Issues and Challenges for Promotion of 3R Activities in Developing Countries

- From SIDS's Perspective ("3R+Return") -

International Symposium

"International Cooperation for 3R and Waste Management"

September 2, 2015 @ Kyushu University

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Comprehensive Support for Capacity Development

time

Policy Advice

- ▶Dispatching Policy Advisor Expert

Preparation of MP/ FS*

- ▶Dispatching Consultant Team
- ▶Training or Knowledge Transfer for Counterpart staffs

Institutional & Human Resource Development

- ▶Dispatching Technical and Managerial Experts
- ▶Training and Capacity Development for Counterparts

Equipment & Infrastructure

- ▶Grant Aid
- ▶ODA Loan

* MP/ FS... Master Plan/Feasibility Study

JICA's Assistance in SWM

- Countries where projects are being implemented -

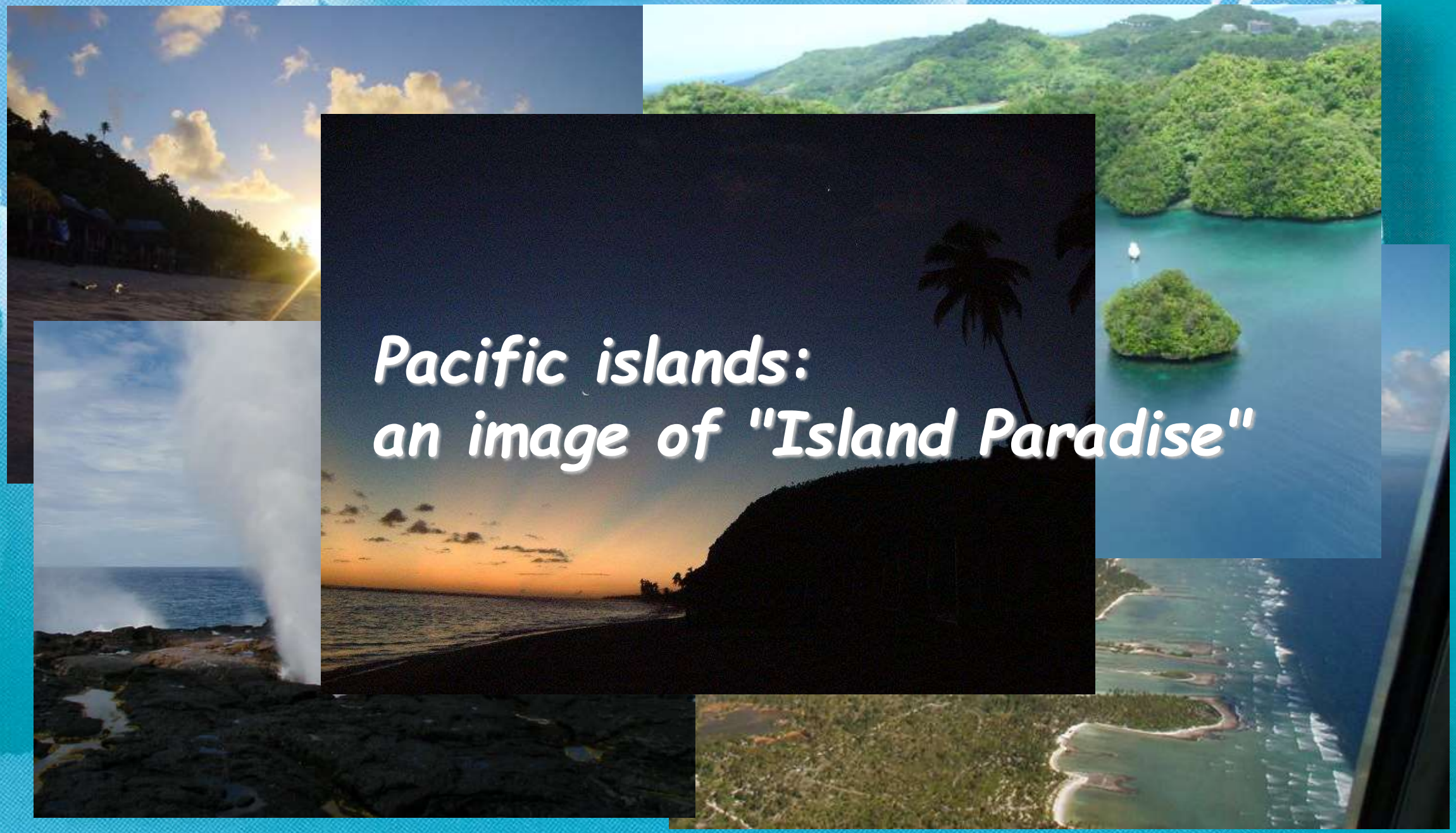
Countries being assisted (as of Jan 2015)

GDP per Capita (2013)

- ～5,000USD
- 5,001～10,000USD
- 10,001USD～
- No Data

(*2011 record for Cuba)

Pacific Islands



Now, let's talk about SIDSs

What's wrong with waste?

- Problems/issues in Pacific islands -

- **One-way traffic** of materials/goods (remains on island)
- **Increasing amount** of waste
- **Difficult waste** to treat (plastics, bulky waste, e-waste, hazardous waste)
- Negative impact on the **vulnerable island environment** and the **tourism industry**
- Lack of Government **capacity** to deal with waste
- Unexpected **disaster waste** (emerging issue) due to changes in climate

