



सत्यमेव जयते



Ministry of Environment, Forest and Climate Change, Government of India



Organised by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

WEBINAR ON E-WASTE MANAGEMENT (26.02.2021)

Organised by: Kerala State Pollution Control Board

Gautam Mehra

Deputy Team Leader Preventing Marine Litter in Ecosystems, (Circular Economy Solutions) Project

Content Flow

Section 1 – E-Waste

- Issues
- Rules
- Stakeholders
- Responsibilities
- Dismantling of e-waste

Section 2 – Going forward

- Implementation Strategies
- Sustainable Public Procurement
- Action Plan

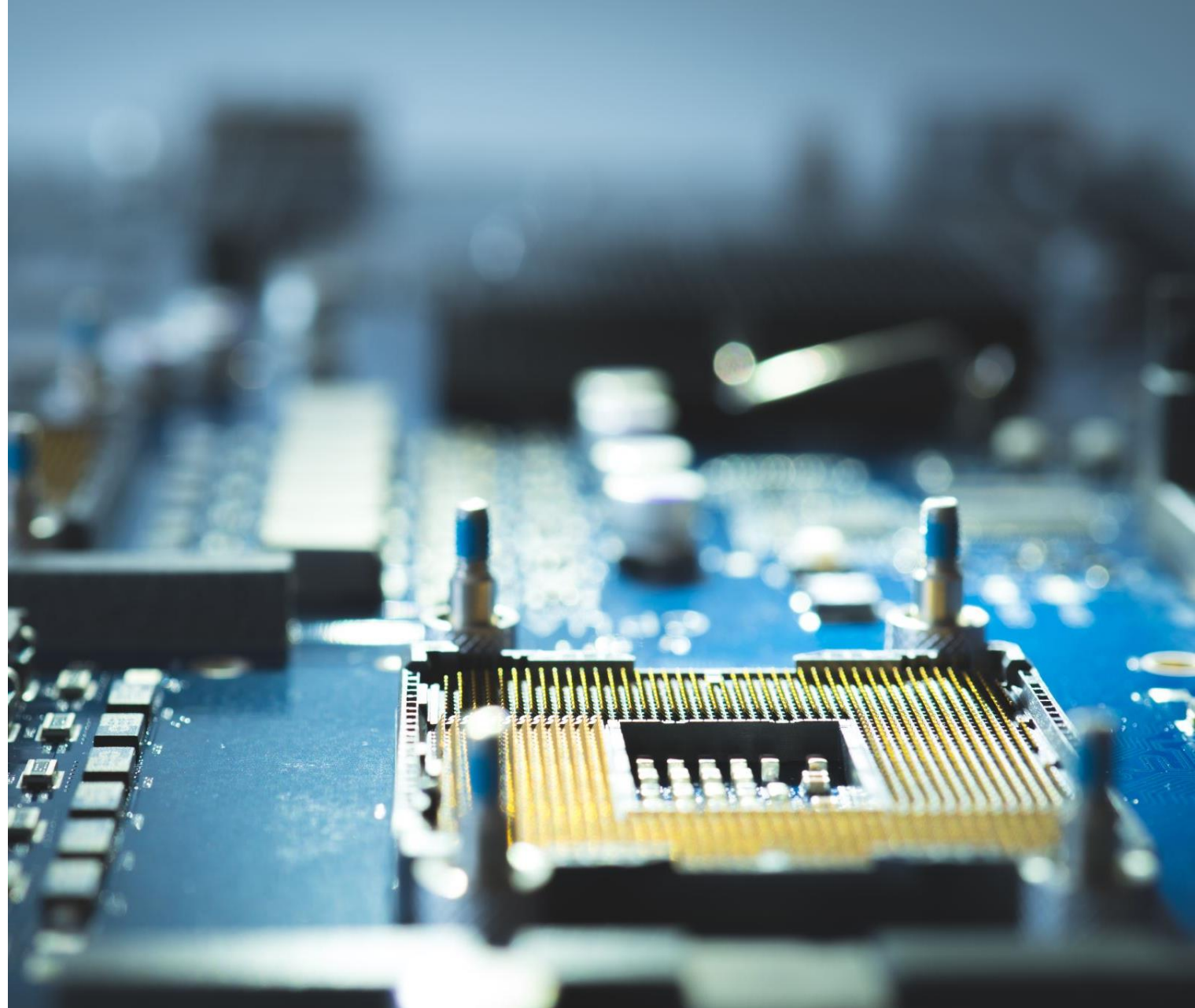
Section 1

E-Waste



Electronic Waste - Definition

- Electronic waste or e -waste is any broken or unwanted electrical or electronic appliance.
- E - waste includes computers, consumer electronics, phones, medical equipments, toys and other items that have been discarded by their original users.
- E-Waste also include waste which is generated during manufacturing or assembling of such equipment



E-waste Management Rules

- Origins in the management of hazardous waste as specified under the EP Act, 1986
- E-waste management and handling rules, 2011 framed considering the complexity of managing e-waste
- Rules framework draws from the Basel Convention, the WEEE Directive and the RoHS Directive of the EU
- EPR coined but in absence of specific guidelines not followed by all producers
- E-waste management rules, 2016 provide for targets for producers to implement EPR. Guidelines follow the rules in late 2016.

