

Resource Circulation Study in the Pacific Project



Pacific Region Infrastructure Facility

Project Scope



1. To identify and quantify the opportunity to improve the resource recovery of 15 recyclable commodities present in the solid waste stream in 15 Pacific island countries and territories.
2. Assess the potential to establish a regional recycling network
3. Quantify marine debris impacts



Geographic Scope

Micronesia

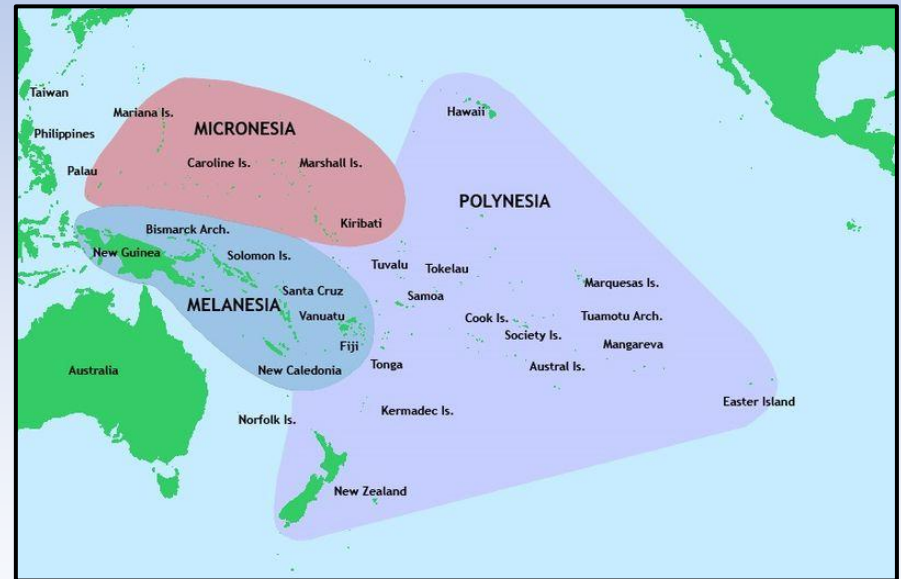
FSM, Guam, Kiribati, Palau, RMI

Melanesian

Fiji, New Caledonia,
PNG, Solomon Islands,
Timor Leste, Vanuatu

Polynesian

Cook Islands, Samoa,
Tonga, Tuvalu



Material scope



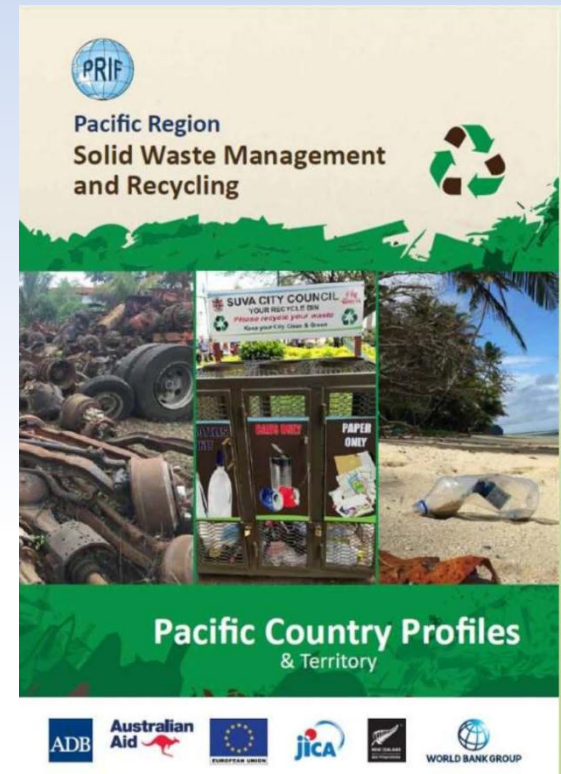
Deliverables



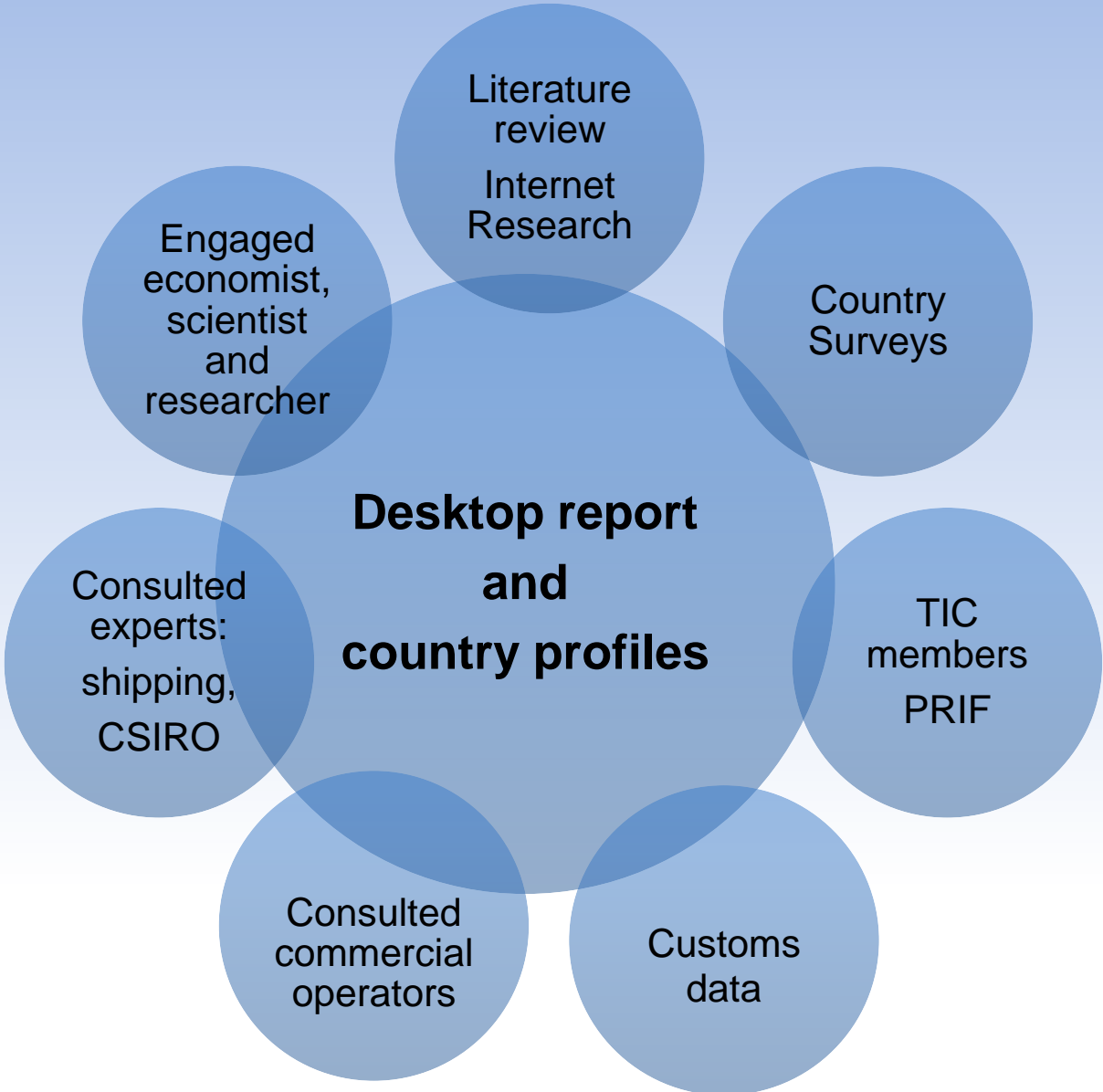
1. Desktop Report
2. Country profiles compendium
3. Recycling storage and technology paper
4. Regional recycling network proposal

