



INDIAN OCEAN
COMMISSION



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Building blocks of a roadmap for advancing regional value chains in waste tire recycling and electrical and electronic waste, leveraging



WORLD BANK GROUP



Executive statement

Waste categorization is crucial for effective waste management and recycling. It involves classifying materials based on their recyclability, composition, and recycling requirements. E-waste and used tire recycling are considered complex due to material variety, contamination, and recycling infrastructure. Both need specialized facilities for resource recovery and environmental impact reduction. Despite their distinct properties, they share common characteristics and are confronted to similar challenges and opportunities. In the African and Indian Ocean Developing Island States (AIODIS), these value chains face significant obstacles, shaping the necessary response mechanisms:

- **High Recycling Cost:** Recycling e-waste costs nearly ten times more than disposing of it, while used tires often carry a “negative value waste” label
- **Recycling Challenges:** The intricate material mix complicates recycling, especially in terms of collection, sorting, and disassembly. Municipal systems often lack the capacity to handle such complexities, thus creating an opportunity for NGOs and the private sector to get involved in these value chains.
- **Lack Scale Economies:** Smaller island states struggle due to lower waste volumes, increasing fixed costs per unit, making recycling a less attractive business proposition. Export opportunities and regional aggregation face regulatory challenges such as the Basel Convention.

The key insight from ‘The Knowledge Exchange Mission’ in Mauritius and Reunion (September 4th to 9th, 2023) is that recycling operations in these value chains are driven by a dynamic push-pull interplay between the public and private sector. Citizens’ commitment to pollution reduction, combined with NGO, startup, and private sector engagement to greater social corporate responsibility (SCR) and innovation, pushes breakthrough in the sector. Meanwhile, government policies and regulations provide the necessary pull to move the sector ahead. This synergy has played a pivotal role in launching recycling businesses and processes within these two value chains in Mauritius and Reunion. The key elements include:

- **Shift from Linear to Circular Business Models:** Paradigm shift through awareness building and educating stakeholders
- **Building awareness and educating stakeholders:** Private Sector Stewardship for collaborative arrangement between Companies, NGOs and Associations to de-risk and ensuring that waste collection and segregation processes are carried out effectively.
- **Legal and Regulatory Framework:** Implementing the ‘Polluter Pays Principle’ and Extended Producer Responsibility (ERP) frameworks.
- **Fiscal and Business Incentives:** Transparent, accountable and trackable incentives mitigate costs and protect investments.
- **Economies of Scale through Exports ¹:** Nacent collaboration with neighboring regions and export opportunities help overcome volume limitations, overall limited scope to export due to limiting regulations.

¹ A timid response to overcome limited volumes - Reunions collaboration with Mayotte (French overseas department) and thus subject to the common EU Directives on E-waste. Mauritius exports to Asia but faces a long as a year to build up volume.

- **African and Indian Ocean Developing Island States Vision in E-Waste and Used Tyres Value Chain: Zero Waste by 2030**
- **Ministers in charge of Circular economy ‘Call for Action’ to promote circularity in E-Waste and Used Tyres Value Chain for the African and Indian Ocean Developing Island States:**

Call for Action at Continental Level – The African Union in the area of Circular Economy, Blue Economy and Climate Change

- Recognises the the specificities of African and Indian Ocean Developing Island States (AIODIS);
- Ring-fencing of funds for African and Indian Ocean Developing Island States (AIODIS)
- Recognise the Indian Ocean Commission, as the 'Port Parol' of the African and Indian Ocean Developing Island States (AIODIS)

Call for Action at Regional Level – The Indian Ocean Commission in the area of Circular Economy, Blue Economy and Climate Change

- Capacity Enhancement: Craft a regional response for improving waste collection, sorting, and processing capabilities at a regional level and providing capacity building and knowledge exchange support to public and Private Sector.
- Advocacy for Regulatory Refrom: Seek regulatory changes and promotion of ERP and Polluter Pay Principles. Lobby for exemptions for 'Transboundary Movement of Waste' to facilitate export and aggregation.
- Roadmap Development: Create a roadmap for advancing regional value chains in waste tire and E-waste recycling.
- Promote innovation and Regional Start up Programmes: Harnessing Startup Innovation and Technological Advancements via Incubation and Acceleration Programs
- Exchange Platform: Establish a regional platform for ERPs and Public-Private Partnerships across AIODIS and B2B exchange. The creation of a dedicated Regional ERP Platform for AIODIS represents a pivotal step in the realization of the Regional Roadmap for E-Waste and Used Tires. This dynamic platform will serve as the central repository for all the essential components of the Roadmap, consolidating them into a user-friendly online environment.
- Incentive framework: Developing Effective Incentive Frameworks, Mechanisms, and Tools at regional level
- Decent Job initiative: Initiating a Regional Charter to Advocate for Decent Jobs and Safe Work Practices in the Recycling Sector
- Stakeholder Engagement: Organize regular exchanges among AIODIS stakeholders in E-Waste and Used Tire Value Chains.

