International Lead Association

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Brian Wilson

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Environmentally Sound ULAB Strategies

Brian Wilson

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

Type of ULAB	Data Source
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

Type of ULAB	Tons of LAB	Tons of ULAB/Year
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
Totals	Summation	Summation

* ULF = Useful Life Factor

Calculate the Amount of ULAB Generated

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

* ULF = Useful Life Factor

Calculate the Amount of ULAB Generated

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

* ULF = Useful Life Factor

Calculate the Amount of ULAB Generated

Type of ULAB	Tons of LAB	Tons of ULAB/Year
Automotive	80	(80 x 0.5*) = 40
Standby/Back Up	6	(6 x 0.2*) = 1.2
Solar Energy Storage	12	(12 x 0.2*) = 2.4
Emergency Standby	2	(2 x 0.1*) = 0.2
Totals	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	89,196	24,374

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

1. Estimate the Size and Nature of the LAB Market
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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

Strategy for the ESM of ULAB Recycling

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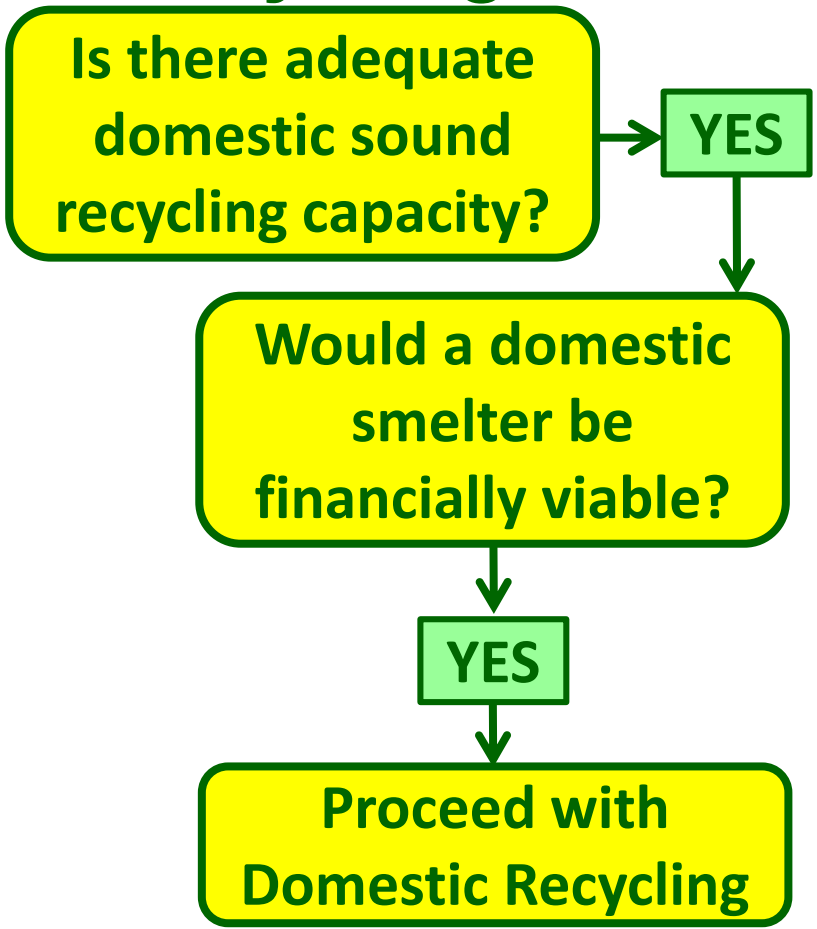
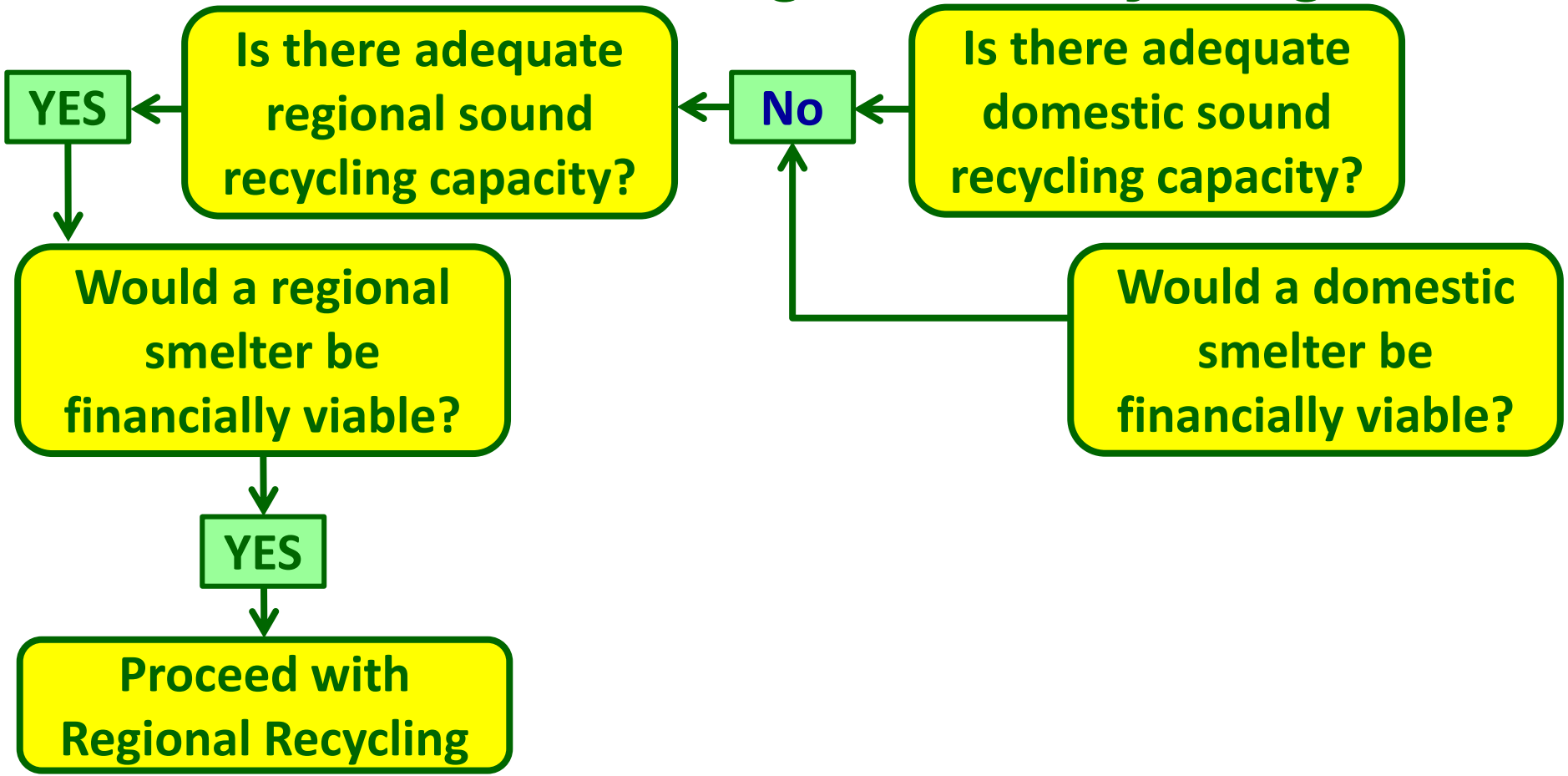
4. Undertake an ESM Assessment of Recycling Performance
5. Set out Technical and Policy Road Maps
6. Agree Domestic or Regional Recycling with Stakeholders