E-waste Rules – Objectives & Highlights

- Minimize illegal recycling / recovery operations
- Environmentally Safe & Sound Recycling by channelizing E-waste to registered E-waste recyclers
- Extended Responsibilities to producers to manage a system of E-waste collection/take back and channelizing to a registered dismantler/recycler.
- Responsibilities to Urban Local Bodies for orphan products and for waste found mixed with MSW
- To Create an E-waste collection channelization system
- Reduce Hazardous substances in Electrical and Electronic components

Schedule I – Items Covered in e-Waste Rules

Categories of electrical and electronic equipment
Information technology and telecommunication equipment :
Centralised data processing: Mainframes, Minicomputers
Personal Computing: Personal Computers (Central Processing Unit with input and output devices)
Personal Computing: Laptop Computers(Central Processing Unit with input and output devices)
Personal Computing: Notebook Computers
Personal Computing: Notepad Computers
Printers including cartridges
Copying equipment
Electrical and electronic typewriters
User terminals and systems
Facsimile
Telex
Telephones
Pay telephones
Cordless telephones
Cellular telephones
Answering systems
Consumer electrical and electronics:
Television sets (including sets based on (Liquid Crystal Display and Light Emitting Diode technology)
Refrigerator
Washing Machine
Air-conditioners excluding centralised air conditioning plants
Fluorescent and other Mercury containing lamps

E-waste Rules - Stakeholders

- Every producer, consumer or bulk consumer, involved in the manufacture, sale, and purchase and processing of electrical and electronic equipment or components as specified in schedule I
- Refurbishers, Collectors, Dismantlers & Recyclers of E-waste
- Bulk Consumer/Consumer
 - *Bulk users of electrical and electronic equipment such as central government or state government departments, public sector undertakings, banks, educational institutions, multinational organizations, international agencies and private companies that are registered under the Factories Act, 1948 and Companies Act, 1956*
- MoEF/CPCB/SPCBs/PCCs. ULBs

Key Stakeholders

Producers/
Manufacturers

- Importers of finished/branded products to be sold via retailers in India
- Manufacturers of end products or parts to be used in assembling end products

Consumers/
Bulk Consumers

- Household consumption of goods covered under IT or Consumer appliances
- Purchase multiple quantities of IT and consumer appliance products for office/ commercial use, etc

PROs/
E-waste collectors

- Perform tasks of collection, storage and meeting obligations of multiple producers/ manufacturers under EPR
- Individual collectors having permissions from producer/manufacturer to collect e-waste on their behalf

