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Recycling of ULAB and Existing Policies, and Regulations: The Current Situation in Kenya

By

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Existing legal and policy framework in Kenya

Kenya has comprehensive national laws, policies and regulations, and multilateral agreements that relate to human health and environment and not specifically ULABs:

- EMCA (1999) is concerned with Air Quality and Waste Management Regulations.
- OSHA (2007) is concerned with Safety, Health and Welfare of all workers in Kenya
- The constitution (2010) spells out the entitlement of every person to a clean and healthy environment, and the highest achievable standard of health

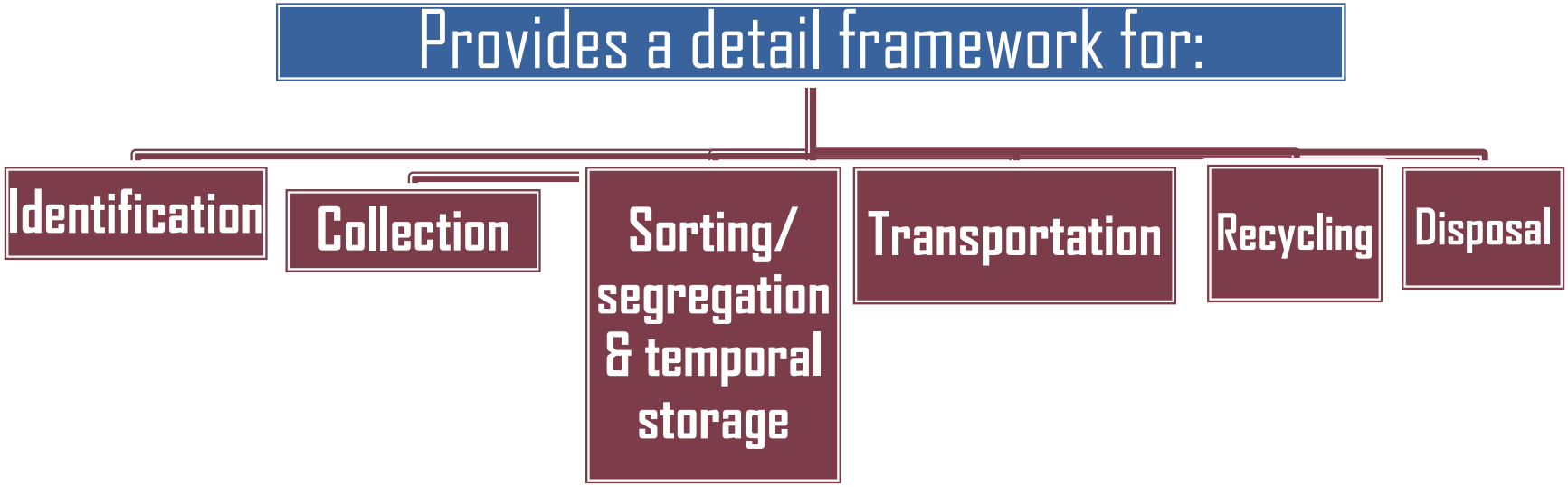
Related policy and regulation on ULAB

Used Lead Acid Batteries (ULABs) is regarded as a hazardous waste

It falls under e-waste (electrical and electronic equipment) as it depends on electric currents for its application