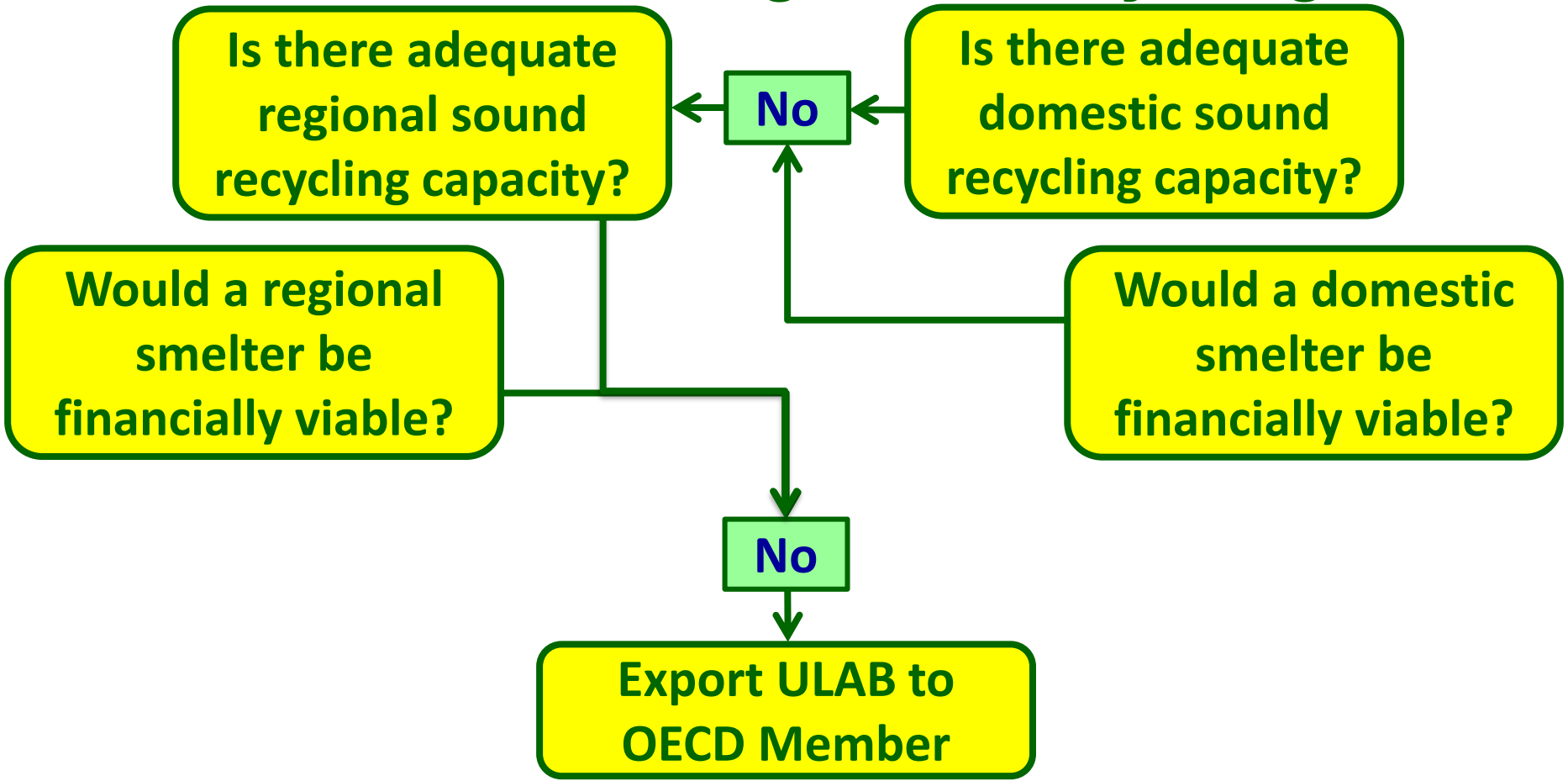
Domestic or Regional Recycling?