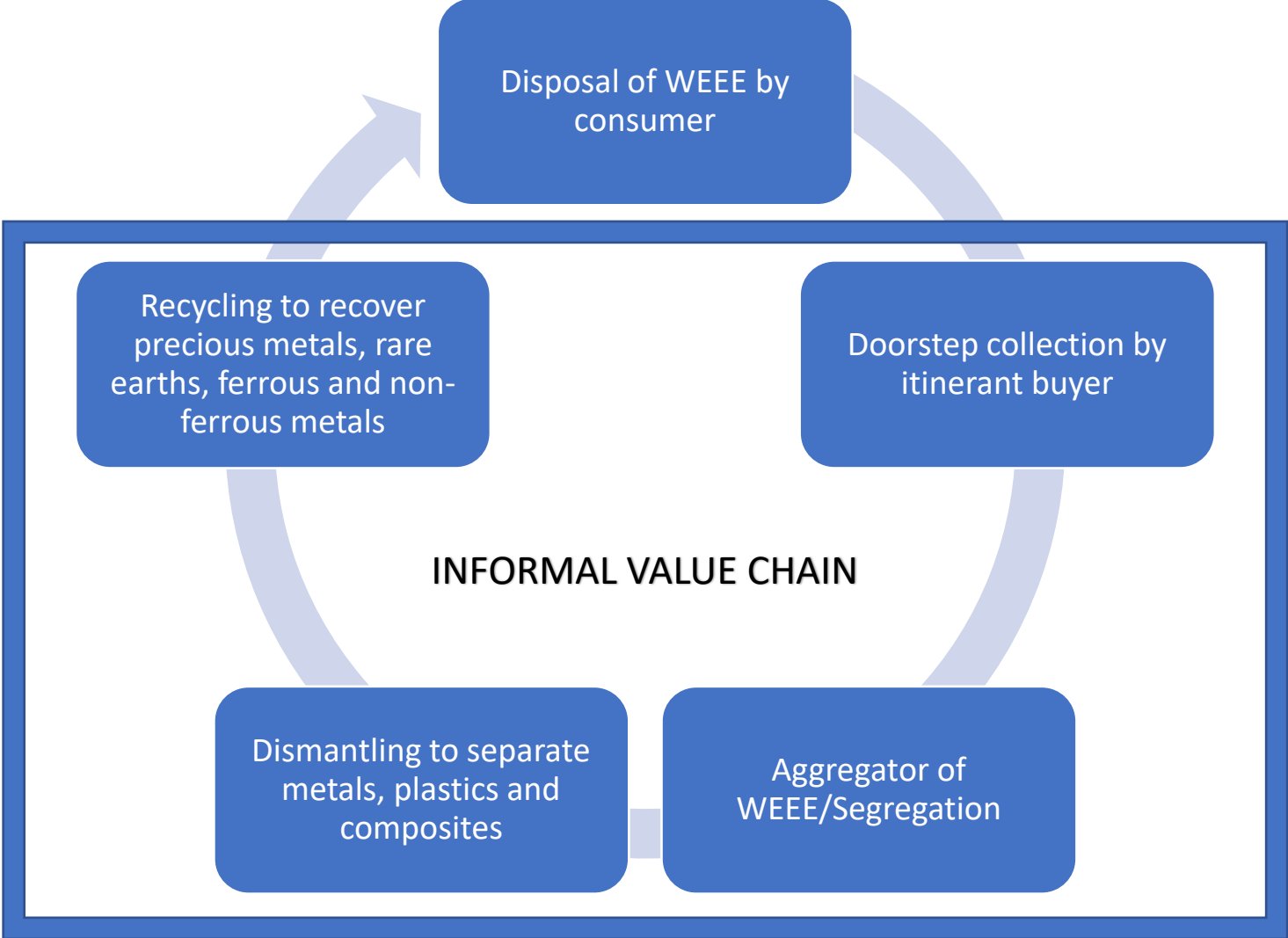
Dismantlers/
Recyclers

- First step towards segregating material which can have value through refurbishment, repair and recycling
- Recycle using appropriate technologies to recover materials in an environmentally sound manner

EPR – The Context

- Extended Producers Responsibility – Producer/Manufacturers responsibility extended beyond guarantee/warranty period of the product
- Responsibility extended till End of Life product is collected and safely transported across to a recycler/TSDF
- Extended responsibility means ensuring that the product after having being consumed by the customer is channelized back to authorized handlers of e-waste by providing
 - Economic benefits
 - Infrastructure for disposal of e-waste
 - Means and mechanisms for collection of e-waste from disposal point

Business Case for EPR in India



At each step of the value chain is a financial transaction which increases the acquisition cost of waste for recycling

$$\begin{aligned} & \textit{Acquisition cost of WEEE} \\ & + \\ & \textit{Recycling cost of WEEE} \\ & > \\ & \textit{Value of materials recovered from} \\ & \textit{WEEE in the formal recycling sector} \end{aligned}$$

This is a key dis-incentive for recycling in the formal sector

EPR can finance collection costs which can incentivize formal recycling in India

Benefits of EPR

Social

- Livelihoods in the e-waste management sector
- Public awareness on e-waste disposal

Economic

- Better paid jobs and higher government revenue
- Use of recovered metals through recycling reduces product cost

Environmental

- Reduction of indiscriminate dumping leads to reduction of GHG emissions
- Use of recovered metals reduces mining and stops environmental damage