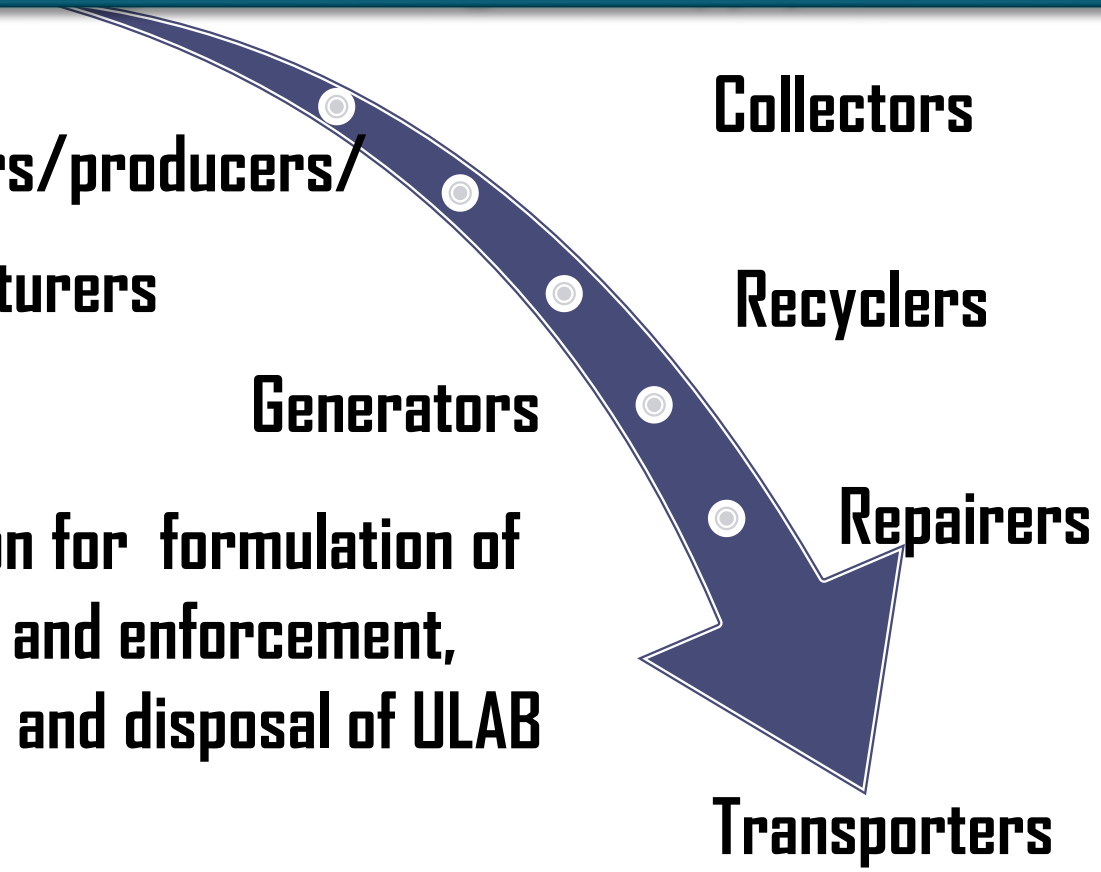
ULAB have been categorised under Batteries including nickel and cadmium batteries in e-waste streams

Draft regulation on sound management of e-waste (2013) in Kenya



- The Ministry of Environment is responsible for environment at policy level
- National Environment Management Authority (NEMA) is a regulator and enforcer of environmental issues

The regulation covers specific detailed responsibilities of e-waste management along the supply chain



Relevant organization for formulation of policies, regulations and enforcement, generation, handling and disposal of ULAB among others

Past activities focused on ICT due substantial generation of related e-waste

UNEP (2010) focused on volumes of personal computers, mobile phones, TVs generated in Kenya

Were et al. (2015) determined volumes of personal computers, mobile phones, air-conditioners, printers and TVs in public institutions in Kenya

Series of awareness program on e-waste have mainly been sponsored by Mobile Phone Network (Safaricom) and Communication Authority

East Africa Communication Organization (2016) established National and Regional Steering Committees to have Implementation Plan and Establish Regional Strategies on Sound Management of Related E-waste

