



International Lead Association



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Brian Wilson



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Environmentally Sound ULAB Strategies

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Strategy for the ESM of ULAB Recycling

- ✓ **Technical Aspects & Environmental/Health Management**
- ✓ **Financial Viability**
- ✓ **Political Framework - To support the ESM of ULAB**

Strategy for the ESM of ULAB Recycling

1. Estimate the Size and Nature of the LAB Market

Estimate the Size and Nature of the LAB Market

<u>Type of ULAB</u>	<u>Data Source</u>
Automotive	Ministry of Transport
Standby/Back Up	Telecoms Companies
Solar Energy Storage	Ministries of Environment/Energy
Emergency Standby	Ministries of Health/Environment

Strategy for the ESM of ULAB Recycling

1. Estimate the Size and Nature of the LAB Market
2. Calculate the Amount of ULAB Generated

Calculate the Amount of ULAB Generated

<u>Type of ULAB</u>	<u>Tons of LAB</u>	<u>Tons of ULAB/Year</u>
Automotive	Auto Tons	(Auto Tons) x ULF*
Standby/Back Up	B U Tons	(B U Tons) x ULF
Solar Energy Storage	S E Tons	(S E Tons) x ULF
Emergency Standby	E S Tons	(E S Tons) x ULF
<u>Totals</u>	Summation	Summation

* ULF = Useful Life Factor



Calculate the Amount of ULAB Generated

<u>Type of ULAB</u>	<u>Tons of LAB</u>	<u>Tons of ULAB/Year</u>
Automotive		
Standby/Back Up		
Solar Energy Storage		
Emergency Standby		
<u>Totals</u>		

* ULF = Useful Life Factor



Calculate the Amount of ULAB Generated

<u>Type of ULAB</u>	<u>Tons of LAB</u>	<u>Tons of ULAB/Year</u>
Automotive	80	
Standby/Back Up	6	
Solar Energy Storage	12	
Emergency Standby	<u>2</u>	
<u>Totals</u>	100	

* ULF = Useful Life Factor



Calculate the Amount of ULAB Generated

<u>Type of ULAB</u>	<u>Tons of LAB</u>	<u>Tons of ULAB/Year</u>
Automotive	80	$(80 \times 0.5^*) = 40$
Standby/Back Up	6	$(6 \times 0.2^*) = 1.2$
Solar Energy Storage	12	$(12 \times 0.2^*) = 2.4$
Emergency Standby	<u>2</u>	<u>$(2 \times 0.1^*) = 0.2$</u>
<u>Totals</u>	100	43.8

* ULF = Useful Life Factor



Sustainable ULAB Recycling

TYPE OF ULAB	LAB - 2015	ULAB - 2015
AUTOMOTIVE	13,506	5,790
STANDBY/BACK UP	29,196	9,286
SOLAR ENERGY STORAGE	39,718	7,944
EMERGENCY STANDBY	6,776	1,355
TOTALS – METRIC TONS	<u>89,196</u>	<u>24,374</u>

Case Study: Nepal 2015



Strategy for the ESM of ULAB Recycling

1. Estimate the Size and Nature of the LAB Market
2. Calculate the Amount of ULAB Generated
3. Determine Capacity/Viability of Available Recycling Plants

Determine Capacity/Viability of Recyclers

1. Confirm ULAB Quantities
2. Confirm ULAB Recycling Capacity
3. Estimate additional investment costs for ESM
4. Confirm markets for Lead and By-Products
5. Carry out a Financial Analysis for Profitability
6. Determine Domestic or Regional Recycling Options

Strategy for the ESM of ULAB Recycling

1. Estimate the Size and Nature of the LAB Market
2. Calculate the Amount of ULAB Generated
3. Determine Capacity/Viability of Available Recycling Plants
4. Undertake an ESM Assessment of Recycling Performance

Assess the ESM of Recycling Performance

1. Carry out a holistic BAT Inspection
2. Check Operating and Health Licenses and Permits
3. Check Government Emission Data
4. Check Occupational Lead in Blood Levels
5. If Appropriate: Agree an Improvement Program
6. Decide if the ULAB can be recycled in a Sound Manner

Strategy for the ESM of ULAB Recycling

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2. Calculate the Amount of ULAB Generated
3. Determine Capacity/Viability of Available Recycling Plants
4. Undertake an ESM Assessment of Recycling Performance
5. Set out Technical and Policy Road Maps

Set out Technical and Policy Road Maps

Technical

- ✓ Recycling Technology
- ✓ Closed Loop System
- ✓ Energy / Fuel
- ✓ Location and Enclosures
- ✓ By-Product Treatments
- ✓ Waste Disposal