Country visits

1. Samoa
2. American Samoa
3. Fiji
4. Palau
5. Vanuatu
6. Solomon Islands

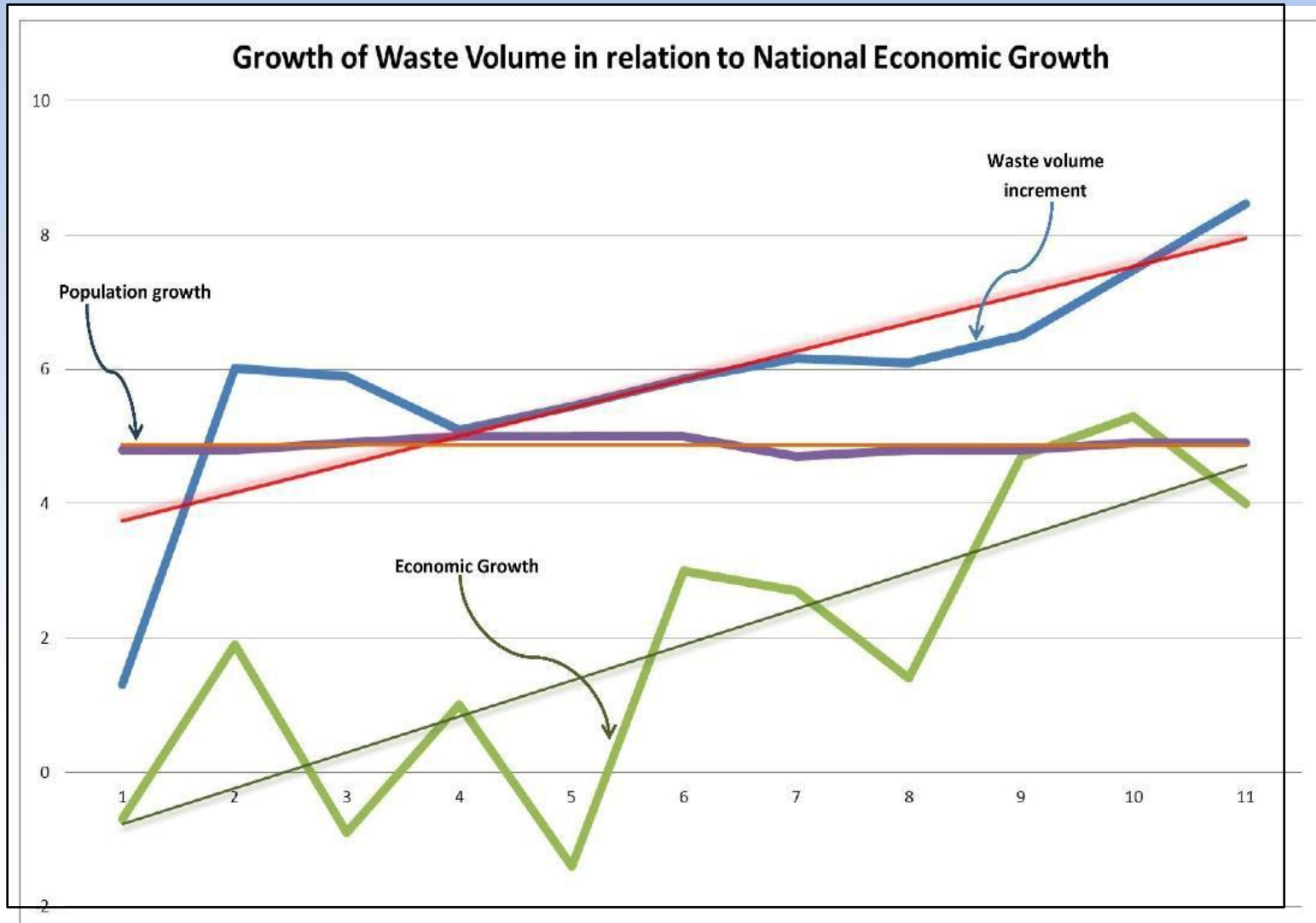


Information and Data Sources





Trend is consumption = waste



Material flow analysis

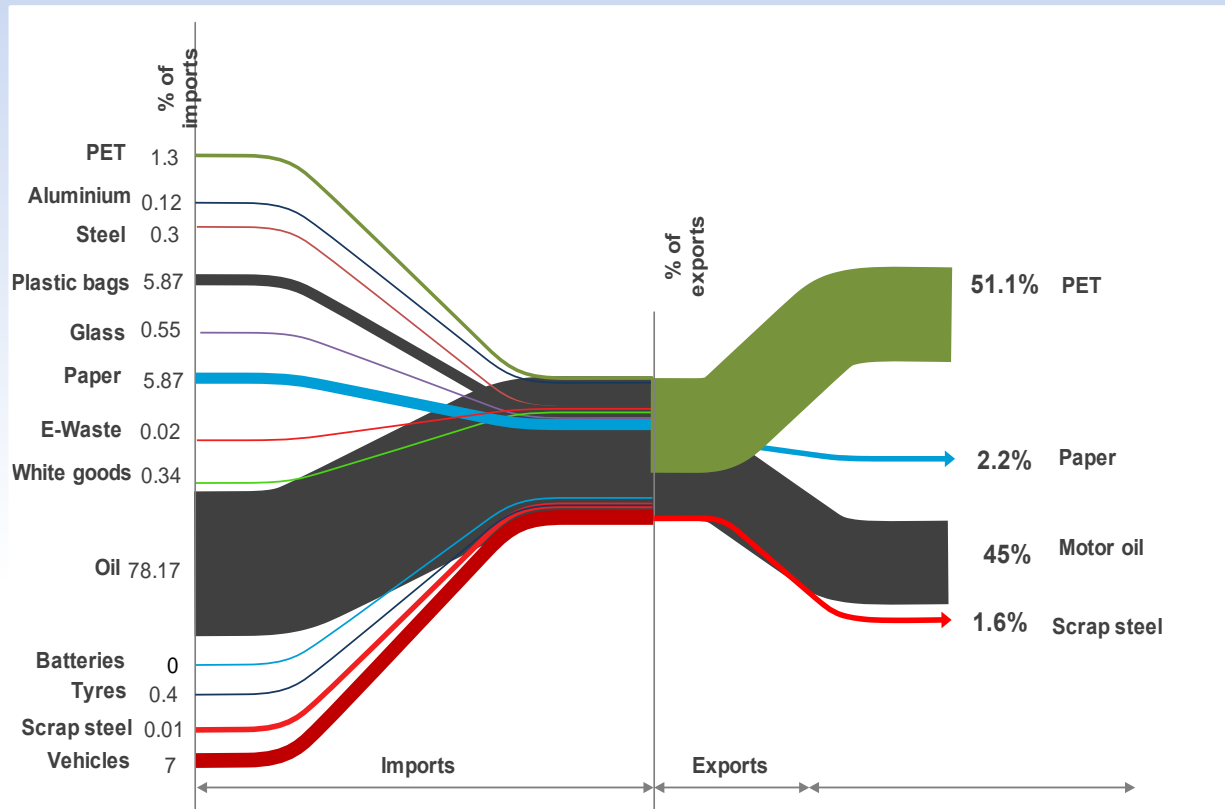


Waste composition

- Waste Audit data - JICA & APC

Customs data

- Imports (7 yrs), Export (2yrs). Imports = 4.7 M tonnes, exports = 1M tonnes





Material flow analysis

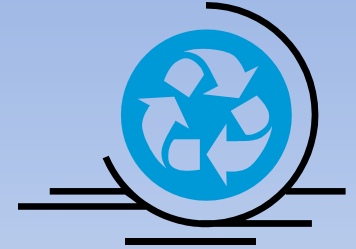
Modelled recovery rates

- Urban areas, rural areas and outer islands
- Recovery rates
 - Low 15%
 - Medium 40%
 - High 60%

Annual amount of material available (tonnes pa)

- Micronesia - 42,000
- Melanesian – 125,245
- Polynesian – 13,800

Waste legislation



- 40% specific waste management legislation
- 60% environmental legislation some with waste regulations
- 6 PICs independent government authorities for waste management
 - FSM
 - Guam
 - Marshall Islands
 - Palau
 - Tonga
 - Tuvalu
- Only 3 PICs have kerbside collection



Recycling systems

1. Household/commercial collections
2. Community collection points
3. Drop off
4. CDS redemption centre's
5. Buy back centre's
6. Informal landfill pickers and collectors

CDS recovery

- Palau 98%,
- Kiribati 89%



GIVE ME 5

WAN AZURE PURE WATER & RECYCLECORP PARTNERSHIP



- 1 Collectem ol **Vanuatu Natural** plastik botel blong yu. Mak sus oo oli **kiel** - Hemia hemi rili **impoten** from mifala no save recyclem ol plastik we oli gat kava oo juice insad long hem.
- 2 **Water faktori** long **Bladinare Estate**, klopap long **Bauerfield Airport**.
- 3 Givim ol botel blong yu long ol **friendly staff** blong mifala mo talem: **Give Me 5!** Misa: **Azure Pure Water** i givim yu **5 vatu** long wan botel.
- 4 Yu save mekem rod blong yu watem wan gudfala **filling** mo save se yu contribute long **responsible waste management** mo wan kin grin country blong yumi, **Vanuatu!**