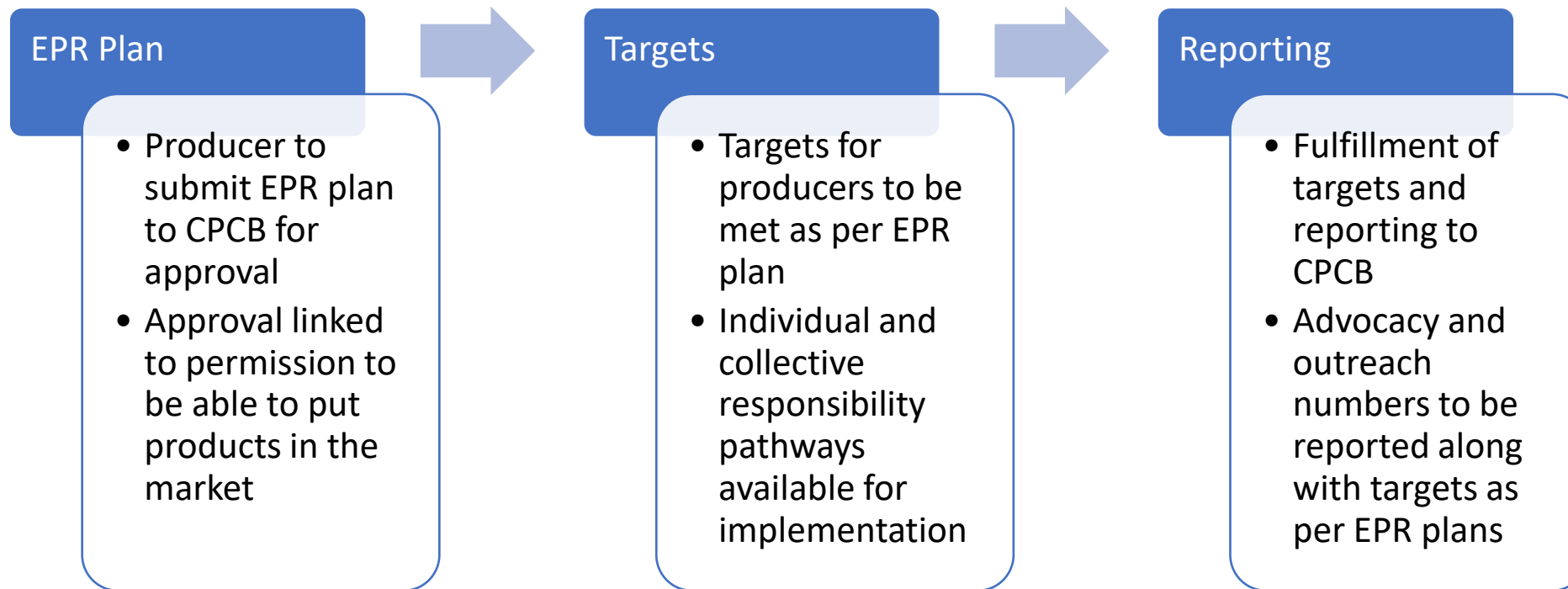
EPR Guidelines

- EPR targets for producers based upon volumes sold
- Targets to be increased from 30 percent to 70 percent incrementally every year (Revised later starting from 10 percent)
- Individual and collective producer responsibility models allowed for implementation of targets
- Financial models for meeting targets also allowed – Deposit Refund Schemes and Advance Recycling Fees depending on respective producers
- CPCB to provide authorization to producers based on EPR plans; PROs to seek authorization to set-up collection centers and collection points

EPR Instruments

- Collection targets can be individually met or collectively through Producers Responsibility Organisation
- Financial instruments can be used for collection including Deposit Refund Scheme and Advance Recycling Fee
- EPR plans need to specify details of instruments being used by Producers to fulfil respective targets
- PROs need to be registered and authorized by CPCB before they can start collecting for producers
- PROs need to be authorized by producers to collect on their behalf

Implementation of EPR



PRODUCERS TO MEET COMPLAINTS AND CPCB TO REGULATE AND IMPLEMENT THE RULES

Individual Producer Responsibility

- Producers can collect individually without seeking help of PROs to meet their collection targets
- Producers need to specify the collection centers and points that will be used for collection and meeting targets
- Producer needs to specify the recycler to whom the collected e-waste would be transported for recycling
- All necessary forms including Form 2 and Form 6 needs to be maintained at collection centers
- Producer needs to clearly state the outreach and advocacy plan which will be followed to raise awareness across stakeholders

Collective Producer Responsibility

- Producers can set-up Producers Responsibility Organisation and authorize the same for collection and meeting targets on their behalf; they can even engage service of professional PROs to do the same
- EPR plans need to specify outreach and advocacy budgets which will be used to create awareness by PROs
- Collection center details need to be specified and all centers need to have specific branding of producers for whom e-waste is being collected and stored
- Specific recyclers need to be appointed who would be receiving the collected e-waste from PROs on behalf of producers
- PROs to maintain and document all e-waste collected in specific forms

Outreach and Advocacy

- Outreach and advocacy budgets needs to be specified by each producer as part of EPR plans
- Producers can choose to spend budgets by conducting activities, workshops, advertising, using social media to create awareness on e-waste disposal
- All packaging for products need to carry specification regarding the equipment and the toll-free number where the same can be disposed on reaching end of life
- Communication has to be targeted across all stakeholders and reports for the same submitted to CPCB along with annual returns