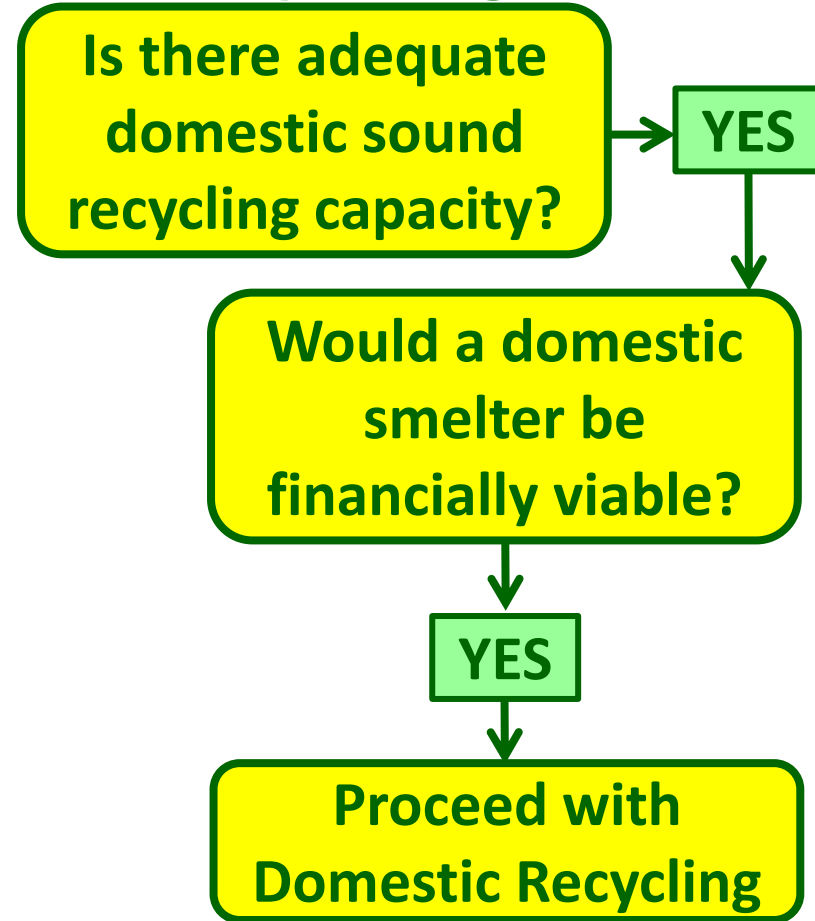
Policy

- ✓ Set Operating Standards
- ✓ Set Licensing Procedures for ESM
- ✓ Review Import/Export Policies
- ✓ Establish Inspection Regime
- ✓ Determine Support Policies
- ✓ Set up Public Education Program