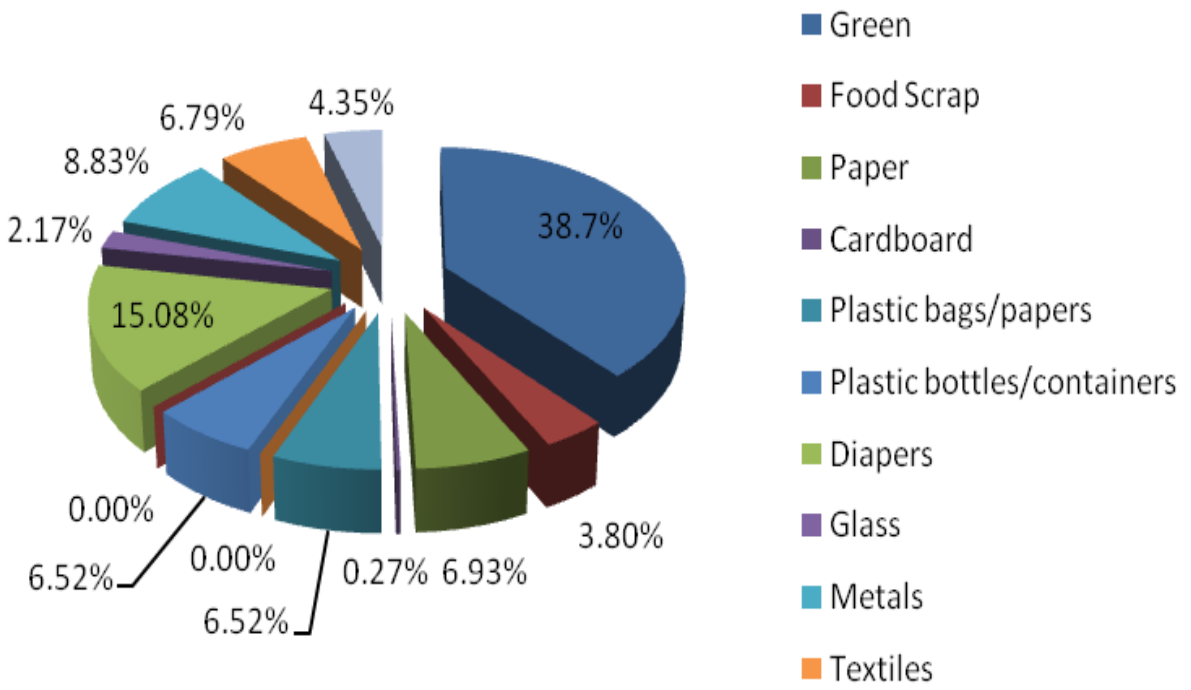
What are the challenges in SIDSs?

- Common features/constraints affecting SWM -

- Geographical isolation
  - Islands spread across the vast ocean
  - Difficult access
- Limited Land Space
  - Small islands/atolls
  - Small number of population
- Remoteness
  - Far from international recycle markets
- Dependency
  - Imported goods and foreign aids

State of waste in Pacific islands
- How much? Too much -

* Household waste generation (kg/day/person)
  * 0.38 (Apia, Samoa, 2012)
  * 0.46 (Lautoka, Fiji, 2009)
  * 0.51 (Vava'u, Tonga, 2011)
* Waste composition
  * Organic waste (regional Ave. 50+%)
  * Imported goods and materials
    * Plastics, paper/cardboard, metals, diapers
    * Car bodies, white-ware, e-waste



Source: MNRE, Samoa, 2012

One-way Traffic

- Waste Remains on Island -

Photo: Stuart Chape

What is an ideal/better situation?

- Promotion of 3R (Reduce, Reuse & Recycle)+Return -

Problems/Constraints

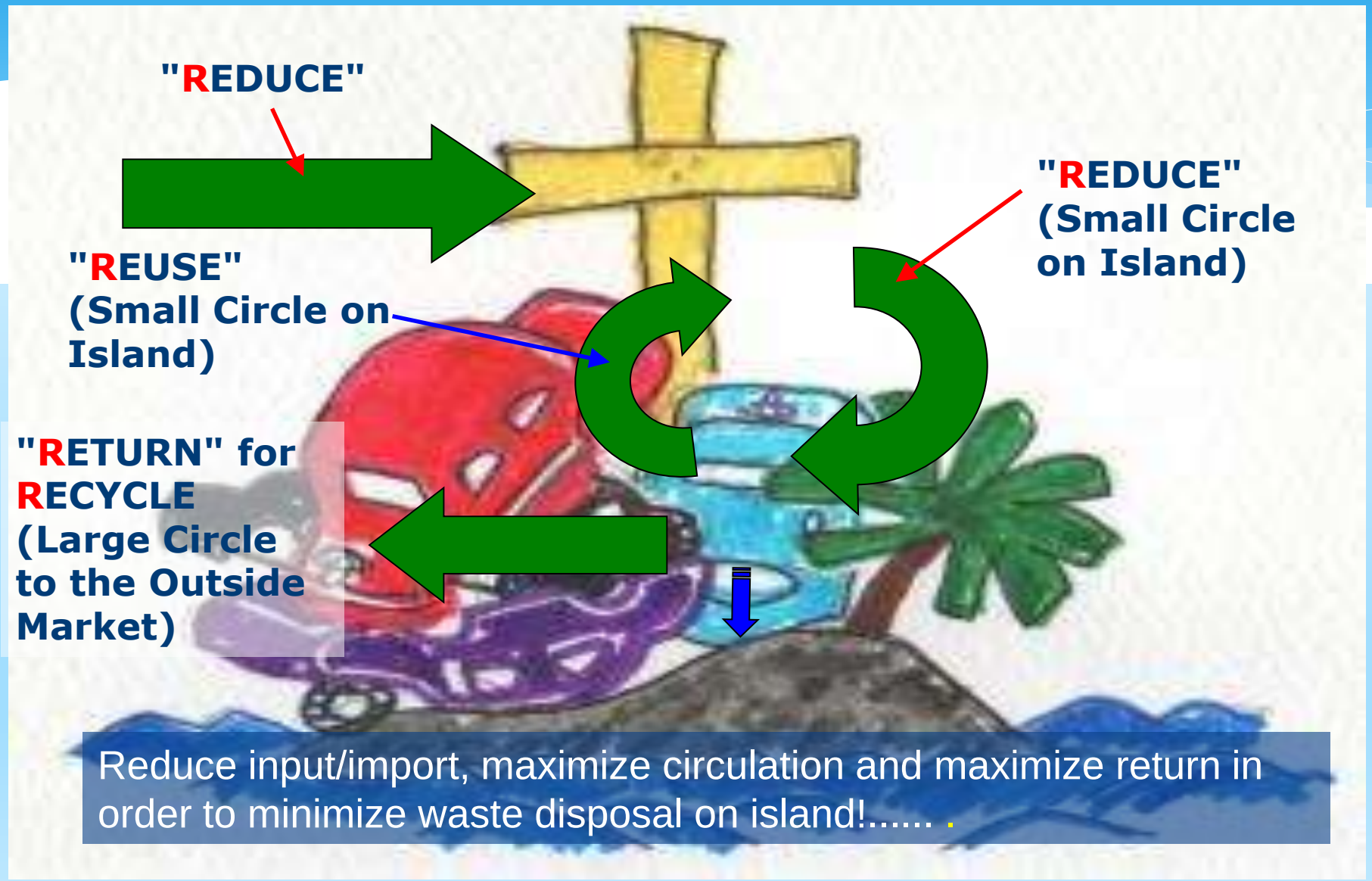
- Waste remains on island (one-way traffic to islands)
- Lack of recycle facilities on island
- Far from the recycle market
- Large portion of organic waste
- Difficult waste, such as e-waste, hazardous waste, car bodies, etc.