Currently generation of ULAB in Kenya is increasing exponentially

Increase in generation of ULABS from motor vehicles

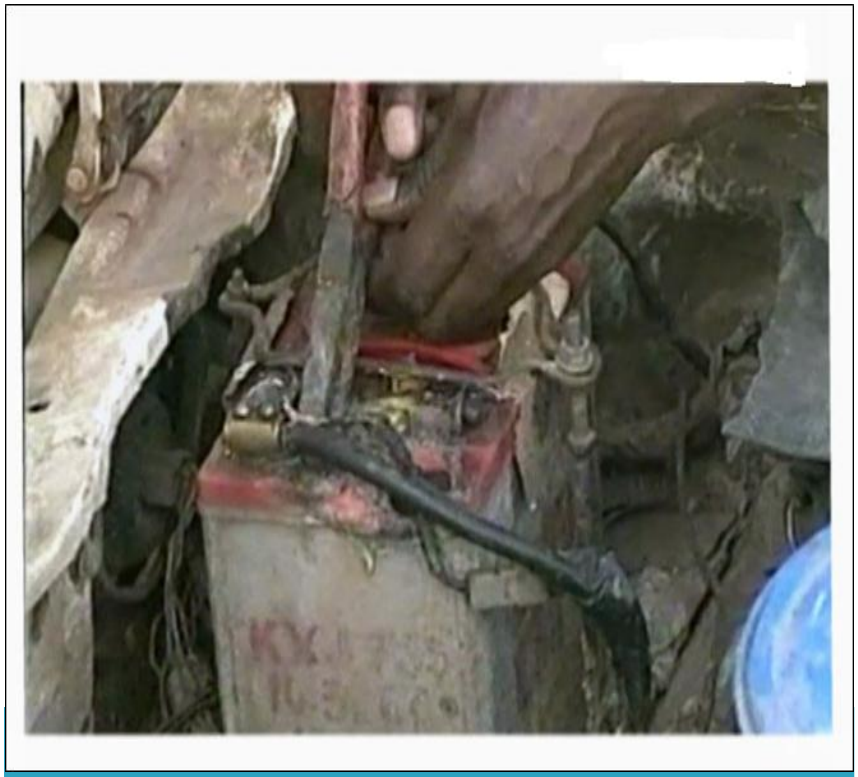
- Motor-cycles among other vehicles offer fast transport they have significantly increased over years
- Motor-cycles are able to maneuver through traffic jam that is witnessed in urban areas
- Easy accessibilities in rural areas where roads are a challenge

The total number of ULABs are projected to exceed thousands of mt by 2020

ULAB recycling in Kenya

- Previous studies on ULAB recycling revealed high levels of lead in environment and blood of the workers that markedly exceeded the international standard
- There have been serious incidences of lead poisoning around poorly managed lead acid battery recycling facility in Mombasa, Kenya that led to closure of several similar establishments