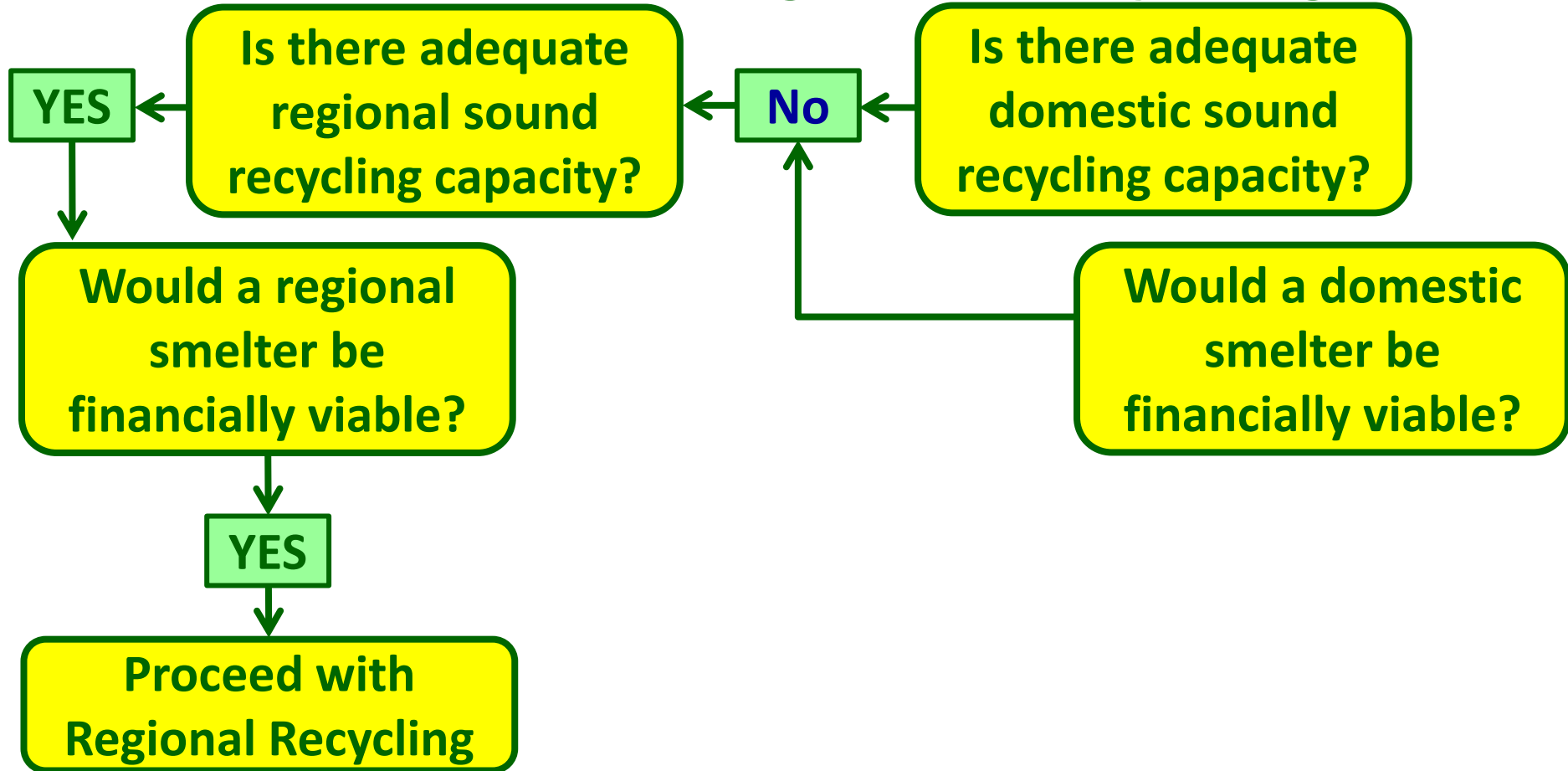
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6. Agree Domestic or