National Level – Member States

- Regulatory Frameworks: Develop national regulatory frameworks based on the 'Polluter Pays Principle' and ERP frameworks.
- Data Strengthening: Enhance statistics departments for better E-Waste and Used Tire data collection.
- Circular Economy Strategies: Implement strategies with clear short, medium, and long-term targets.
- Business Involvement: Chambers of Commerce and Investment Promotion Agencies can set policies and benchmark progress in E-Waste and Used Tire Value Chains. TWG set up to follow the progress in E-waste and used Tyre Value Chain

Context

Effective waste management in the African and Indian Ocean Developing Island States (AIODIS) is a major challenge, particularly when it comes to dealing with electronic waste (e-waste) and used tires. A significant portion of the e-waste and discarded tires generated in these islands ends up in landfills, rivers, and oceans, causing environmental pollution and harm to marine life. This also poses severe health risks to the local population. Establishing clear targets for e-waste collection, segregation, upcycling, and recycling is vital in mitigating the adverse environmental and health impacts of improper disposal. It also encourages sustainable practices and responsible end-of-life management for electronic and used tire products.

However, the region faces substantial gaps in regulatory policies, enforcement mechanisms, waste management infrastructure, and recycling value chain efficiency, spanning collection, segregation, processing, and proper disposal of e-waste and used tires. A review of value chain/recycling chain, the legal framework, infrastructure, business models and incentive structures in place across the AIODIS point to significant gaps, which hinder effective waste management and sustainable upcycling and recycling practices in these two sectors.

Key Gaps

- **Limited or Absent Legislation:** Some AIODIS countries lack comprehensive laws governing e-waste and used tire management.
 - **Weak Enforcement and Compliance:** Enforcement of existing regulations is often lax, leading to non-compliance.
 - **Insufficient Extended Producer Responsibility (EPR):** EPR programs, which shift responsibility to product manufacturers, are underdeveloped.
 - **Unfeasible Business Models:** Current models for handling these waste streams may not be financially viable.
 - **Inadequate Infrastructure and Technology:** Lack of proper facilities and technology hampers effective waste management.
 - **Limited Public Awareness and Education:** Many citizens are unaware of the hazards and proper disposal methods.
 - **Lack of Incentives and Financial Support:** Few incentives exist for businesses to invest in recycling.
- Cross-Border Challenges:** International regulations, like the Basel Convention, restrict the movement of waste.

Developing strong waste management systems for e-waste and used tires is crucial for AIODIS. Reunion Island, which is an overseas department of France, introduced the first EU directive on Waste Electrical and Electronic Equipment) in 2003, based on the principle of "Extended Producer Responsibility" ERP and the "polluter-pays" principle. As a precursor in legal framework Reunion serving as a model for the region, where good practices may be adapted and customised to other AIODIS countries based on their level of development. The ERP principle places the responsibility of managing electrical waste on the manufacturer. Reunion serves as a legal framework pioneer in the AIODIS region, offering a model that other countries can adapt and tailor to their specific developmental levels and needs. Mauritius is currently drafting regulations under section 96 of the Environment Protection Act, on E-waste, which encompasses the concept of "polluter-pays" and ERP and the Seychelles have implemented polluter-pays principle in the area of marine conservation. While AIODIS countries vary in their readiness for these policies, common challenges create an opportunity for collective action. The adoption of circular economy models for waste recovery is relatively new, providing an avenue for sharing best practices. Private sector involvement is key to reducing waste and promoting sustainability.

Exchange of Experience Between Mauritius and Reunion

The Knowledge Exchange Mission in Mauritius and Reunion brought the spotlight to best practices in Public Private Partnerships, Startup Initiatives, and NGO engagement and regulatory environment in public sector (please see the attached Annex 1 - list of partners involved in the Knowledge Exchange Mission). We had the opportunity to visit several companies of varying technological sophistication, organizational structure, and size in both islands. This allowed for a comparative analysis of the "used tires" sector in Reunion through companies like Solyval and Solygrom and MTRECK. In the realm of the E-waste value chain, we observed two distinct business models operating within very different regulatory frameworks, enabling us to highlight the best practices necessary for building a sustainable E-Waste business.