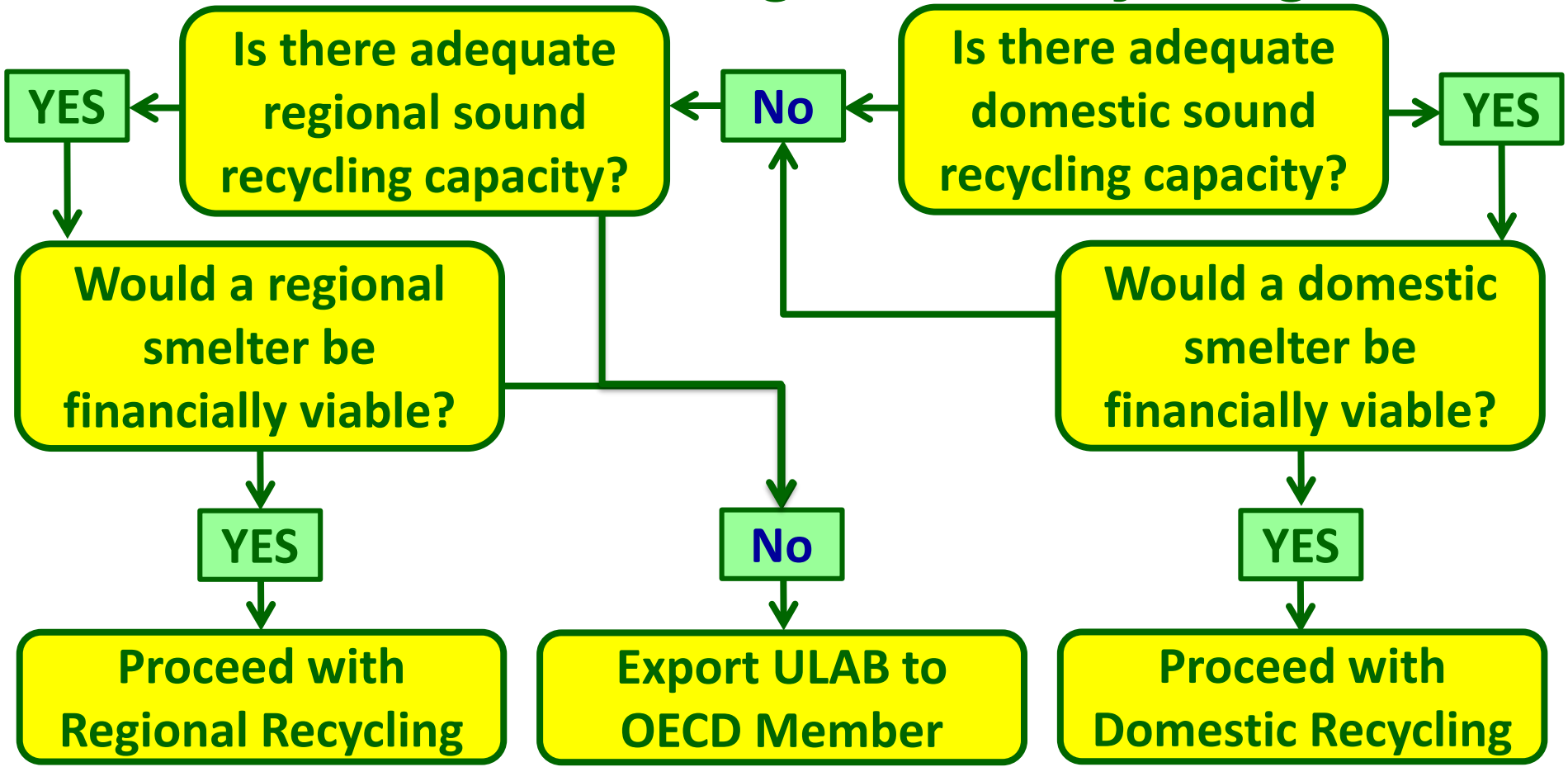
Domestic or Regional Recycling?