REDUCE, REUSE, RECYCLE

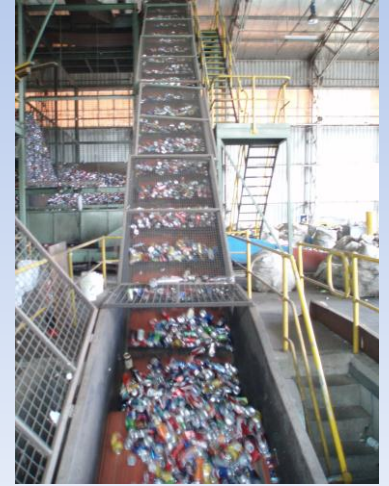
Recycling viability



- China's sword - 'green wall' and 'blue sky'
- Imported 56% world's waste products.
- Now Thailand and Vietnam have followed
- Move to circular economy
- Must process locally
- Use international markets
 - Scrap metal
 - Hazardous - batteries



Infrastructure requirements?



Shipping options

Commercial or single ship by donors

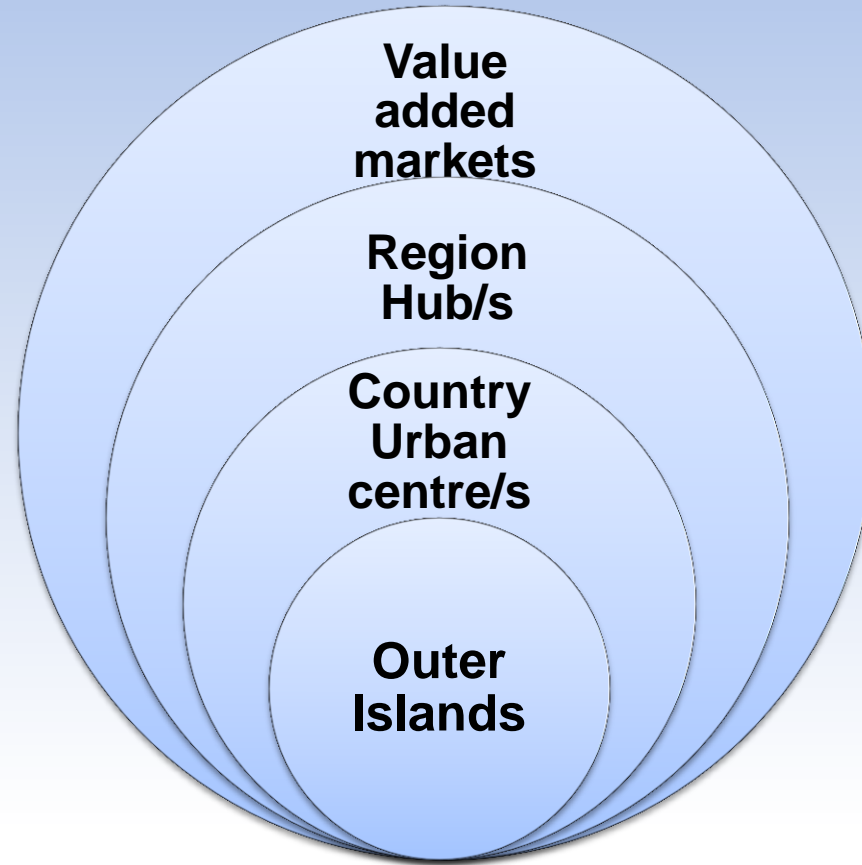




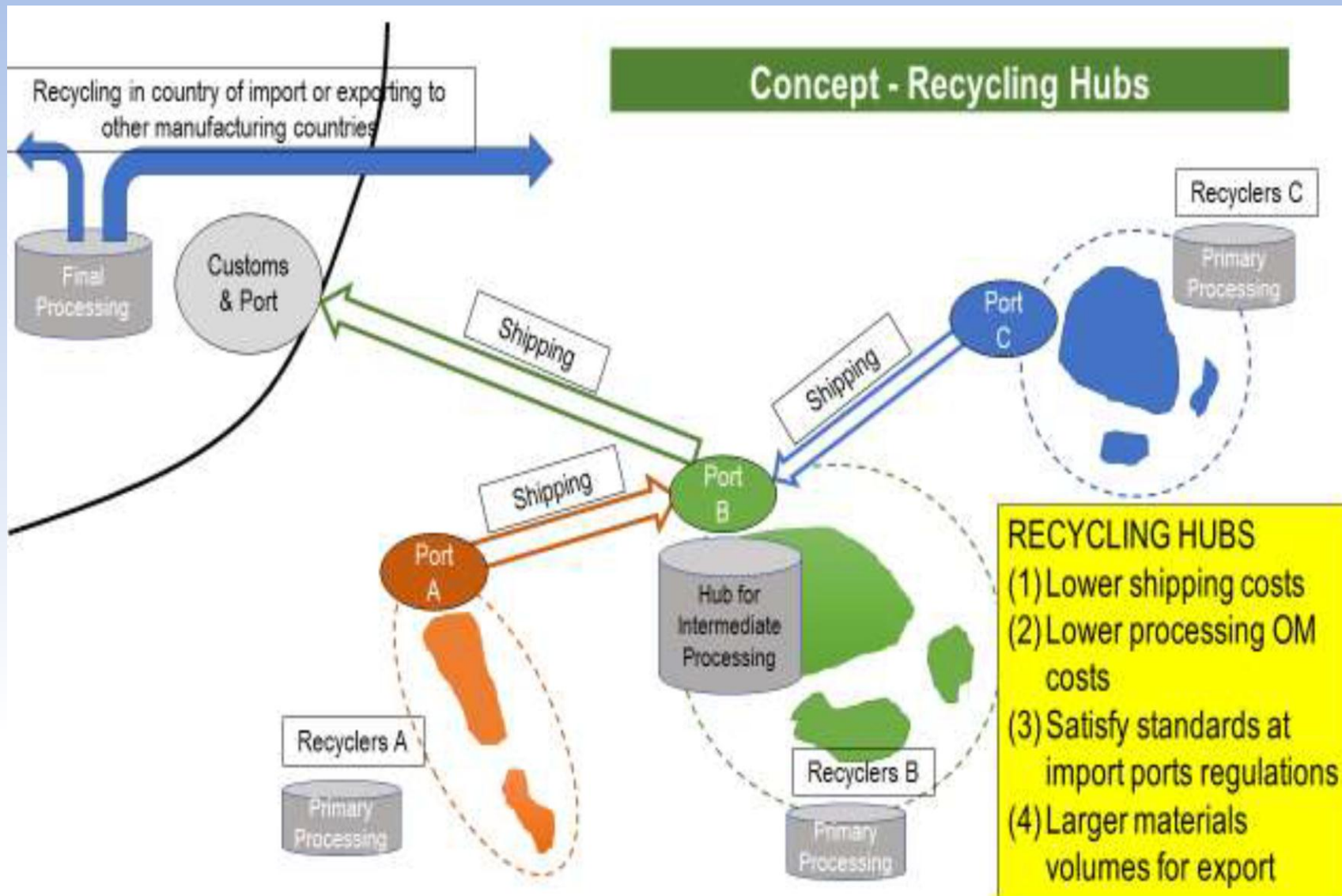
Example - Single recycling ship route



Recycling network proposal



Recycling network proposal





Recycling network proposal

Outer islands - all countries

- Secure compound receive, store, aggregate, consolidate
- Manual balers and can crushers
- Rough terrain pallet jacks
- Processing – glass only