Compliance – Bulk Consumers



Channelization of E-Waste generated to authorized collection centers or registered dismantlers or recyclers or is returned to pick-up or take back services provided by the producers



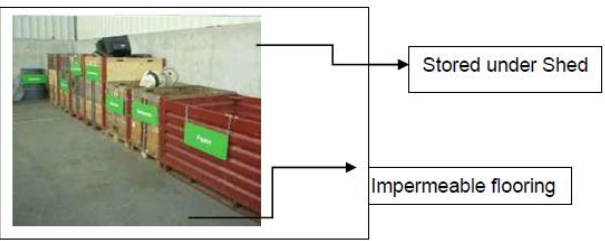
Maintaining records in Form – 2 for inspection by SPCBs/PCCs



File annual returns in Form-3, to the concerned State Pollution Control Board

Managing E-Waste – Setting Up a Collection Center

- Bulk Consumers can set-up collection centers in their premises to better manage e-waste
- Should tie-up with an authorized producer/dismantler/recycler
- Ensure provision for safe storage of e-waste
- Ensure safe transportation to stakeholders authorized under the rules
- Maintain annual reports in Form-2
- File returns in Form-3



Collection Center - Compliance

Monitoring Compliance for Collection Center



Questionnaire for Inspection

Whether the collection centre has an MOU/agreement with a dismantler or a recycler?

Whether the area is adequate for the quantity requested?

Whether the e-waste are kept properly in designated area?

Whether the floor is impervious or not?



Questionnaire for Verification

How much quantity collected in a year?
Whether within limit prescribed?

Whether period of storage is within the stipulated period or not?

Whether transferred to dismantler/Recycler and how much?

Whether the records are maintained properly?

What is the overall condition of housekeeping?

Responsibility – Producer/Manufacturer

- Determine targets based on volumes put in market
- End of Life to be determined based on obsolescence rate stated in Schedule II of e-waste management rules, 2016
- Models for meeting targets to be specifically mentioned in the plan
- All collection centers and points to be mentioned where collection will take place
- Requisite forms to be maintained in order to ensure all collected items are inventorised and transported
- File returns by 30th of June every year for targets met in the last FY

Responsibility – PROs

- Open collection centers as per collection targets from specific producers who have entrusted responsibility
- Draw up outreach and advocacy programmes for all stakeholders
- Maintain form 2 and form 6 at collection centers
- Set-up collection points to enhance ease of disposal of e-waste for citizens
- Follow the guidelines stated for maintaining collection centers by CPCB
- Ensure all material is categorized as hazardous and non hazardous and stored accordingly at collection centers
- File returns on behalf of producers by 30th June for the last FY

Responsibility – CPCB

- Provide authorization to producers by vetting their EPR plans each year
- Provide authorization to PROs for a period of 5 years based upon their business plans
- Monitor compliance and conduct audits on PROs and producers
- Audit recyclers to seek details on e-waste collected and recycled with 180 days of receipt
- Authorise recyclers across the country basis the guidelines developed for the same
- Authorise dismantlers across the country basis specific guidelines
- Provide directions to SPCB from time to time on implementation of the rules

Responsibility – SPCB

- Audit collection centers which have been set-up in the state and inform CPCB about the same
- Follow guidelines for maintaining records at collection centers
- Audit recyclers and dismantlers at the state level and audit paperwork maintained for e-waste collected, dismantled and recycled
- Seek guidance from CPCB on awareness building to be conducted at the state level by respective producers and PROs
- Monitor and report to CPCB on any anomalies in the implementation of the e-waste management rules, 2016 in the state