For instance, we compared B.E.M in Mauritius, operating in the absence of an Extended Producer Responsibility (ERP) and Producer Responsibility Organizations (PROs), to RVE, which operates within an ERP system supported by two eco-organisms (PROs). The Eco-Organism system led by SICR in Reunion served as a noteworthy example of best practices that could be replicated across the region. In Mauritius, it's worth noting that the private sector and NGOs have played a pivotal role in instigating change, particularly in the absence of an ERP frameworks.

An exemplary case is the collaboration between Mission Vert, an NGO, Emtel, a telephony company, and BEM, an e-recycler, which vividly demonstrates how innovative and resilient private sector partnerships can effectively address regulatory gaps. Moreover, we had the opportunity to showcase several startups, including la Decheteque, METECK, and Data Lab from Mauritius, which exemplify the transformative potential of entrepreneurship in disrupting established norms.

Additionally, the conversation delved into the possibilities of establishing connections between AIODIS and the African continent by engaging with organizations like FEWACCI and SADC. Emphasis was placed on the pressing necessity to elevate AIODIS challenges to a continental level. This recognition was considered crucial for surmounting the challenges posed by limited scale and for fostering a more comprehensive approach to addressing the issues confronting small island states. The importance of consolidating influence through partnerships with Regional Economic Communities (RECs) and the African Union was underscored as indispensable for the efficient resolution of waste management concerns and the advancement of a circular economy.

The Knowledge Exchange created a platform for in-depth examination of constraints and for gaining valuable insights, both from within the AIODIS region and beyond. This collaborative endeavor allowed us identify the building blocks essential for crafting regional solutions to the complexities associated with e-waste and used tire management. Moreover, it laid the groundwork for identifying the key components necessary for shaping a regional roadmap dedicated to addressing the challenges concerning E-waste and Used Tires within the AIODIS region.

Building Block of Regional Road Map for E-waste and Used Tyres - Establishing a Regional ERP Platform for AIODIS: A Hub for Implementing the Regional Roadmap on E-Waste and Used Tires

The creation of a dedicated Regional ERP Platform for AIODIS represents a pivotal step in the realization of the Regional Roadmap for E-Waste and Used Tires. This dynamic platform will serve as the central repository for all the essential components of the Roadmap, consolidating them into a user-friendly online environment. The ERP Platform's primary function is to foster interaction, collaboration, and seamless coordination within the AIODIS region. It will facilitate engagement between various stakeholders, including governments, businesses, NGOs, and educational institutions. This digital hub will provide a virtual space where key tools, training resources, B2B opportunities, and a comprehensive repository of documents can be accessed and leveraged to drive sustainable waste management practices. In essence, the ERP Platform will empower AIODIS to harness the collective expertise and resources of its diverse ecosystem, promoting synergy, innovation, and effective execution of the Regional Roadmap.

Eng 1: Regional Objective

Transforming the conventional approach of "Take-Make-Waste":

Action

Transitioning from mere recycling and waste recovery to reducing consumption while championing upcycling through the promotion of eco-conception and eco-design. Empowering the Shift through Education, Awareness, and Information Sharing at the Regional Level:

- Regional Training Programme for Consumer protection agencies
- Regional Curriculum design for University Faculties of Engineering and design
- Awareness building and information dissemination:
 - a. Government Level
 - b. Chambers of Commerce and Investment Promotion Agency Level
 - c. NGOs
 - d. School

Eng 2:

Regional Objective

Empowering a Robust Legal Foundation and Effective Implementation: Focusing on EPR and the “Polluter Pays Principle”

Action

Establishing a Template Framework and Best Practice Guidelines for Crafting EPR Regulations and Implementation Tools and Systems

- Creating a Central Repository for EPR and Polluter Pays Principle Legal Frameworks, Terms of Reference for Feasibility Studies, and Other Essential Technical Resources - Launching a Legal Technical Facility to Provide Legislative Support Across the AIODIS Region
- Initiating an Online Training Program and Advisory Help Desk for EPR
- Formulating a Regional Nomenclature in Collaboration with Customs Authorities to Define Imports of Goods Featuring Integrated ‘Eco-Design’ Characteristics
- Establish Guidelines for promoting transparency and accountability in Budgeting and Reporting of Eco-Contributions schemes and other fiscal incentives established by Government for the AIODIS

Eng 3:

Regional Objective

Promoting Knowledge Sharing, Twinning, and Institutional Strengthening Initiatives

Action

Establishing Exchange Programs with Entities in the Region and Beyond. Consider the following options:

- SCIR, ADIR
- ACEN
- Made In Maurice/Mauritius Manufacturers Association
- Statistical Organizations in the Region

These initiatives aim to facilitate the exchange of knowledge, strengthen partnerships, and enhance institutional capabilities through collaborative engagements with key entities in the region and broader networks.