Common activities that disperses the hazardous materials to the environment

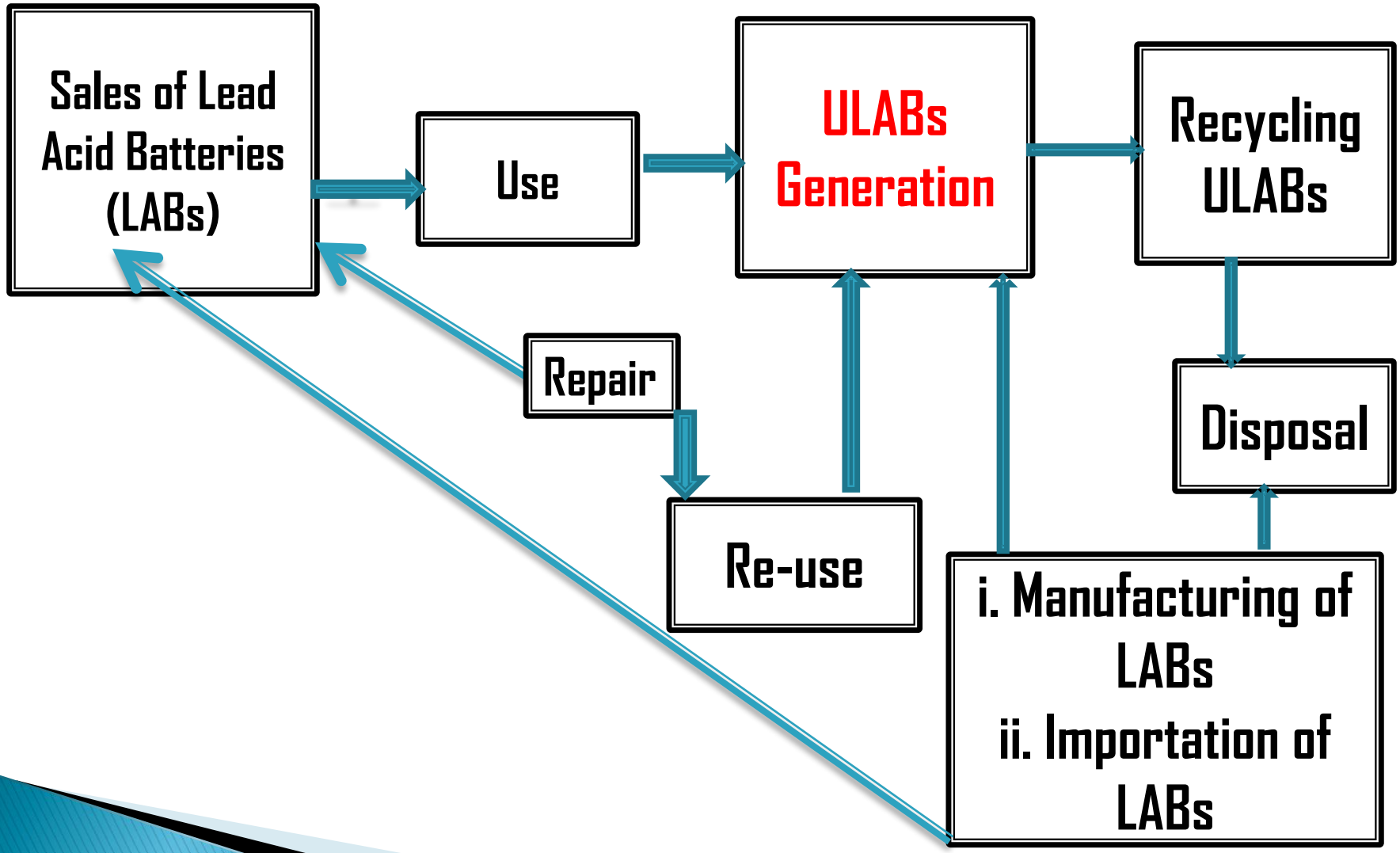


Dismantling of ULAB in open

Recycling activities of ULAB in the informal sector using poor technologies

- The contaminated sites requires massive resources for cleaning up
- Tracking life cycle of ULAB along the supply chain is key in monitoring lead exposure levels

Tracking ULAB along the supply chain



Formal ULAB Recycling in Kenya

Currently there is only one formal facility, the Associated Battery Manufacturers (ABM) East Africa Ltd established in 1963 in Nairobi

Regional Recycling East Africa Limited (RREAL)

Manufacturing of industrial, automotive and solar LAB, distilled water, plastics, manufacture of assorted alloys and processing of sulfuric acid

Overview of ABM

- Has over 700 employees recovering over ten thousand mt ingots, important for manufacture of about one million LAB per annum for mainly EA consumption
- The company is putting in investment for continual improvement of their processes and to comply with the regulations:
- In 2013, mantainance free battery was introduced that do not require electrolyte and more life line of about 6 years
- In January 2017, ABM hosted Benchmarking Assessment Tool (BAT) training workshop for possible partnership with solar distributors of E.A region
- The BAT was applied to capture the current status of ABM and suggest further improvements in its operational standards on ULAB recycling and create a realistic plan to achieve defined road map