Regional Recycling with Stakeholders

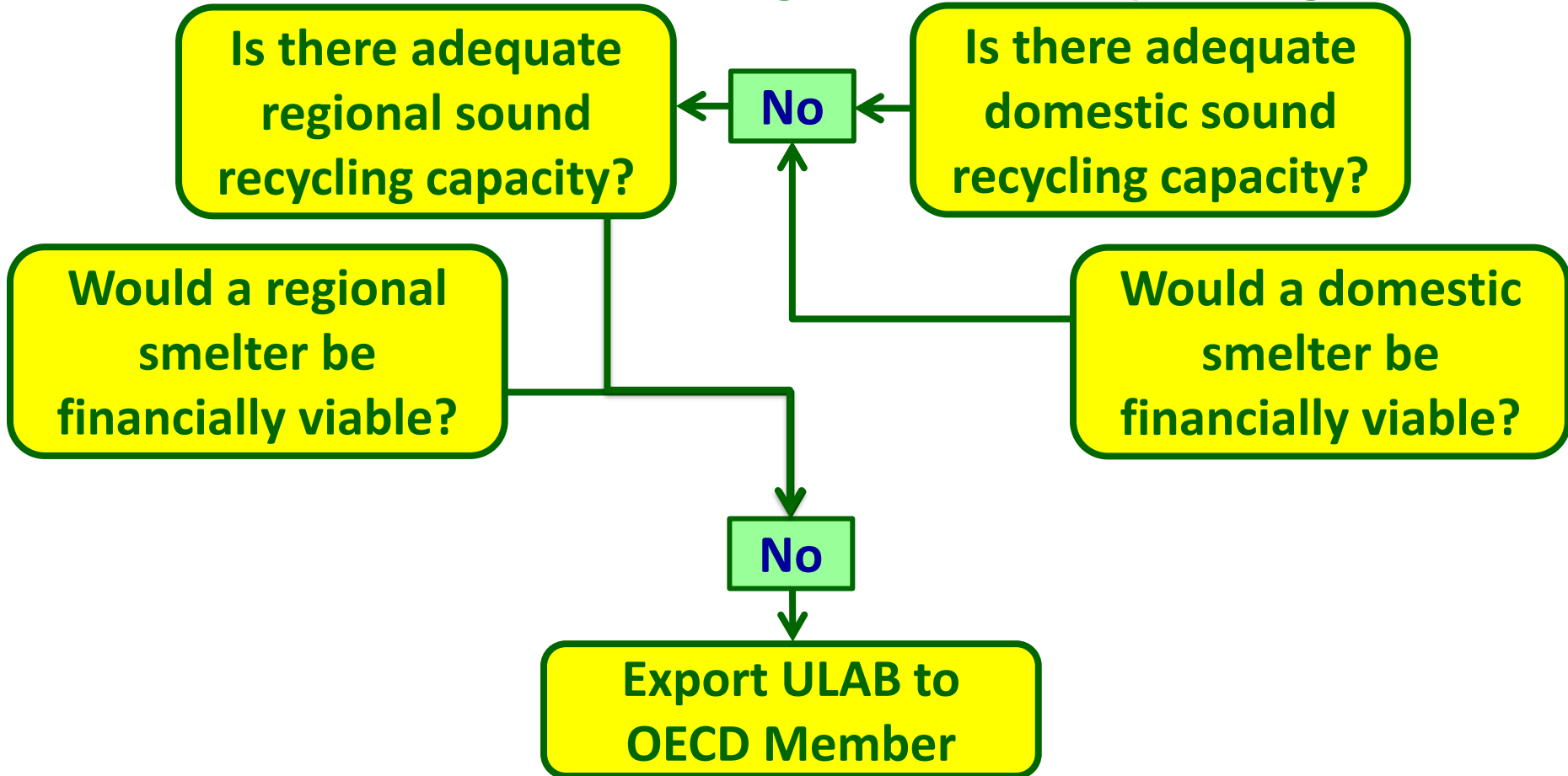
Domestic or Regional Recycling?