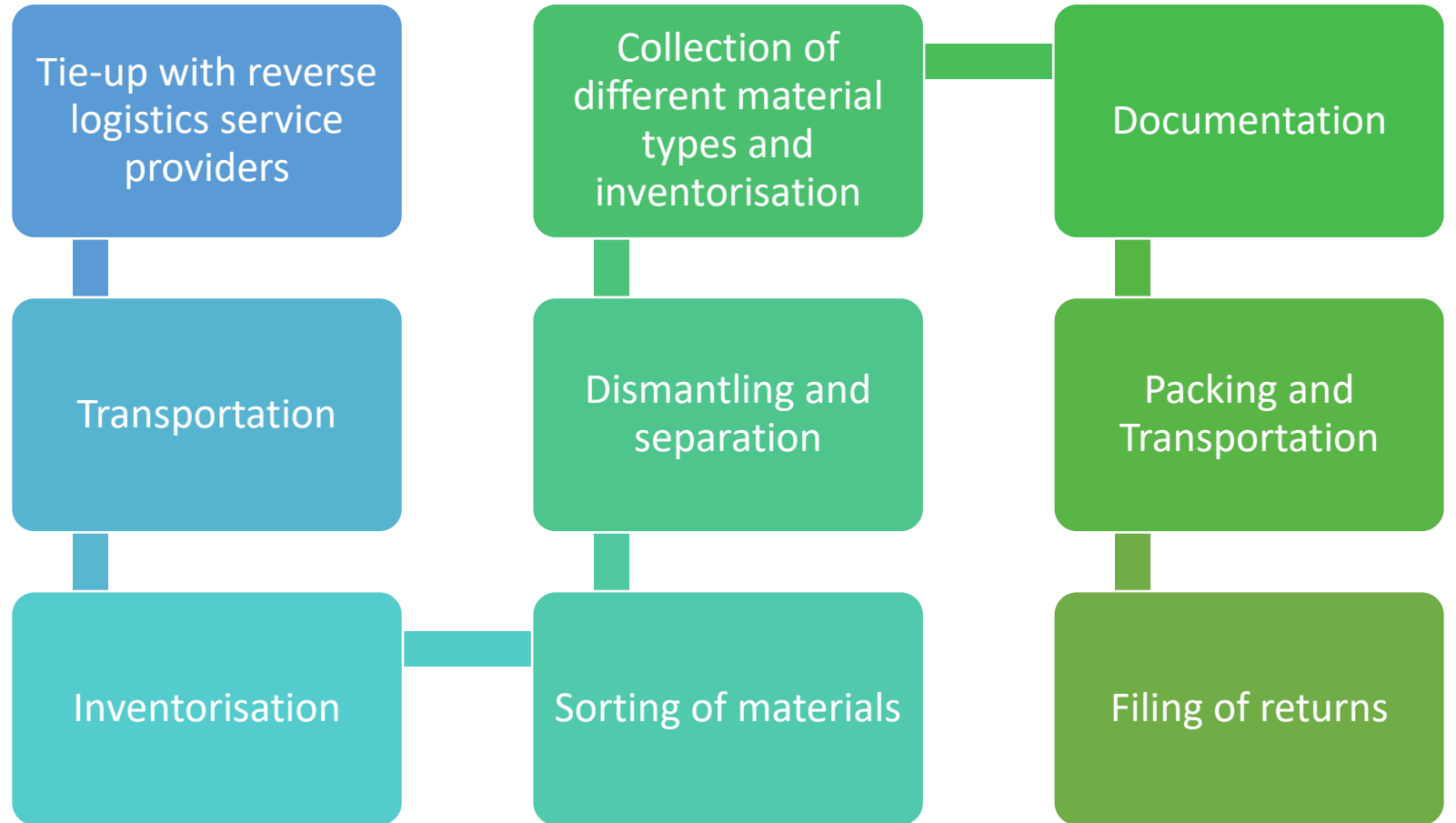
Bottlenecks to EPR Implementation

- Guidelines evolving for PROs and producers in terms of how and where e-waste can be collected and stored
- Take back mechanisms and financial instruments difficult to implement in the Indian scenario
- GST and income tax on deposit refunds a major bone of contention
- Need a central agency to coordinate the setting up of Advance Recycling Fee mechanism and management of funds for the same
- Awareness of disposers on mechanisms available for disposal
- Informal sector and their network which needs to be incorporated in the rules

Strategic Approach

Collaborate	Infrastructure	Capacities	Material Trade	Expansion
Collaborate closely with different stakeholders to ensure access to material, especially with the informal sector	Set-up dismantling center to extract materials from electronic and electrical waste items and stabilize plant and machinery	Gradually enhance capacities to ensure that there is enough material to move to recycling using technology to extract precious metals	Trade in material extracted including precious metals across commodity exchange platforms and companies which need raw materials	Set-up facilities in different parts of the country to reduce logistics costs over a 10-year time period either directly or through a franchisee model

Process Details of e-waste Dismantling



The Way Forward

- Formalisation of informal sector through provision of technology so that more material can be accounted for
- Rationalisation of EPR plans and development of eco-system to ensure higher level of compliance
- Stricter compliance of recyclers to plug material leaks to the informal sector
- Capacity building of regulators to ensure better audit and compliance mechanisms across all stakeholders in the value chain
- Facilitating use of financial instruments to ensure that relevant mechanisms can be put in place and managed on behalf of producers

Road Map for the Future

01 Strategy

- Raw Material and Secondary Resource Strategy for India
- A technical advisory group that informs policy processes cutting across different secondary resources

02 Knowledge-base

- Inventories at national and state level
- Database of appropriate technologies
- Business models

03 Appropriate Infrastructure

- Using indigenous developed technologies through centralized and/or de-centralized adoption
- Increased funds for R&D
- Technology appraisal mechanisms