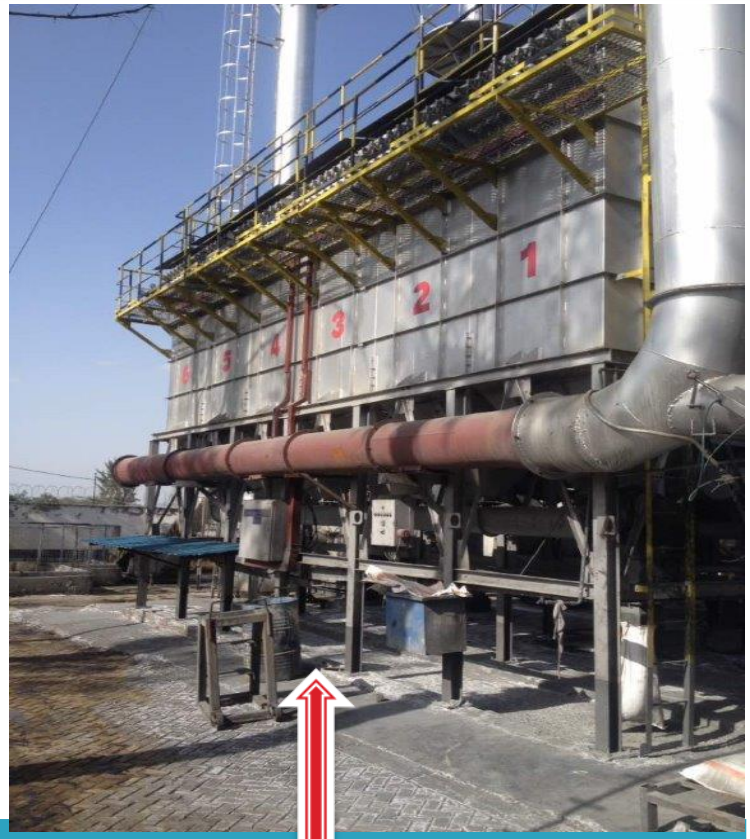
Some photos taken on the current status of ABM during application of BAT, January 2017 (Cutesy of ABM)

Signage with safety and health information at the entrance of the plant

Effluent treatment plant

Processes of residues of ULAB to produce alloys with controlled emissions

Baghouse that captures lead dust for further recycling



Baghouse to control emissions

View of baghouse to control emission to the environment

Modern flue gas extraction system

House keeping to reduce lead dust

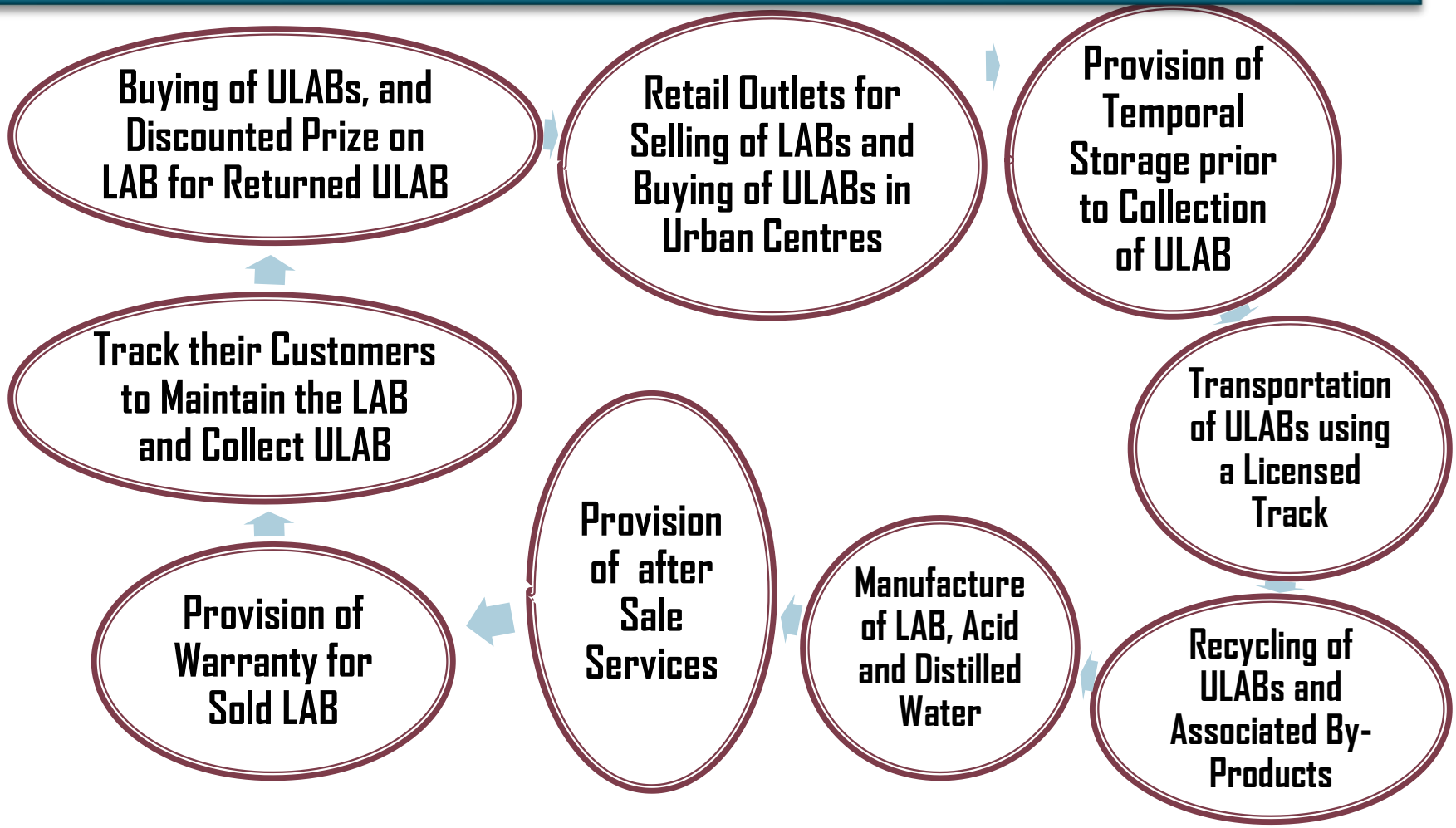
Continuous watering to avoid lead dust accumulation