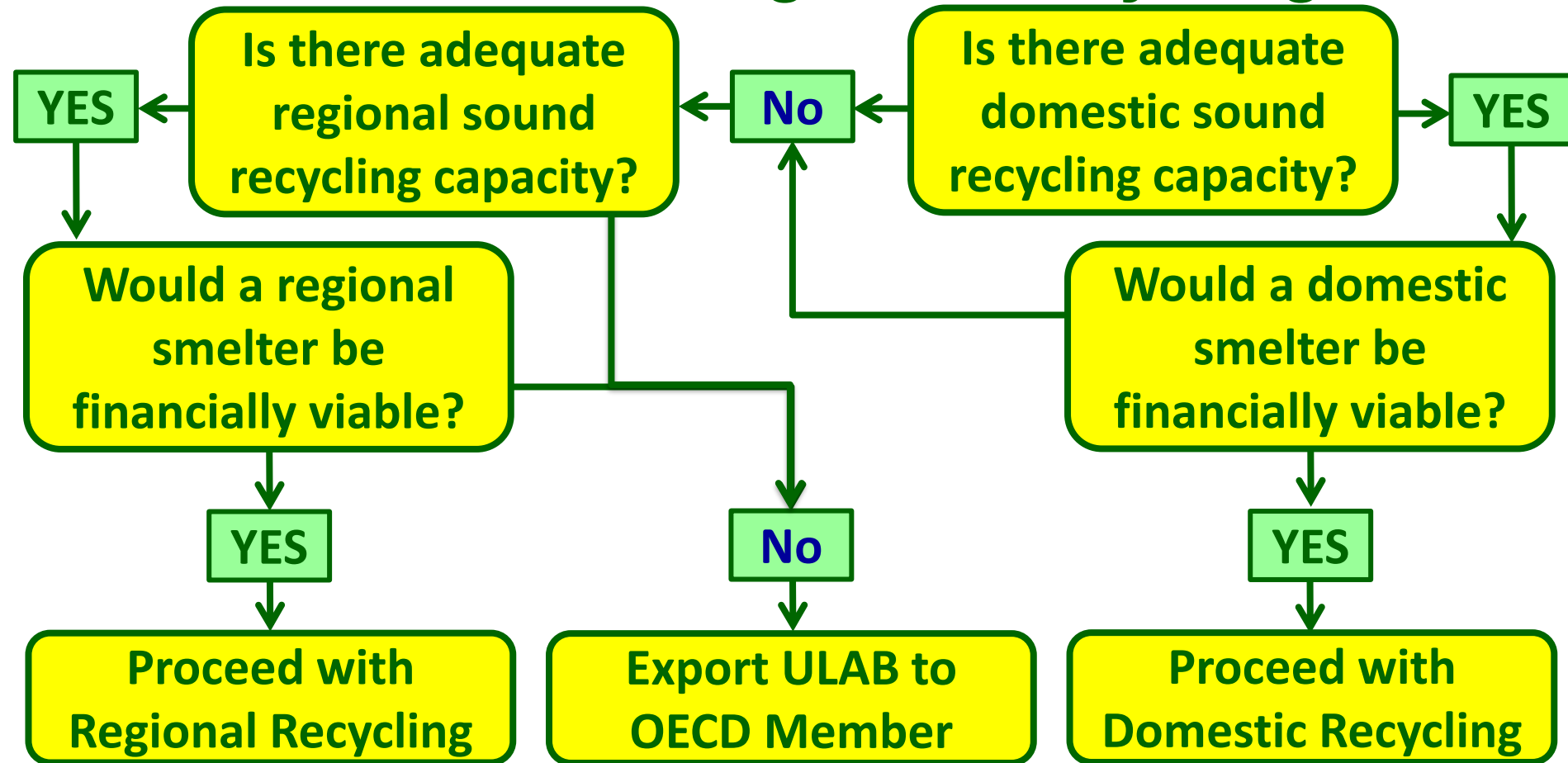
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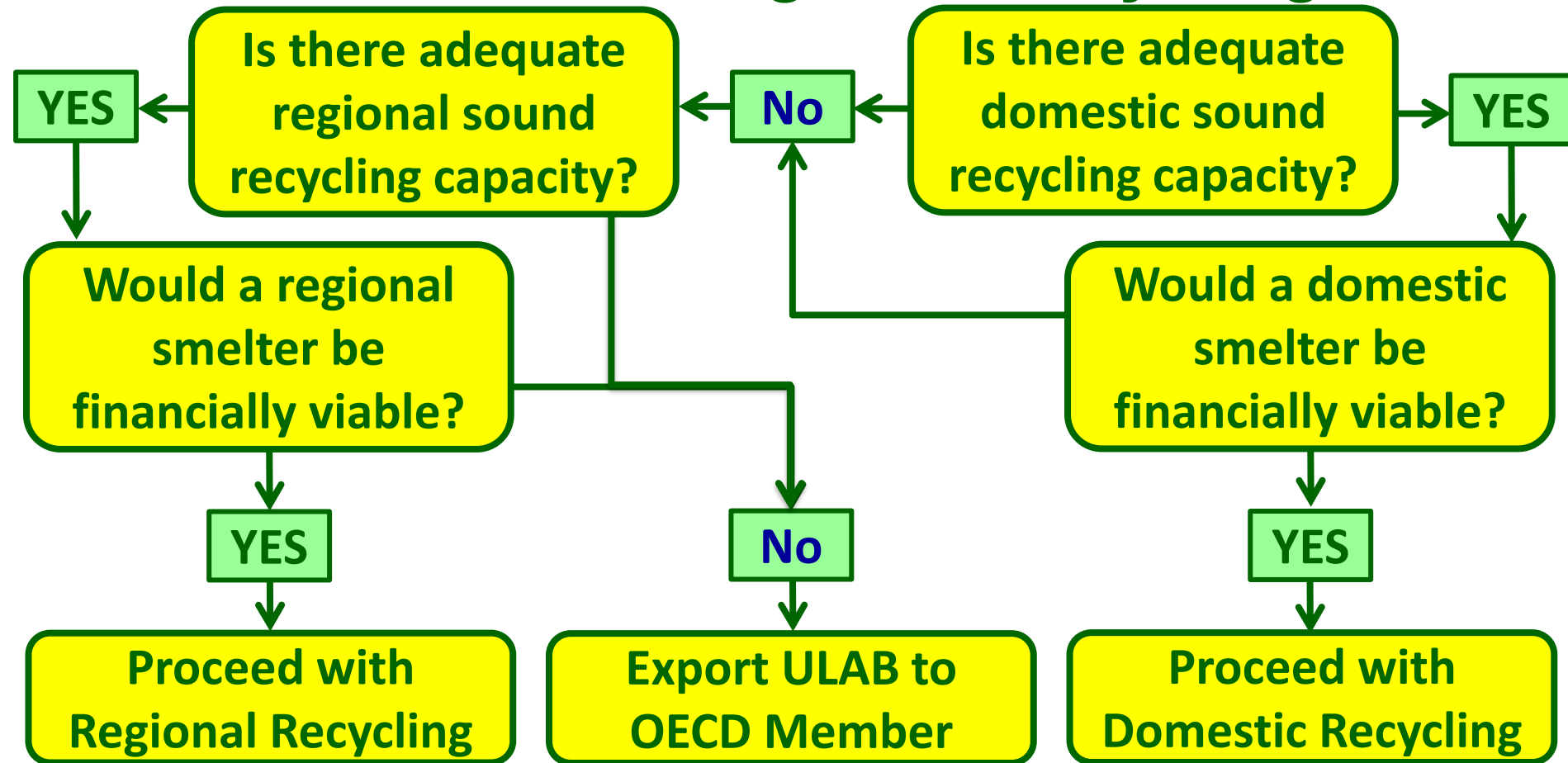
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Domestic or Regional Recycling?