Eng 4:

Regional Objective

Harnessing Startup Innovation and Technological Advancements via Incubation and Acceleration Programs

Action

Pioneering a Regional Incubation and Acceleration Initiative:

- Initiating a Call for Proposals to Establish an Accelerator Program
- Leveraging the Regional Network of Business Angels and Impact Investors
- Launching a Regional Incubation and Acceleration Award Program, along with a Pitching Event

These strategic actions are aimed at tapping into the potential of startup innovation and technological progress, promoting entrepreneurship, and fostering regional growth through dedicated incubation and acceleration programs platform on a regular basis through online events

Eng 5:

Regional Objective

Promoting B2B and Online Business Exchange Initiatives

Action

Establishing a Customized B2B Application, Currently Available in the Market, and Creating a B2B Network:

- Involving Recycling Companies
- Engaging Suppliers
- Collaborating with Equipment Manufacturers
- Partnering with Technology Providers
- Accessing Technical Assistance and Consultancy Services

Promoting Business Exchanges through the B2B Platform and Actively Managing and Expanding Regional Trade Opportunities through the Platform.

Eng 6:

Regional Objective

Developing Effective Incentive Frameworks, Mechanisms, and Tools

Action

Benchmarking Excellence in the Implementation and Adoption of Incentive Schemes:

- Analyze and Benchmark Best Practices in Incentive Implementation and Adoption
- Crafting Regulations for the Establishment of a Pioneering Status

Incentive Program for the Region:

- Formulating Regulatory Frameworks for the Introduction of a 'Pioneering Status' Incentive Program Tailored to the Regional Context These actions aim to identify and incorporate best practices in incentive utilization while simultaneously paving the way for the introduction of a 'Pioneering Status' Incentive Program designed to encourage innovation and development in the region.

Eng 7:

Regional Objective

Creating Decent Employment Opportunities in Informal Recycling

Action

Initiating a Regional Charter to Advocate for Decent Jobs and Safe Work Practices in the Recycling Sector:

- Establishing a Regional Charter dedicated to the promotion of decent job opportunities and the implementation of safe work practices within the recycling industry.
- Developing and Implementing Robust Training Initiatives Focused on Health and Safety in Recycling Operations.

These initiatives aim to enhance the working conditions and livelihoods of those engaged in informal recycling by advocating for better employment practices and ensuring the safety and well-being of workers through targeted training programs.

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References/Further information

Accueil | Commission de l'océan Indien (commissionoceanindien.org)

Annex 1 - List of Participants in the Knowledge Exchange Mission

E-waste

Name: B.E.M Recycling

Years in Operation: > 30 Years

Country: Mauritius

Description: Specialized for more than 24 years on the Mauritian market in the treatment of Waste of Electrical and Electronic Equipment (WEEE), BEM Recycling offers a complete service for the collection and recycling of end-of-life electrical and electronic appliances through its treatment plant located at La Chaumière, St Martin. Over 2300 tons of E-wastes have been recycled.

BEM puts forward his knowledge and know-how in order to ensure a complete traceability of the E-waste from its collection to its final recycling. With its zero-landfill policy and by valorizing the various components into secondary raw materials (plastic chips/pellets, glass cullets, ferrous & non-ferrous shredded chips...).

Name: Data Labs

Years in Operation: <5 Years

Country: Mauritius

Description: Recovers data from faulty computer/ hard drives. Safe disposal of casing plastic

Name: La Déchetèque

Years in Operation: <5 Years

Country: Mauritius

Description: La Déchetèque is a library of services dedicated to waste prevention, through concepts of circular economy. It specialises in the Reuse of construction and renovation materials, and we accompany you to Rethink education, Reorganise your space.

Name: RVE

Years in Operation: >20 Years

Country: Mauritius

Description: RVE recycles professional and household WEEE with on-site dismantling and transporting WEEE to its facilities for manual disassembly and valorization. Complies with current European standards and provides a Waste Tracking Form (Bordereau Suivi Déchets - BSD) for traceability.