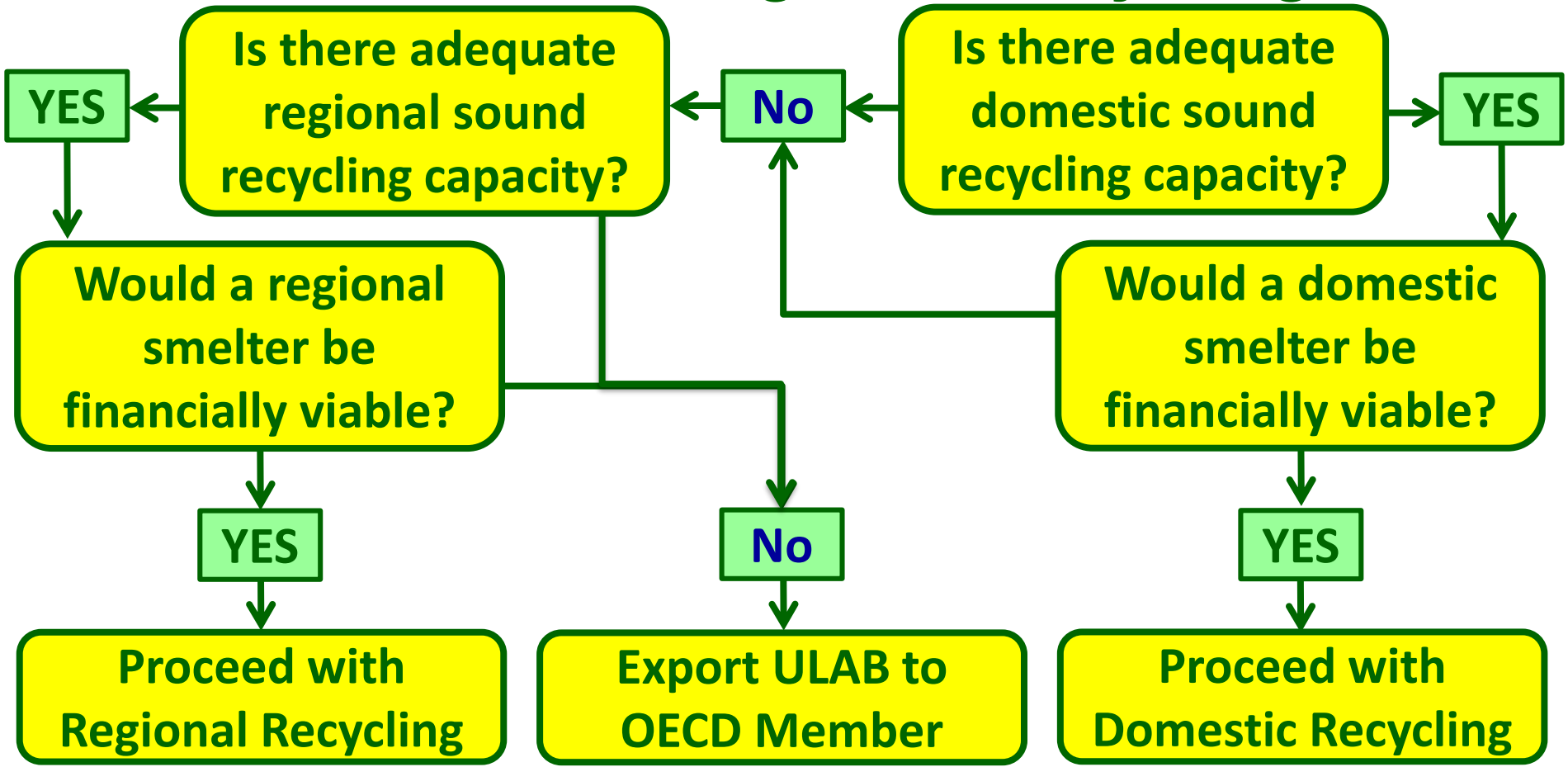
Domestic or Regional Recycling?



Domestic or Regional Recycling?



Domestic or Regional Recycling?



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7. Implement the Agreed National/Regional Strategy

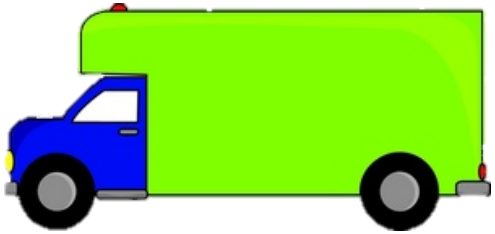
Implement Agreed National/Regional Strategy

1. Ensure all Stakeholders buy into the Strategy
2. Define the Roles/Responsibilities or 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