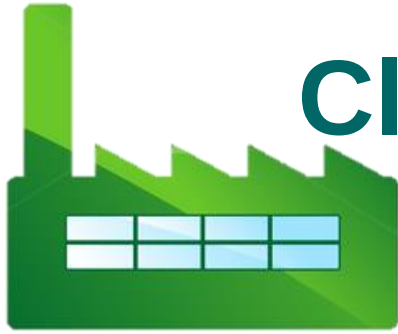
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4. Undertake an ESM Assessment of Recycling Performance
5. Set out Technical and Policy Road Maps
6. Agree Domestic or Regional Recycling with Stakeholders
7. Implement the Agreed National/Regional Strategy

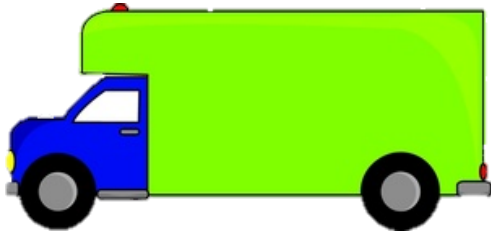
Implement Agreed National/Regional Strategy

1. Ensure all Stakeholders buy into the Strategy
2. Define the Roles/Responsibilities of each Stakeholder
3. Set Start Date and Agree Milestones
4. Monitor the “Roll Out” and Check Progress
5. Meet Stakeholders Regularly until Implementation is completed.