Casting processes with controlled emission

Track for transportation of ULAB

Upgraded extraction system

ABM operation is a closed loop



Opportunities of environmental sound management of ULABs

Partnerships with the Existing Major Stakeholders in Collection of ULABs and Creation of Awareness Efforts

Currently ABM has Several Collection Points in Urban Areas (accessed through www. Exide chloride: abm.co.ke)

ABM Offers Incentives for Return ULABs and After Sale Service

ABM Buys any Form of ULABs

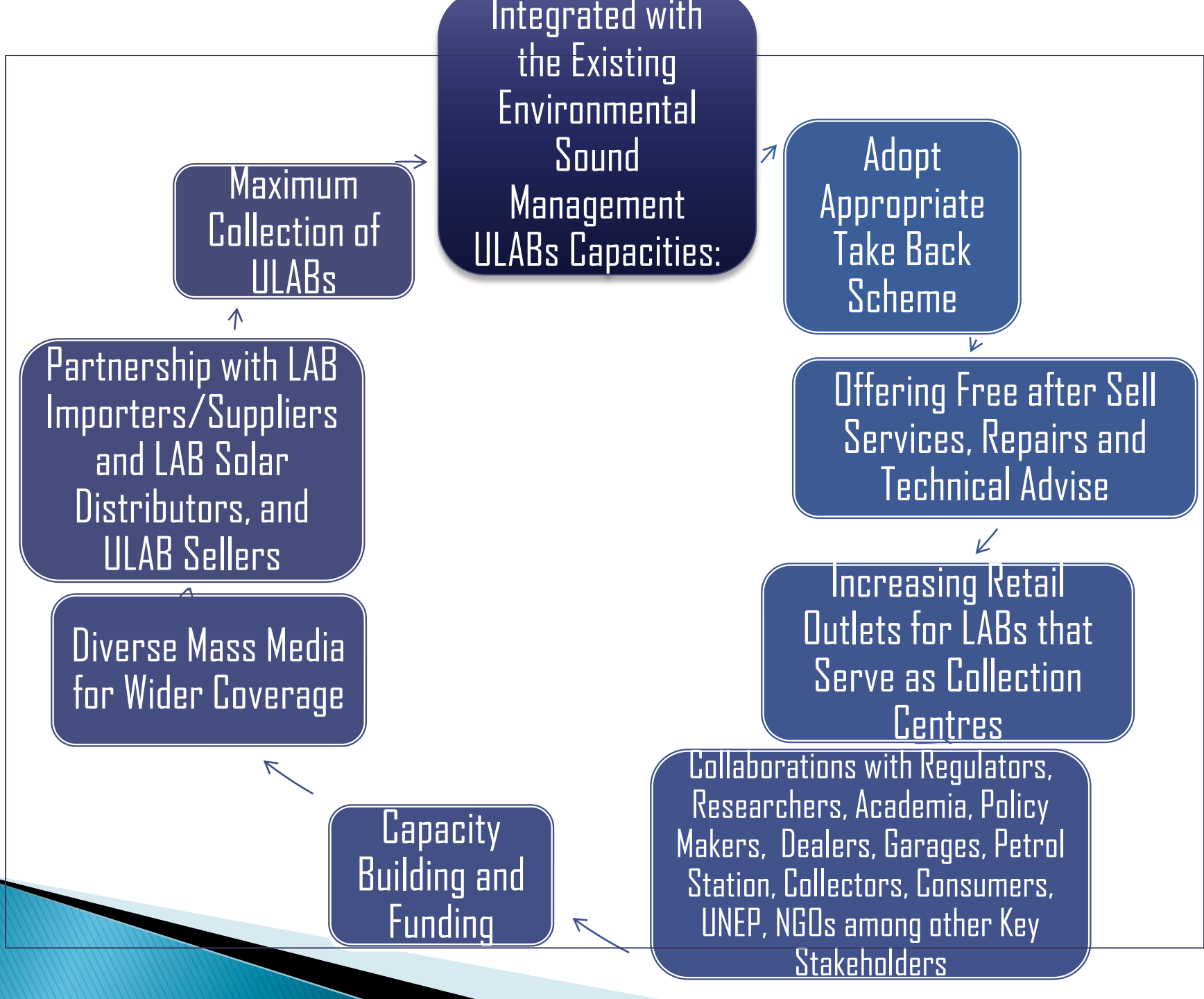
Carrying Out Comprehensive Awareness programs on Sound Management of ULABs is Necessary