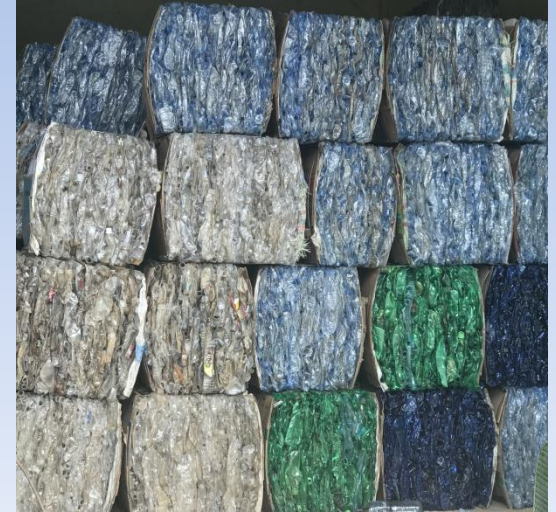




Recycling network proposal

Urban centres- all countries

- Co-located at landfill / transfer station
- Waste and recycling infrastructure
- Secure compound, shed, hardstand,
- Equipment
 - Glass crusher
 - Shredder for tyres
 - Baler - cardboard / paper, aluminium / steel cans, plastics
 - Baler for EOL vehicles, white goods and scrap metals
 - ISOtainer or IBC for waste oils
- Domestic recycling or export to:
 - regional hub
 - international market

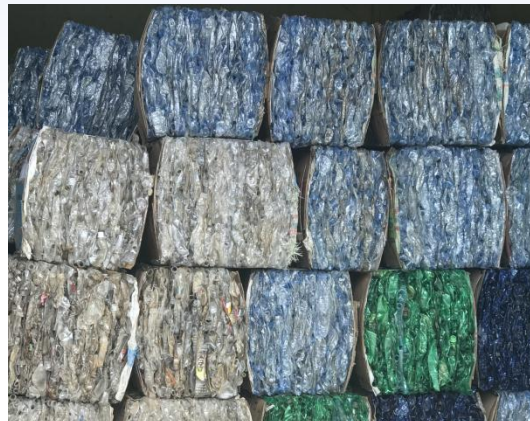




Recycling network proposal

Regional Hub

- Co-located at landfill / transfer station
- 'eco hub' or industrial park for remanufacture
- Attract private sector investment
- Need regional economic development to stimulate and support investment
- Value add