Used Tyres

Name: Morecup

Years in Operation: <5 Years

Country: Mauritius

Description: Collector, recycling and export of used tyres to Asia. In 2022-2023, MTREC exported 635 Tonne of Used Tires, collected mainly from Government Bodies and garages. MTREC has a processing capacity of 7 tonne daily for passenger car tire and 4 tonne daily for Truck and Bus Tire. The target is to reach a minimum of 1500 tonne for 2023-2024.

Name: AVPUR

Years in Operation: >20 Years

Country: Reunion

Description: AVPUR plans for the recycling of old tires from the sale of new tires! Established in 2003, the Association for the Valorization of Used Tires in Réunion (AVPUR) brings together most tire importers and aims to collect and recycle tire waste.

Name: CMC LTD

Years in Operation: >100 Years

Country: Reunion

Description: CMC LTD is a leading operator in the tyre-retreading sector in Mauritius and a well-established importer and local distributor of new tyres for all types of vehicles. Other lines of business include automotive lubricants and fire protection equipment. The company has also extended its product range to light recreational vehicles (Quad bikes, Golf Carts, etc.) and industrial gases.

Name: SOLYVAL

Years in Operation: >15 Years

Country: Reunion

Description: SOLYVAL company, based on the seaport of the Reunion Island, is the first and only industrial platform for collecting, grouping, sorting, recycling and recovery of used tires on the Reunion Island. SOLYVAL plays a key role in the recycling value chain for the recovery of used tires. It is a unique processing plant in the Indian Ocean and meets all European requirements and French hygiene, safety, and quality. The recycled rubber is upcycled to products for playgrounds, building material, gym flooring, roofing, etc.

Multi purpose sorting, treatment and storage and upcycling

Name: INOVEST

Years in Operation: <5 Years

Country: Reunion

Description: Le Centre de Valorisation Multi-Flux (CVMF) INOVEST, located in Sainte Suzanne, was commissioned in December 2020. Its objective is to prepare household and assimilated waste as well as waste from economic activities from this region with over 325,000 inhabitants for their valorization (organic, material, and energy). In addition to meeting the landfill reduction targets set by the law on energy transition for green growth, the short-term challenge was to find a solution to the saturation of the Sainte Suzanne landfill, whose capacity was expected to be reached by February 2021. Operated by the SUEZ Group, the CVMF INOVEST provides sorting, processing, storage, disposal, and valorization services for the annual 170,900 tons of waste (82% household waste and 18% Industrial waste).

Name: Déchetterie de la Chaumière

Years in Operation: <3 Years

Country: Mauritius

Description: "Déchetterie de la Chaumière" is a waste collection and disposal facility, commonly known as a waste transfer station or recycling center. It serves as a place where SMEs and residents can bring various types of waste, including recyclables, household hazardous waste, and other items that cannot be disposed of in regular household bins. These facilities are designed to promote proper waste management and recycling practices by providing a designated location for residents to drop off specific types of waste for appropriate handling and disposal

Business Support Organisation

Name: Cluster GREEN

Years in Operation: >20 Years

Country: Reunion

Description: Cluster GREEN, which stands for "Groupement Régional des Entreprises Engagées pour environnement" is a regional association based in Reunion Island that brings together companies and organizations committed to environmental sustainability. The cluster's purpose is to promote eco-businesses and environmentally responsible companies, as well as to foster synergies around projects related to the circular economy.

Name: SICR

Years in Operation: >80 Years

Country: Reunion

Description: The SICR is a professional employer's union. Its mission is to assist the affiliated business leaders in Réunion who operate in sectors such as import, automotive, or environment, in responding to the ongoing changes in their environment while complying with the current regulations. The union was established on February 26, 1953, by prominent figures in the local economy whose names still resonate today: LEGROS, RAVATE, CAILLE. The union operates under the law of March 21, 1884, known as the Professional Union law, which has "the exclusive objective of studying and defending the material and moral interests, both collective and individual, of the persons covered by their statutes." The Syndicat took on the name Syndicat de l'importation et du Commerce de la Réunion (SICR) in 1997.

Name: Business Mauritius

Years in Operation: ?

Country: Mauritius

Description: Business Mauritius is an independent association that represents over 1200 local businesses and has, through them, a national, regional and international reach. Business Mauritius is the coordinating body and the voice of local business, and delivers services that sustain the progress of both business and community. Business Mauritius stems from the merger, in October 2015, of two business associations, namely the Mauritius Employers Federation and the Joint Economic Council. Leveraging on over 50 years of cumulated experience of strategic accompaniment to local business in multiple ways, Business Mauritius remains focused on 3 strategic goals:

- Engage Business in National Economic Development
- Develop a Strong Social Capital
- Promote Sustainable and Inclusive Growth



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