Preferred Options

(1) Return of recyclables/difficult waste to markets outside for proper recycle/treatment

(2) Return of organic waste to the nature/soil through compost, etc.

What is “3R+Return”?



Reduce input/import, maximize circulation and maximize return in order to minimize waste disposal on island!..... .

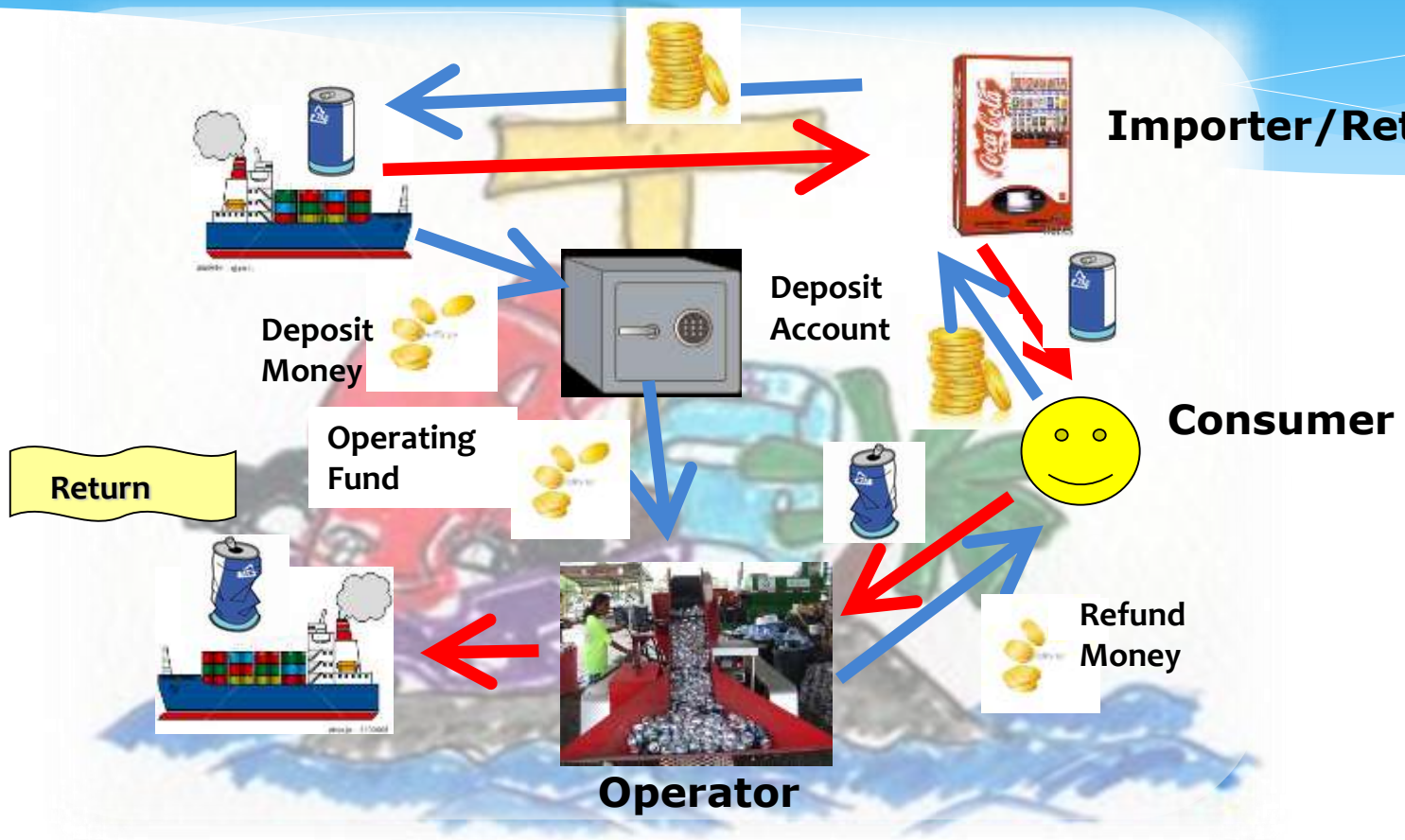
(1) "3R+Return" for recycle

- Sustainable financing to secure Return of recyclables/materials to large markets outside -

Economic Instruments	PICs adopted
Deposit-refund program (CDL: Container Deposit Legislation)	Kiribati, FSM (Kosrae, Yap), Palau
Environmental levy/Green fee	Palau, Cook Islands
Pre-paid garbage bag system	Kiribati, Vanuatu, FSM (Pohnpei)
Gate/tipping (disposal) fee	Fiji (Lautoka, Sigatoka, Naboro), Samoa, Vanuatu, PNG
Charge on plastic shopping bags	None in PICs
EPR	?

Extended Deposit-Refund Program (CDL)

One of economic instruments to sustain "Return"



CDL could be applied for other goods/waste, not limited to beverage containers.

Comparison of CDL Program in PICs

Country	Target Items	Deposit $ per unit	Refund $ per unit	Operating Fund p/u	Recycle Fund p/u	Operator
Kiribati (Started in 2005 w/ UNDP)	Cans PET Bottles Car Batteries (LAB)	5¢ 5¢ 5$	4¢ 4¢ 4$	1¢ 1¢ 1$	- - -	Private Co.
FSM (Kosrae) (Started in 2006 w/ UNDP)	Cans PET/Plastic Bottles Glass Bottles Car Batteries (LAB)	6¢ 6¢ 6¢ 4$	5¢ 5¢ 5¢ 3$	1¢ 1¢ 1¢ 1$	- - - -	Private Co.
FSM (Yap) (Started in 2007 w/UNDP)	Cans PET/Plastic Bottles Glass Bottles	6¢ 6¢ 6¢	5¢ 5¢ 5¢	1¢ 1¢ 1¢	- - -	Private Co.
Palau (Started in 2011)	Cans PET/Plastic Bottles Glass Bottles	10¢ 10¢ 10¢	5¢ 5¢ 5¢	2.5¢ 2.5¢ 2.5¢	2.5¢ 2.5¢ 2.5¢	Koror State Gov.