Glass Crushing





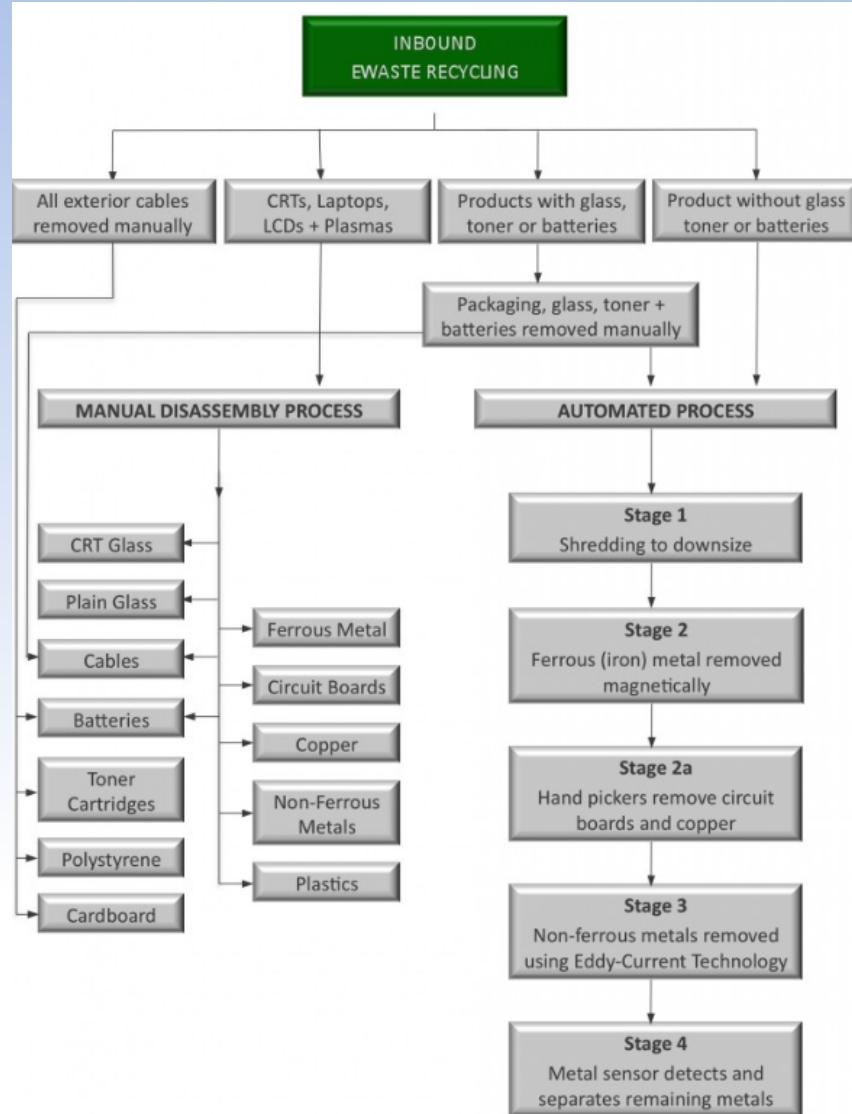
Plastics Remanufacture



Cardboard Remanufacture

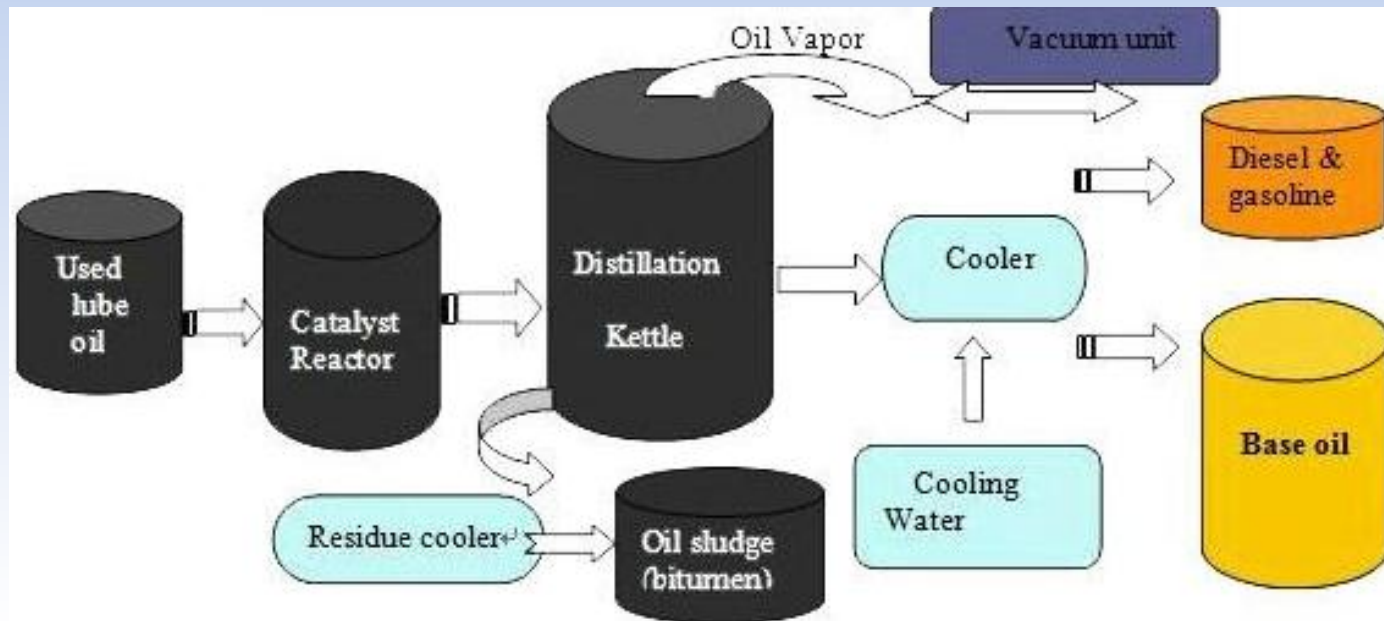


E-WASTE





Waste Oil Re-refining





Tyre shredding





Product Destination

Domestically

- Glass

Hub/s or international market

- Cardboard/paper, plastics
- Tyres
- Waste oils
- E waste, renewable energy equipment



International markets

- Scrap steel, cans, vehicles and whitegoods
- Batteries - ULABs, lithium



Recommendations

- Import levies on durable items – “ring fenced”
- CDS on beverage containers
- Regional network agreements
- All PICs sign Basel and Waigani
- Form a Pacific Region Recycling Association
- Oversight by a competent regional authority
- Donor support for project
- Substantial ongoing costs - shipping / import fees
- Pre-feasibility study
 - determine viability, test assumptions
 - need improved waste composition data
- Undertake a pilot project, test the approach, “learn by doing”



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