Through Collaboration with Regulators, Policy Makers, Academia, Researchers, Media, UNEP, NGOs and other Key Stakeholders

Associated challenges

- Waste management has been devolved to 47 County governments which currently lack resources and technical capacity for establishment of sustainable waste management systems
- The limited legal and regulation for management of ULAB to accommodate the convention has attracted other players, the informal sector that has limited skills and resources
- Rural areas are far from distribution points and are spread-out making accessibility to the end users difficult

- Solar lightning are mostly in rural areas, which is far from the point of distribution and after sell services coupled with low maintenance hence generation of more ULAB
- More resources are required for temporal storage, collection facilities, transportation and creation of awareness of ULAB to formal recycling company especially from remote areas
- Lack of awareness on recycling options hampers the process
- Low volumes are collected due to perceived value of ULABs especially when the incentives are not commensurate


Integrated with the Existing Environmental Sound Management ULABs Capacities:
Adopt Appropriate Take Back Scheme
Offering Free after Sell Services, Repairs and Technical Advise
Increasing Retail Outlets for LABs that Serve as Collection Centres
Collaborations with Regulators, Researchers, Academia, Policy Makers, Dealers, Garages, Petrol Station, Collectors, Consumers, UNEP, NGOs among other Key Stakeholders
Capacity Building and Funding
Diverse Mass Media for Wider Coverage
Partnership with LAB Importers/Suppliers and LAB Solar Distributors, and ULAB Sellers
Maximum Collection of ULABs

What is needed

- Regular monitoring of all sources of lead exposures through life cycle of ULABs and comprehensive awareness
- Enforcement of existing legislation, and developing comprehensive regulatory framework for ULAB recycling
- Building existing capacities at all levels of participation while taking into consideration the specific legislation, technical, economic, financial, environmental, social and cultural factors
- Remediation of already contaminated sites
- Suitable strategies that will adopt take back schemes alongside massive awareness
- Partnering with other firms with similar goals to increase impact and optimal use of resources

Conclusion

- The Extended Producer Responsibility is important in assisting in management of ULAB by targeting maximum collection and creating an inventory
- Designing suitable strategies in tracking life cycle of ULAB in collaboration with relevant stakeholders is necessary for the development of an inventory for environmentally sound management of ULAB
- Establishing mandatory national occupational and environmental exposure lead standards

- Thank you