(2) "3R+Return" to soil

- Utilization of organic waste for Return to soil/nature -

Method	Target Waste
Home Compost	Kitchen waste, yard waste
Market Waste Compost	Vegetables/fruits
Mulching/wood chips	Wood trunks, branches, coconut husks, etc.
Charcoal	

Return of organic matters to the nature/soil

Photos: Lautoka City Council, Fiji

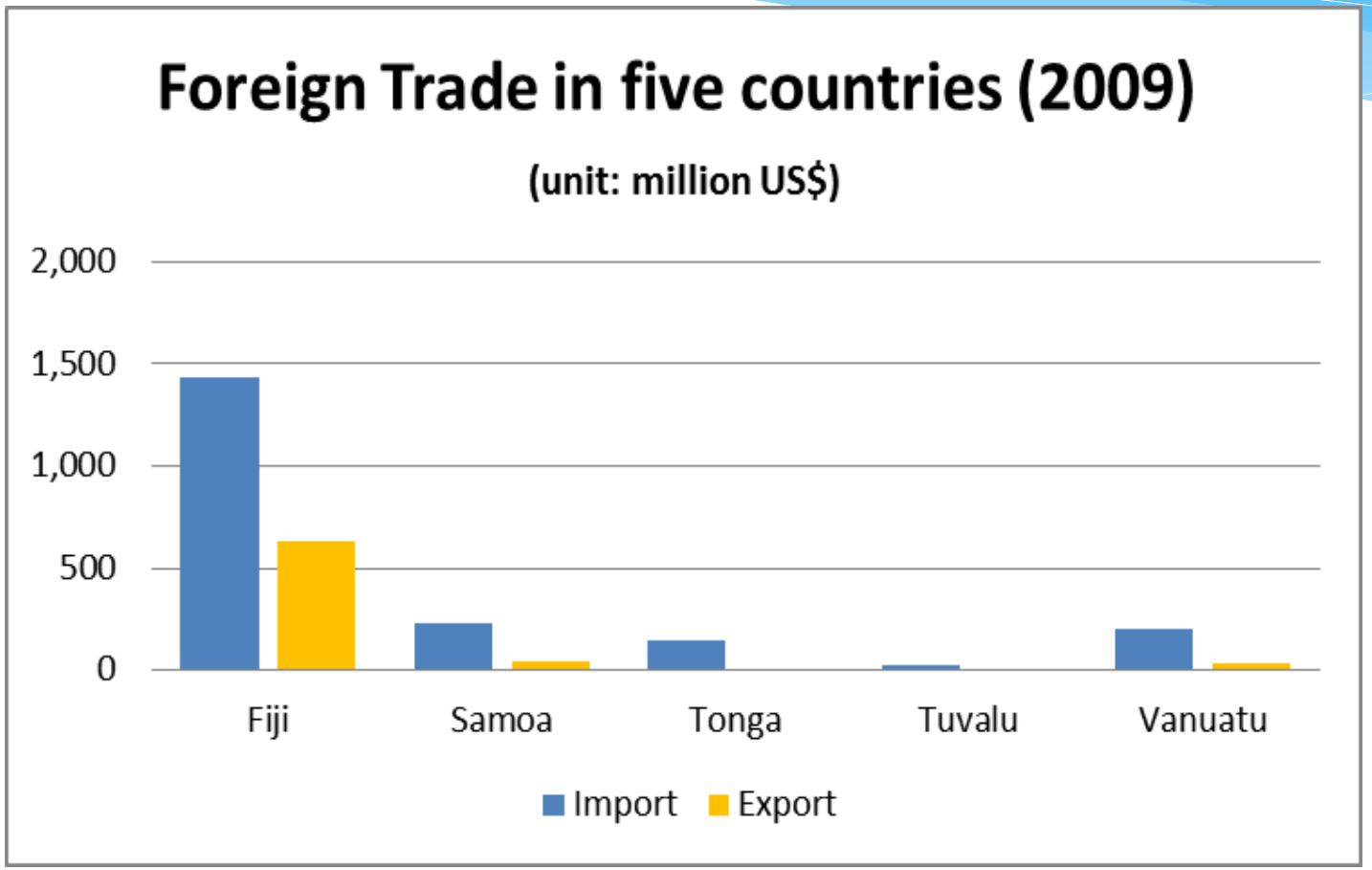
The next question is:
How much is "Returned (recycled)" ?

	Item	Fiji	Samoa	Tonga	Tuvalu	Vanuatu
1	Recyclable Waste Goods (t/yr)	75,368	16,419	6,509	414	16,383
	- Vehicles share of total RWG	15%	17%	37%	14%	17%
	- White Goods	3%	2%	3%	4%	1%
	- Other Metal Products	51%	52%	26%	15%	53%
	- Steel Cans	3%	5%	8%	14%	3%
	- Aluminum Cans	2%	3%	6%	2%	3%
	- Pet bottles	4%	10%	6%	5%	7%
	- Paper & Cardboard	22%	11%	14%	46%	16%
2	Recycled Waste Materials (t/yr)	38,218 51%	4,133 25%	584 9%	113 27%	4,601 28%
	- Scrap Metal share of total RWM	48%	25%	9%	27%	28%
	- Pet Bottles	1%	0%	0%	0%	0%
	- Paper & Cardboard	2%	0%	0%	0%	0%
3	Recycled Material Market	38,218 51%	4,133 25%	584 9%	113 27%	4,601 28%
	- Export share of total Market	50%	25%	9%	27%	28%
	- Domestic	1%	0%	0%	0%	0%
4	RWG to Landfill or Abandoned	37,150 49%	12,286 75%	5,925 91%	301 73%	11,782 72%

Source:
Data Collection Survey on Reverse Logistics in the Pacific Islands, JICA, 2013