04 Capacity building

- Awareness building
- Targeted programmes for SPCBs, Schools and other key stakeholders

05 Cross Ministry Collaboration

- Digital India initiative
- Make in India initiative
- Digital India initiative
- Skill India initiative

About the Technology

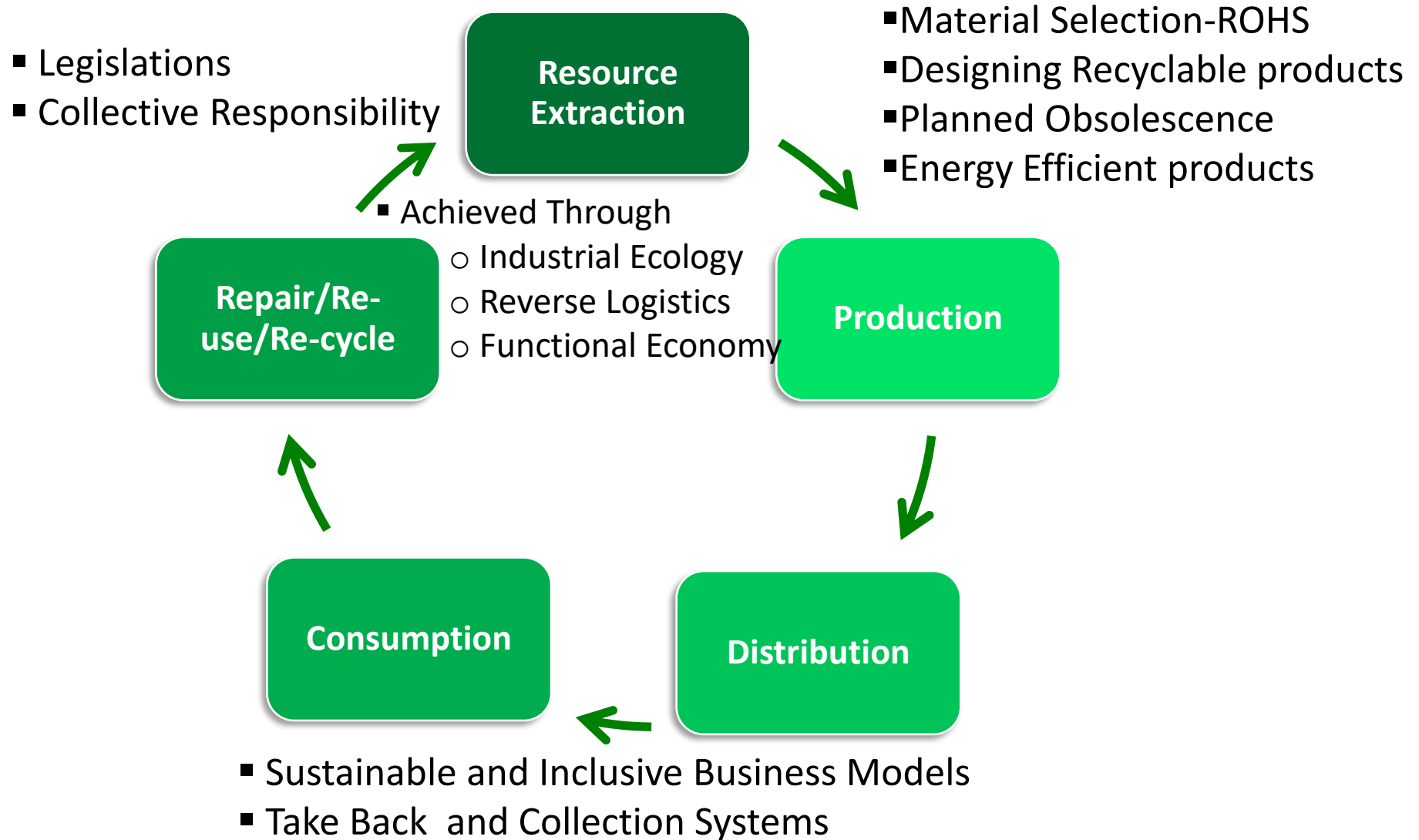
- C-MET bringing a table-top model for PCB recycling through intensive research
- Model ready for commercial deployment
- Technology for PCB recycling delivers pure earths and other metals at more than 65% efficiency
- 150 kg per batch of PCBs can be recycled; translating to 3.5 tonnes of e-waste
- High Technology transfer fee an impediment for the informal sector



