste responsibly at the convenience of their doorstep. We also have solutions for aggregators, traders who are dealing with ewastes to sell their material to recyclers, dismantlers for further processing thus closing the material loop and enabling circular economy. The platform supports digital payments, online documentation, logistics support and real time alerts for material tracking.

Over the last few years, Recykal is into digitizing the waste value chain with the Recykal Marketplace an online platform that connects waste generators, aggregators, recyclers and enables transactions between them. The digital mapping of transactions gives us complete visibility of material sources across the waste value chain and sets the stage for effective EPR implementation for brands thus giving traceability from collection, channelization to authorized recyclers.

For more details please visit https://www.recykal.com

E-WASTE MANAGEMENT IN INDIA
NEW BUSINESS OPPORTUNITIES