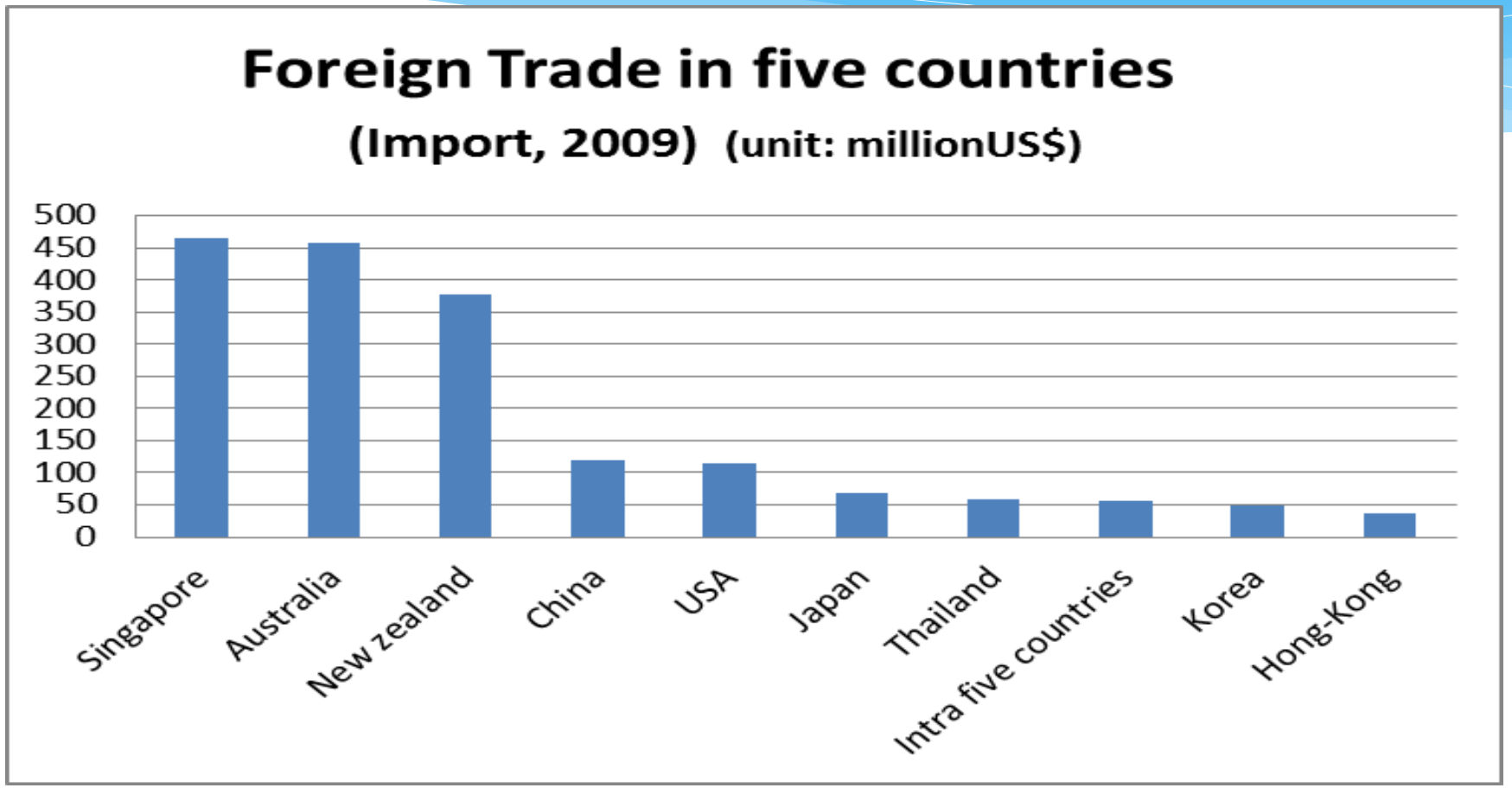
Then, let's look at the

Movement of Goods/Materials: Imbalance of Foreign Trade



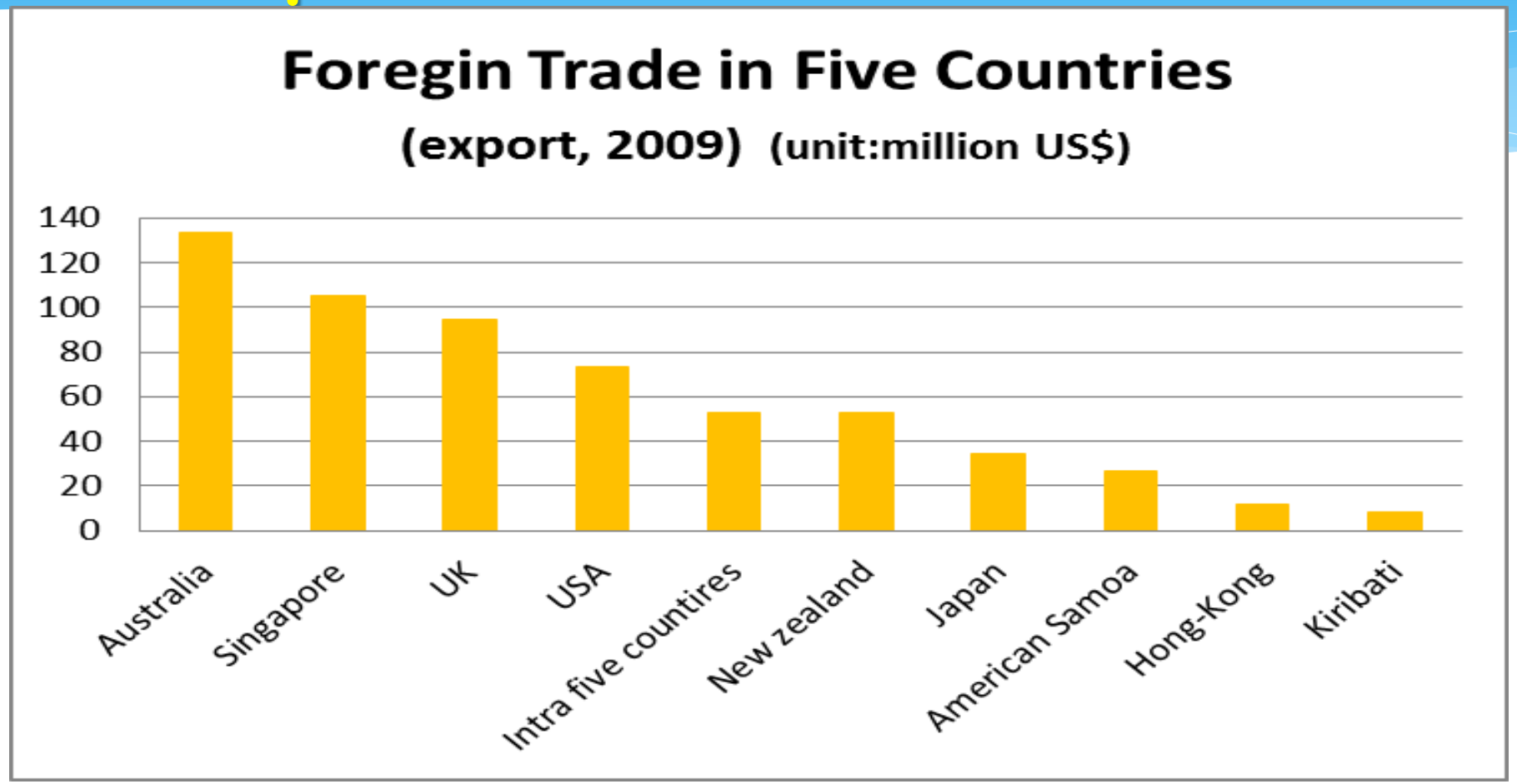
Source: Data Collection Survey on Reverse Logistics in the Pacific Islands, JICA, 2013