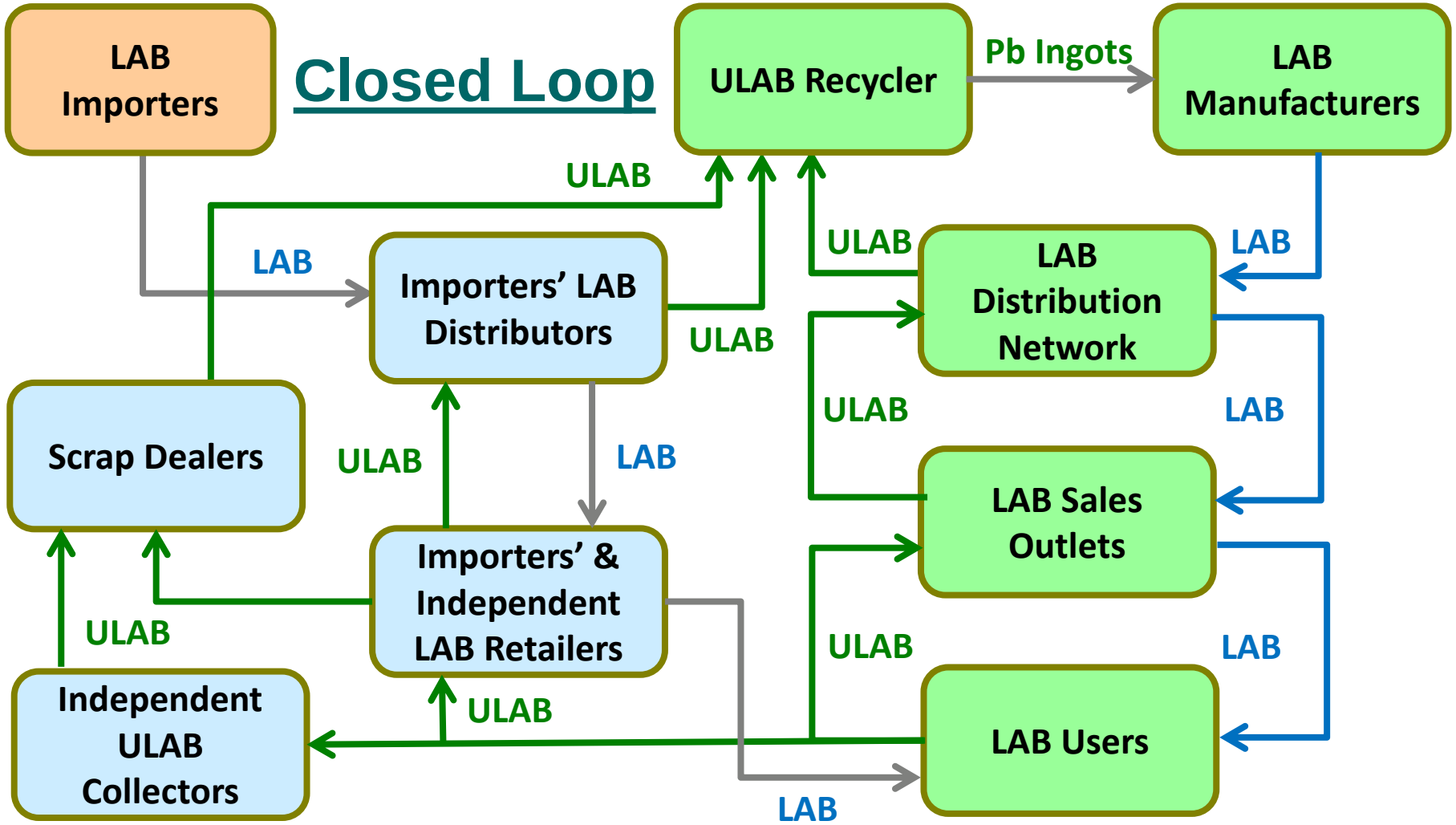
ULAB are recycled & components used to produce LAB