Section 2

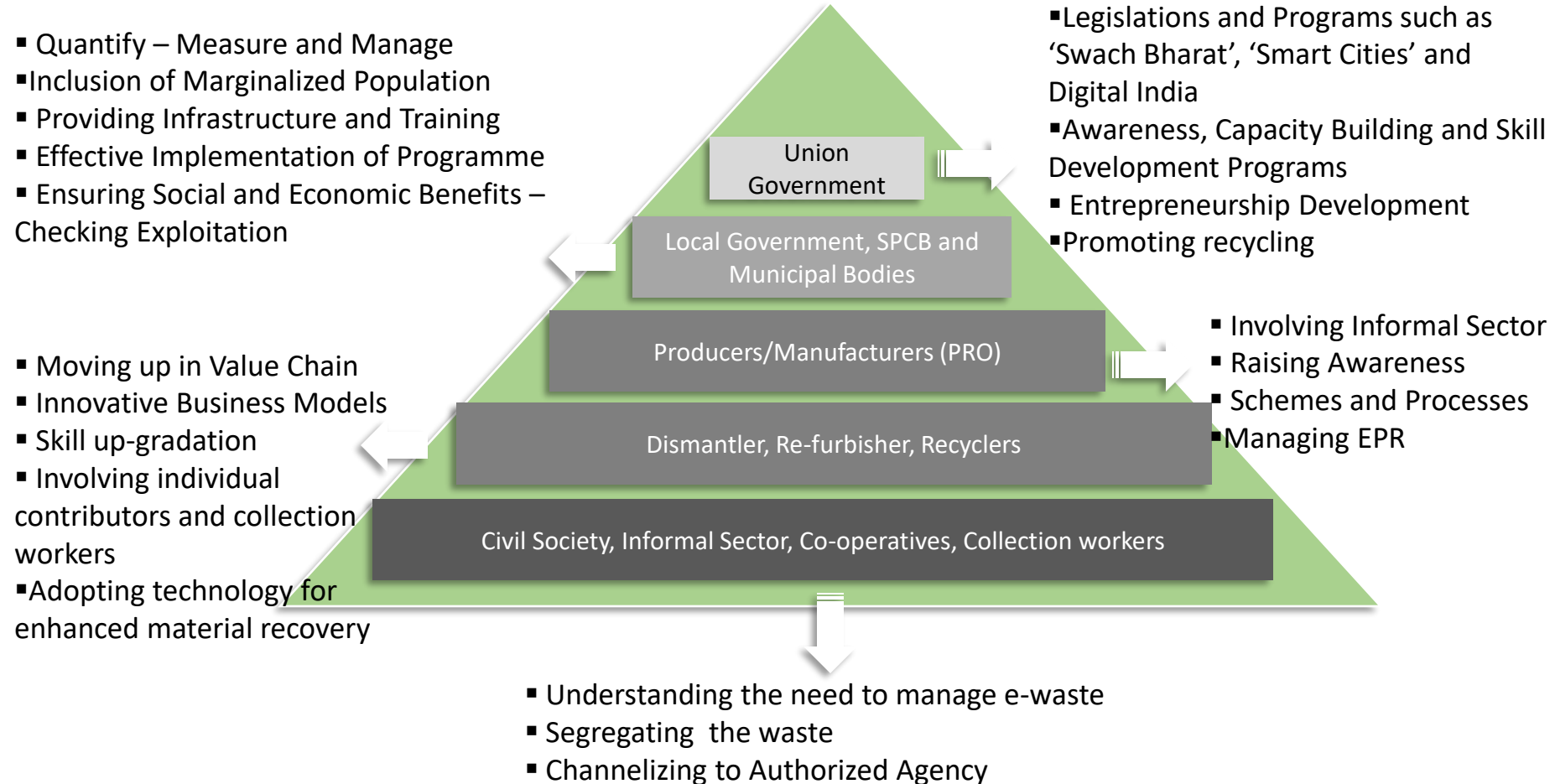
Going forward...

Because it is a circular world...



Being circular ties loose ends...literally

Achieving a Circular Economy



Sustainable Public Procurement

- Task force on SPP set-up by Department of Expenditure
 - Review international best practices
 - Current status of SPP across Government Organisations
 - Development of a draft SPP action plan
 - Initial products/service categories where SPP can be implemented
- Targets under SDG 12 to promote public procurement practices which are sustainable
- General Financial Rules (GFR) 2017 has provisions that purchasing authorities can include environmental criteria while making procurement

Next Step – Your Action Plan

- You should state in which fields of e-waste management you want to / have to take action
- For each of these fields, formulate targets you want to / have to achieve
- For each target, specify indicators which you can use to measure whether the target has been achieved
- For each target, provide one / several measure(s) on how to achieve it
- For each measure, specify who will be responsible within the organization for implementation and which other stakeholders need to be involved
- Also specify for each measure, which resources will be required
- Finally, think about a timeline for implementing the action plan. Prioritize the measures, think about dependencies between them and be realistic.

Questions