Movement of Goods/Materials:
Country of origin of import to PICs



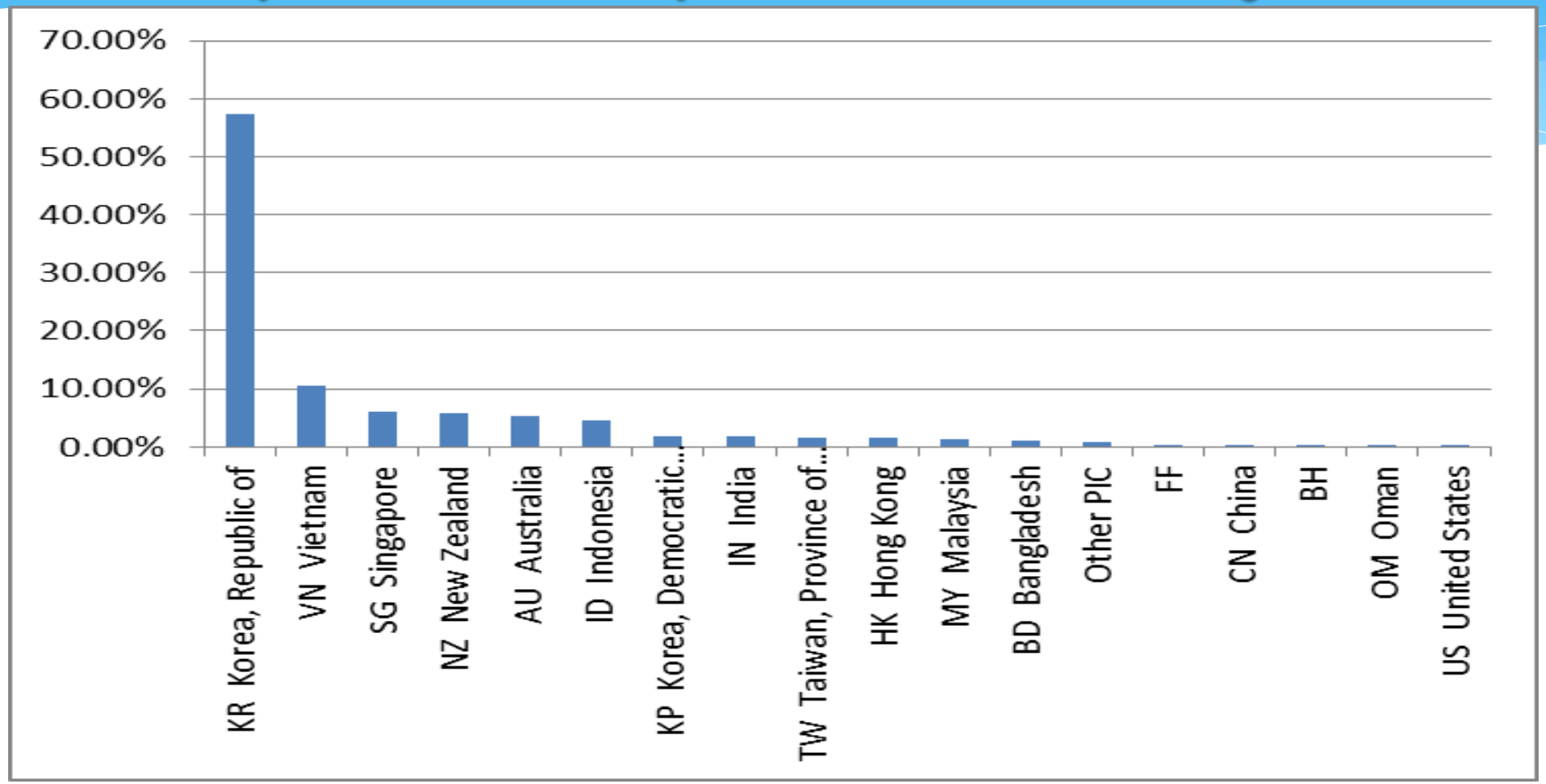
Source: Data Collection Survey on Reverse Logistics in the Pacific Islands, JICA, 2013

Movement of Goods/Materials: Export Destination from PICs



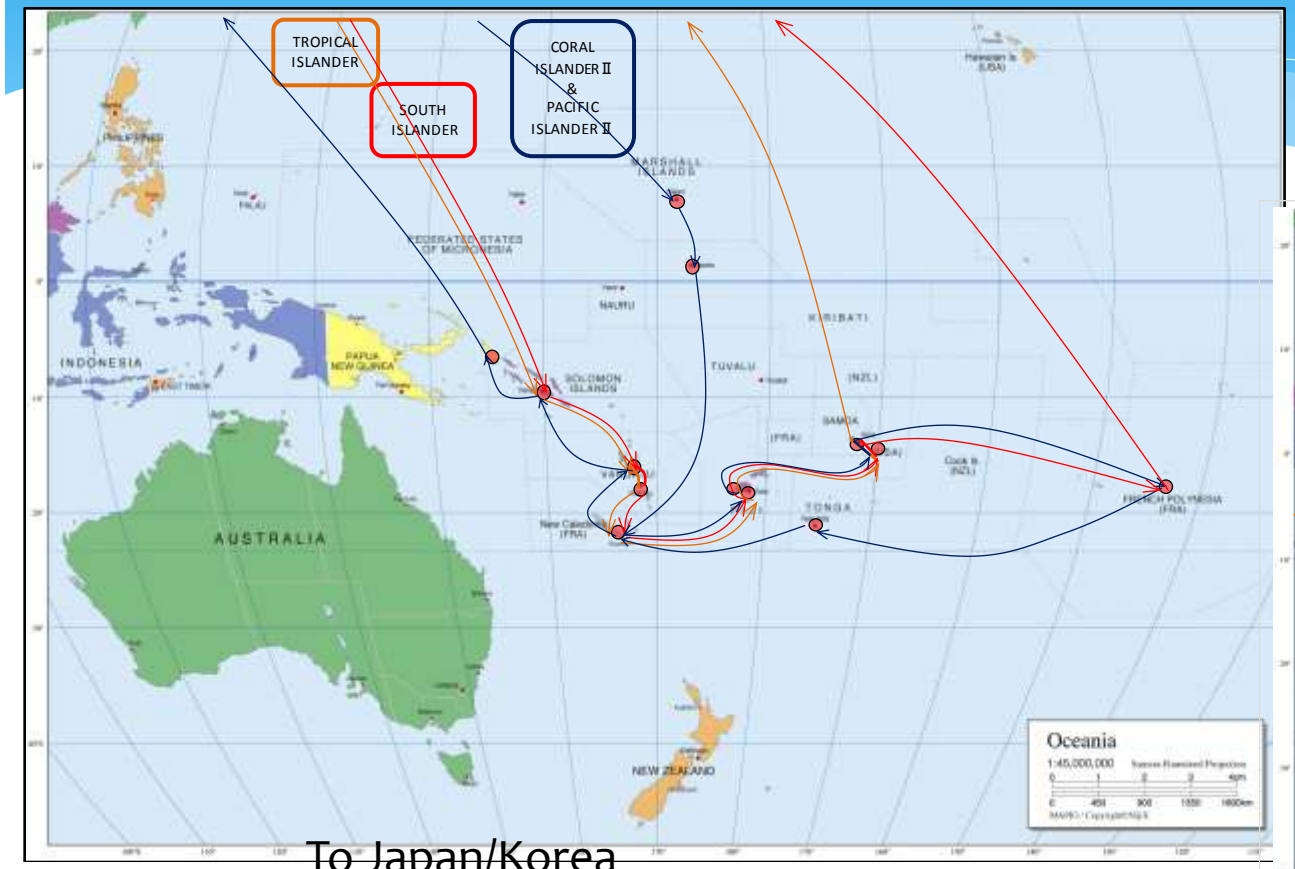
Source: Data Collection Survey on Reverse Logistics in the Pacific Islands, JICA, 2013