Batteries are delivered to the retailers

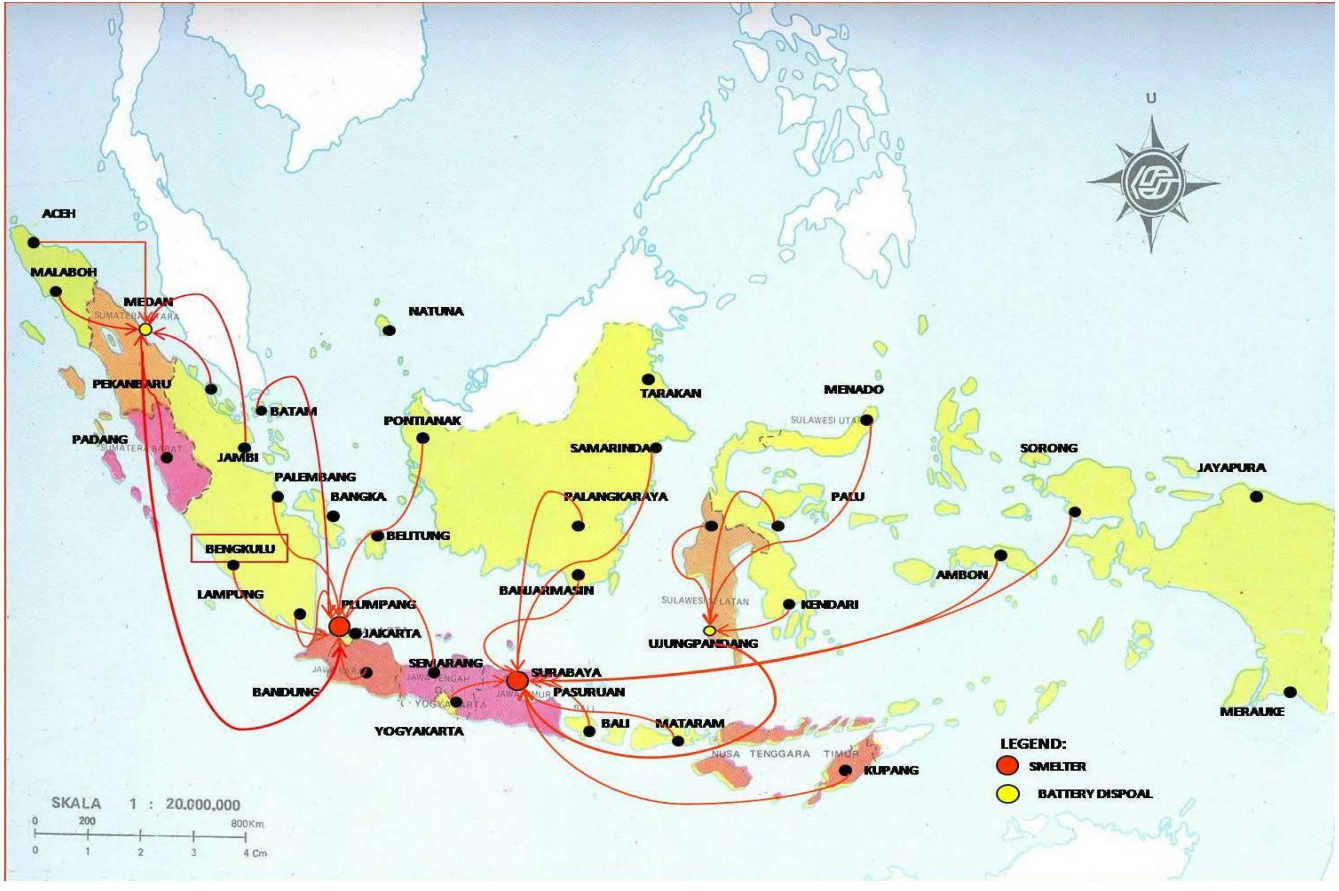


ULAB are collected and delivered to the recycler

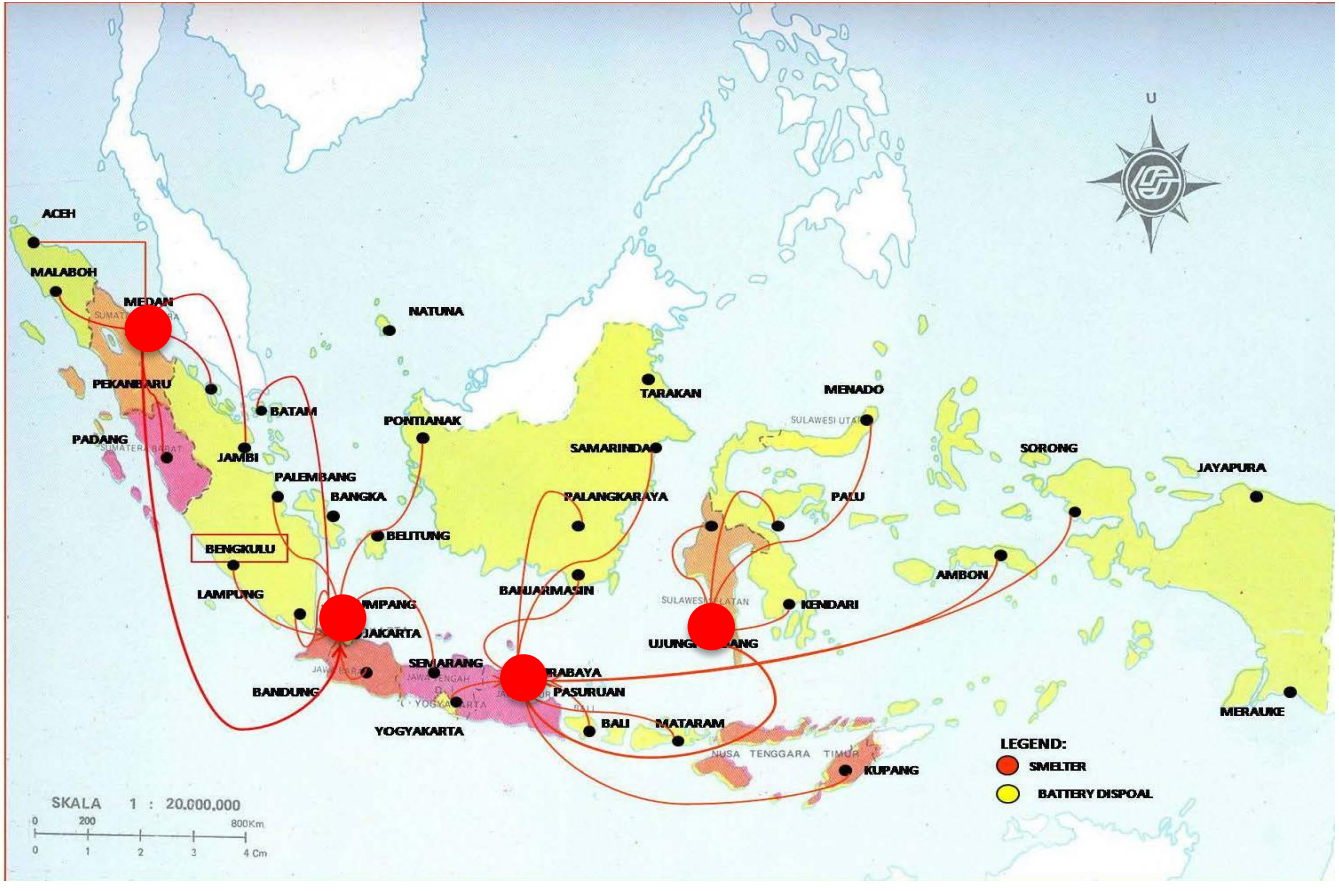
New batteries are sold & ULAB returned


LAB Importers
Closed Loop
ULAB Recycler
Pb Ingots
LAB Manufacturers
ULAB
LAB
Importers' LAB Distributors
ULAB
ULAB
LAB Distribution Network
LAB
ULAB
LAB
Scrap Dealers
ULAB
LAB
LAB Sales Outlets
Importers' & Independent LAB Retailers
ULAB
ULAB
LAB
ULAB
Independent ULAB Collectors
LAB Users
LAB

Indonesian Strategy: Present Day



Indonesian Strategy: 4 Smelters



Central America: Regional Strategy

Central America: Situation Alert

NIKKEI
ASIAN REVIEW

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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

Thank You