Closed Loop for ESM



ULAB are recycled
& components used
to produce LAB



ULAB are collected
and delivered to
the recycler

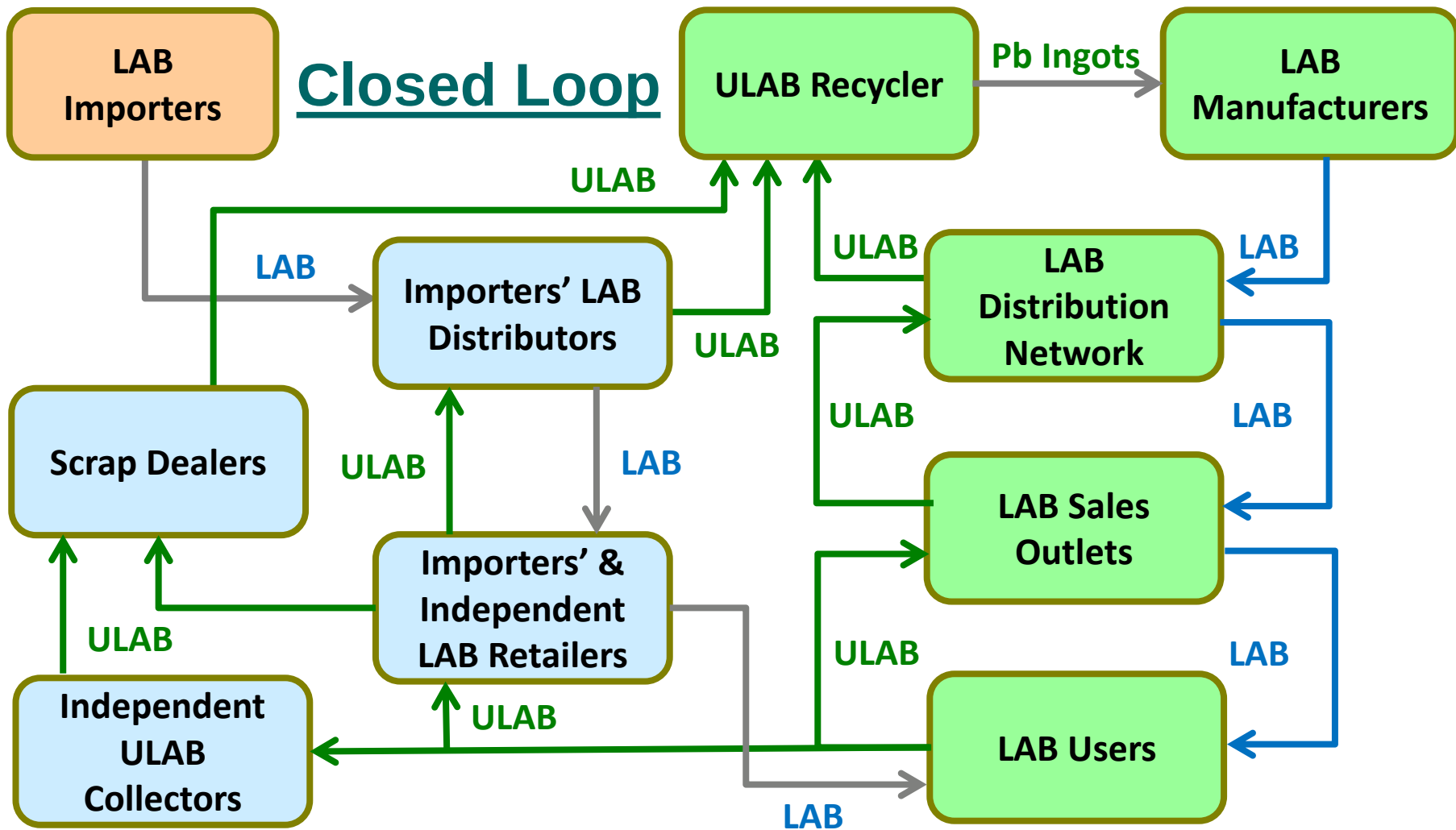


Batteries are
delivered to
the retailers

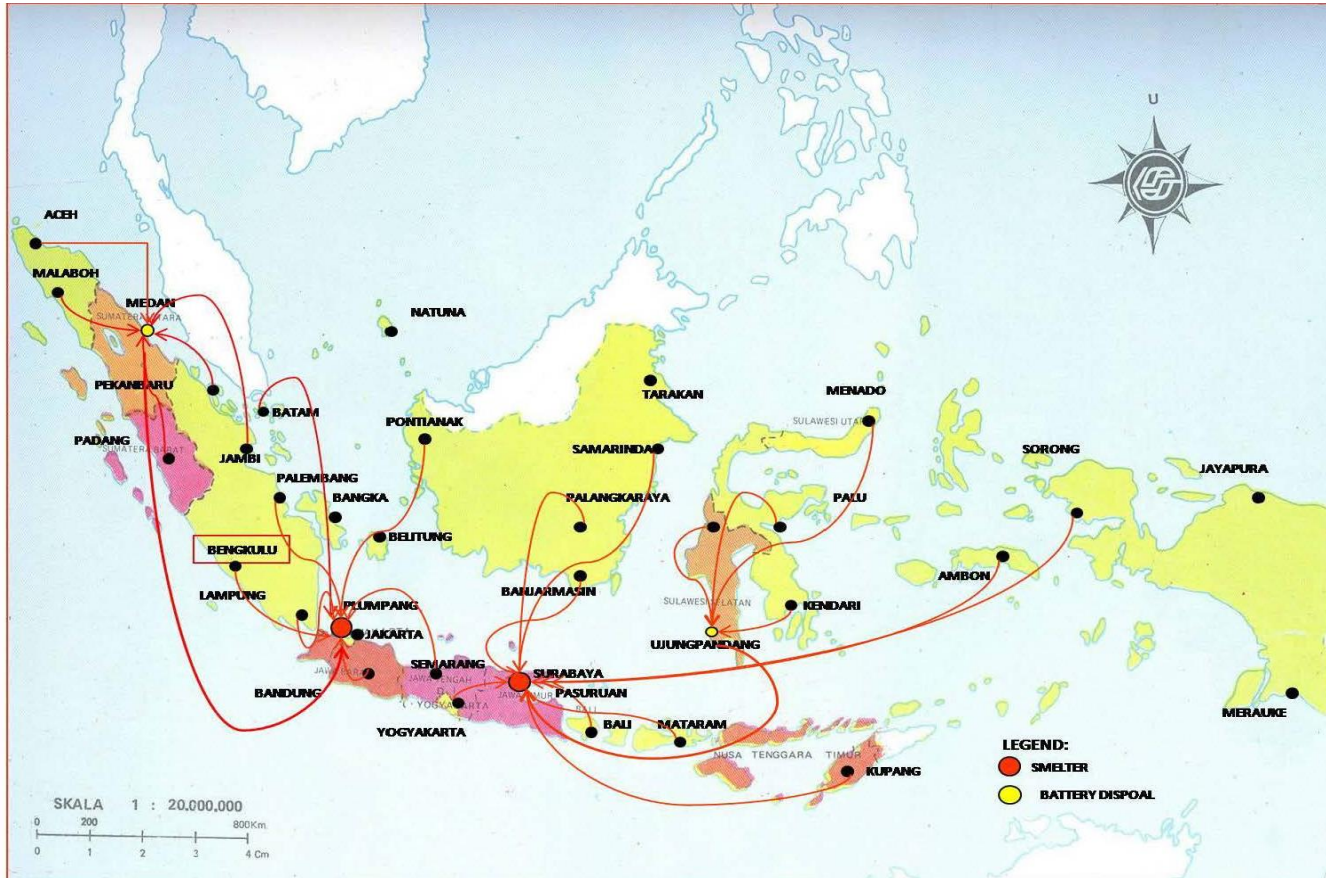


New batteries
are sold &
ULAB returned

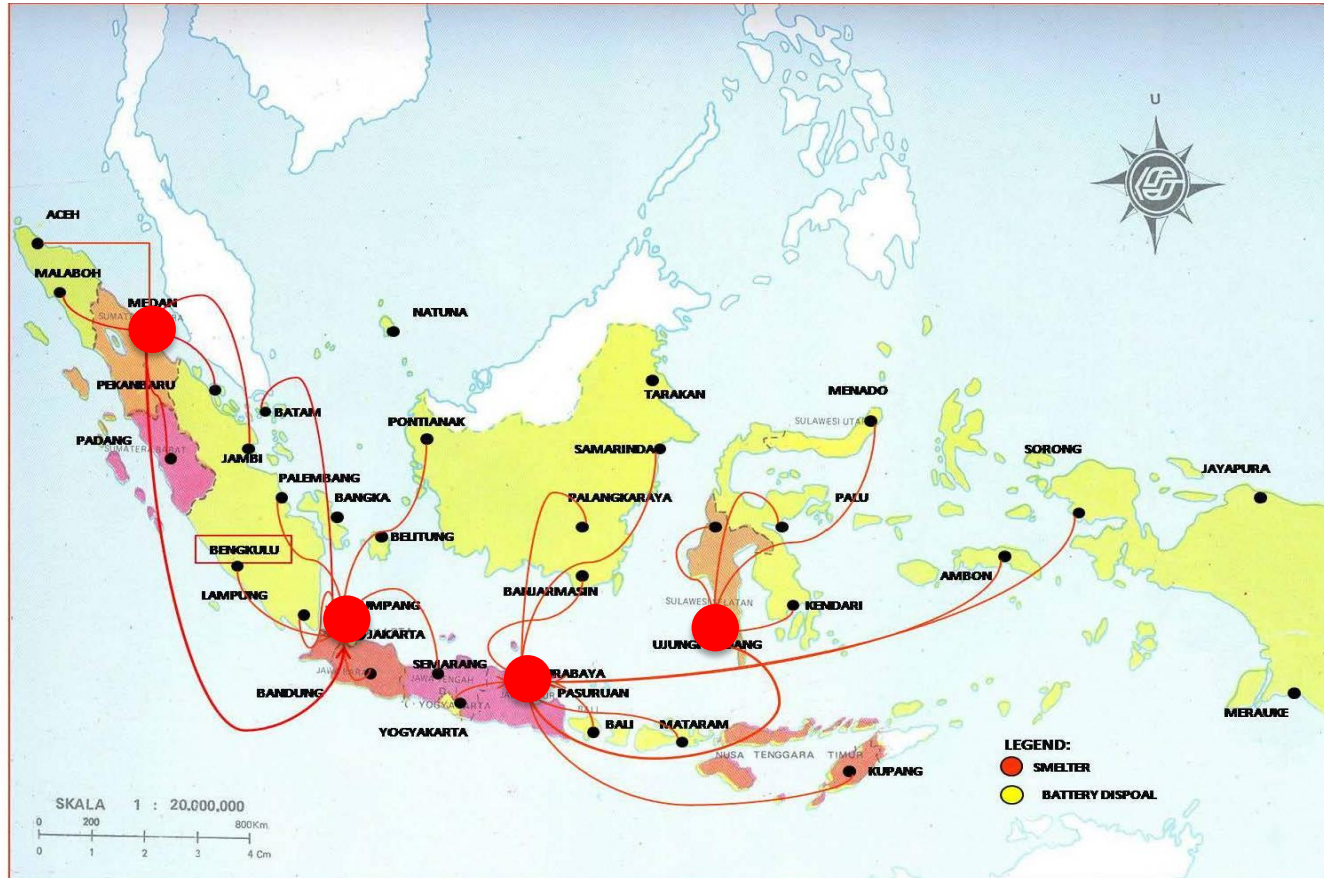
Closed Loop



Indonesian Strategy: Present Day



Indonesian Strategy: 4 Smelters



Central America: Regional Strategy



Recycling Plants

Central America: Situation Alert



NIKKEI ASIAN REVIEW

September 17, 2016 1:00 pm JST

Illegal South Korean dumping roils Japan's lead smelters

KAZUE YASUHARA, Nikkei staff writer

South Korean authorities accused 11 domestic recycling smelters earlier this year of illegally dumping hazardous materials.

Central America: Regional Strategy



Recycling Plants

Thank You