Movement of Recyclables:
Recyclables exported from Fiji to:



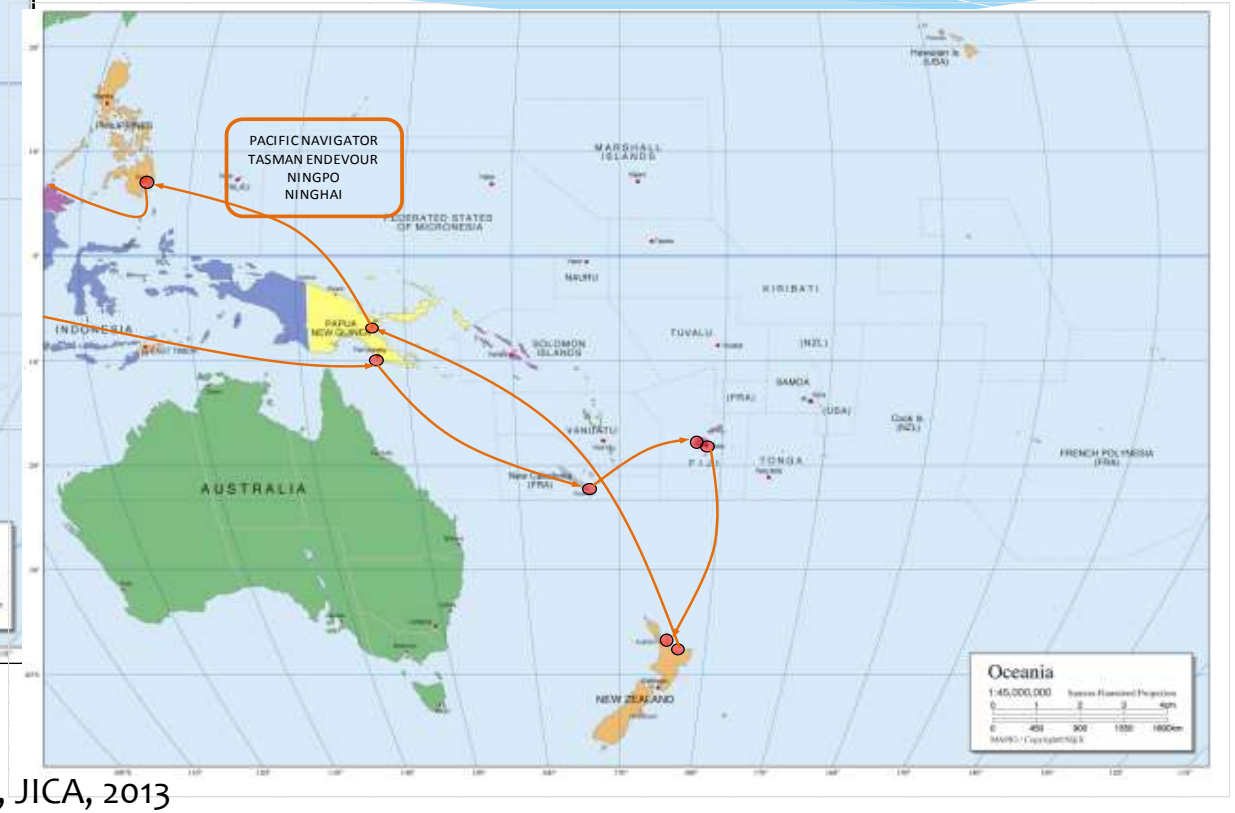
Source: Data Collection Survey on Reverse Logistics in the Pacific Islands, JICA, 2013

Return for Recycle/Treatment
- Shipping Route to Asia -



To Japan/Korea

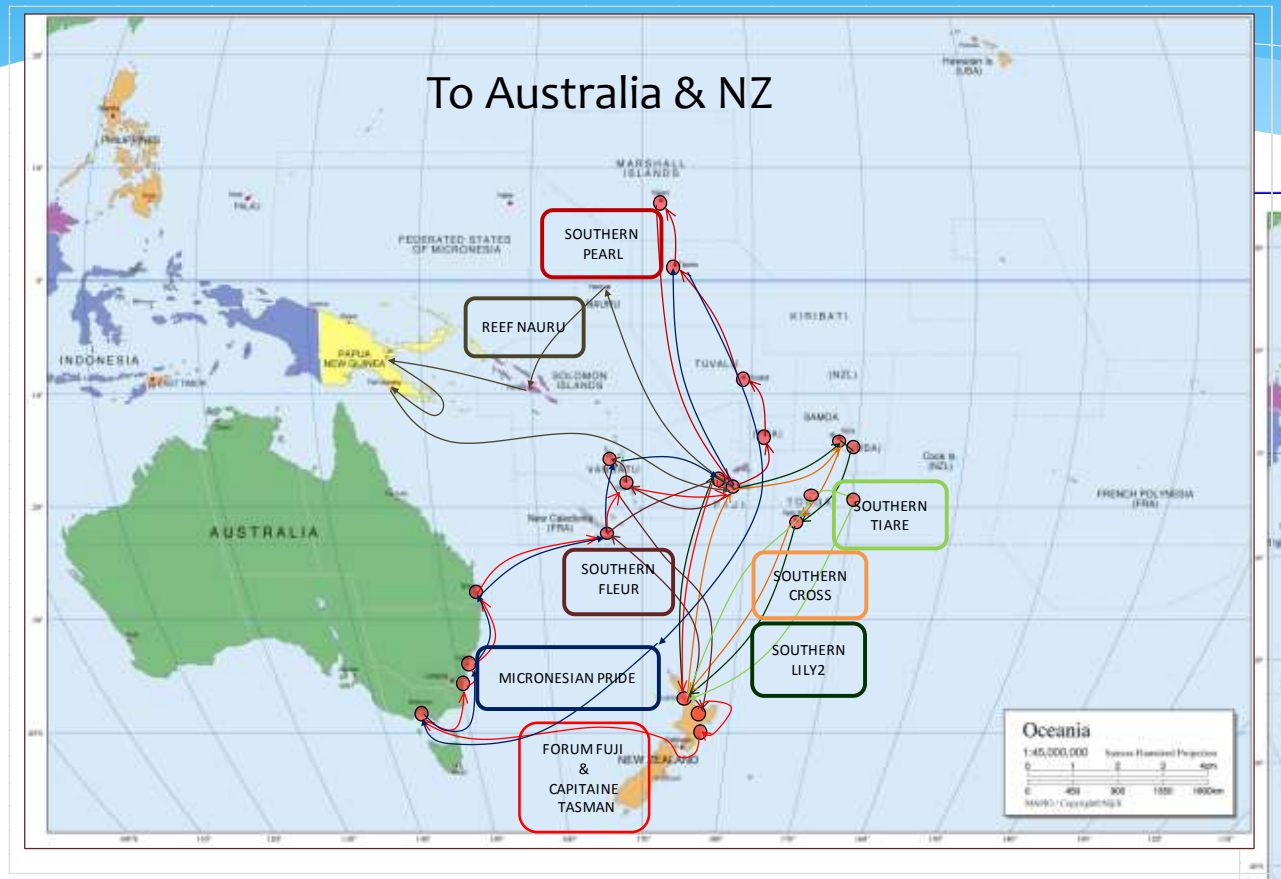
To Singapore

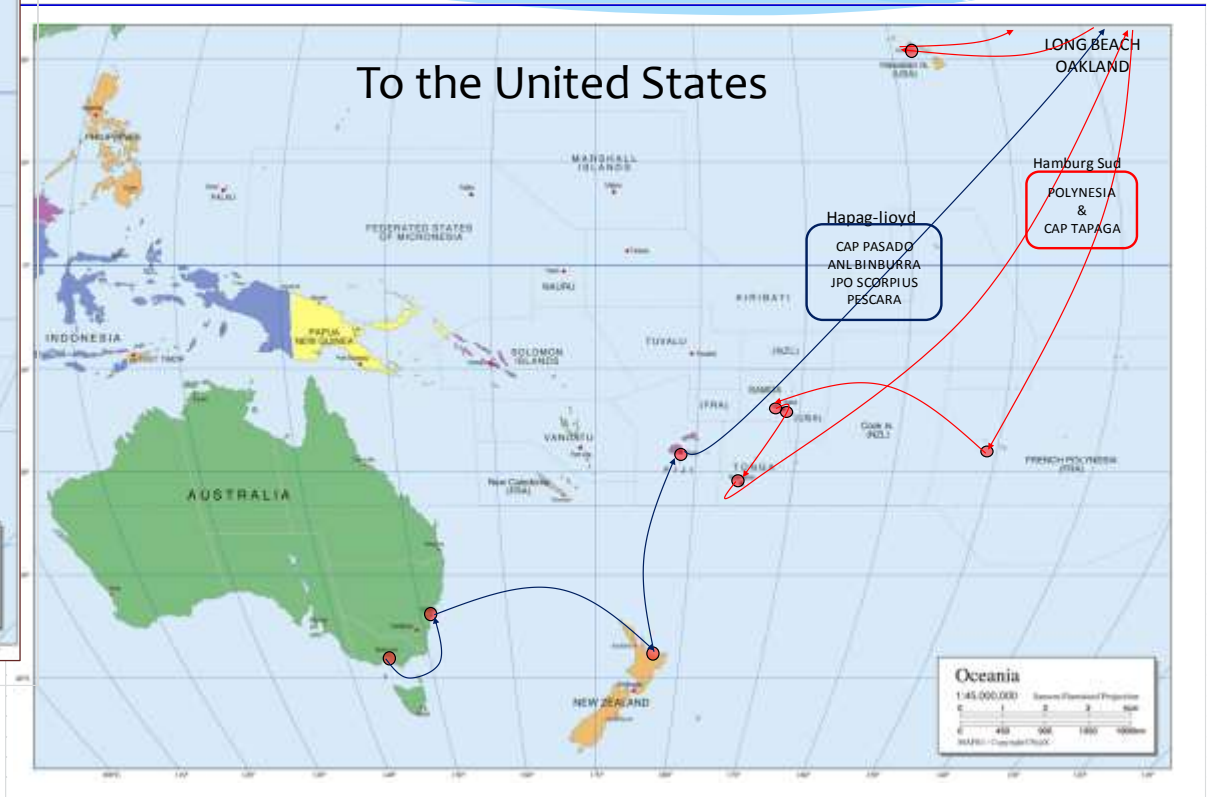


Source: Data Collection Survey on Reverse Logistics in the Pacific Islands, JICA, 2013

Return for Recycle/Treatment

- Shipping Routes to Australi/NZ and the US -





Source: Data Collection Survey on Reverse Logistics in the Pacific Islands, JICA, 2013

How can we deal with Challenges?

- in order to promote 3R+Return -

Common features/constraints

- Geographical isolation
- Limited Land space
- Remoteness
- Dependency

Challenges

- Inter-island collection & ocean transportation
- Proper disposal of waste in limited land spaces with protection of water resources
- High cost of transportation
- Fluctuation of outside market prices
- Sustainability (appropriate technology & financing mechanisms)

How to tackle with the problems/challenges?

- At the national, regional & inter-regional level to promote "Return" -

- **National level**
  - Improvement of recyclable collection
  - Improvement of initial treatment skills of recyclers/collectors
  - Institutional arrangement by the government
- **Regional/inter-regional level**
  - Developing wider ocean transport networks
  - Cost reduction effort on ocean freight
  - Accurate information database & exchange

Concluding Messages:
- "3R+Return" for Returns (benefits) -

* Waste as a **resource** and a source of income
* Mixture generates waste, **separation** produces resources
* Proper treatment and **recycling** (at industrialized countries)
* Appropriate technology (low cost) and **sustainable financing** to secure "return"
* **Proper disposal** of residual waste on island
* Change the people's mindset, **change their/our behavior**

Every action counts
-reduce, reuse, recycle and return-