USEPA Regional 9 Pacific Island Office

Annual Pacific Island Environmental Conference

In Sapian (June 22-25, 2004)

The Purpose of this session is to continue discussion of the 2003 Pacific Island Legislature and Executive Resolutions to promote a regional approach to recycling in the pacific.

Factors to consider in doing Recycling Business in Micronesia

- 1. Shipping Cost from Micronesia to Far East Buyers.
- 2. Cargo quantity and type of vessels to use.
- 3. Type of recycle materials for processing
- 4. Segregation & documentation.
- 5. Handling & Stockpiling.
- 6. Equipment and machinery.
- 7. Marketing & Sale.
- 8. Assistance from Government & Business entity's.
- 9. Implementation of Recycling Fees.
- 10. Sample of Financial analysis.
- 11. Conclusion & Suggestion.

Cost of Shipping

Far East Micronesia Line Established Cntr Recycling Rates as of May 2004

Guam to HK/Mnl/Tw/Busan;-

Cntr Type	From	To	Ocean Fr	Wfg	Hdlg
20’	Yap & Palau	Far East	1,500	All in	All in
40”	Yap & Palau	Far East	1,800	All in	All in

Mariana Express Line Established Cntr Recycling Rates as of May 2004

Guam to HK/Tai and China :-

Cntr Type	From	To	Ocean Fr	Wfg	Hdlg
20’	Micronesia	Far East	1,500	All in	All in
40”	Micronesia	Far East	1,800	All in	All in

Above 2 Carriers do not carry break bulk cargo, only containerized cargo Cy/Cy.

Kyowa Line Offer Break Bulk Cargo From Micronesia to Far Eastern Port :- HK/Tai/Japan/Korea. However, Bulk shipment is based on case by case basis, subject to cargo space availability & ocean freight rate to be negotiate, depend on loading & discharging rate per day.

Container Rate :-

Cntr Type	From	To	Ocean Fr	Wfg	Hdlg
20’	Micronesia	Far East	1,500	All in	All in

Cargo Quantity & Type of Vessel to Use

- Due to the cargo volume in the Micronesia Islands being approximately less than 500 metric ton per month. The carrier like Kyowa Line, have the break bulk capacity, but are unwilling to accept the small cargo tonnage, as it will jeopardize their empty containers returning to the loading port. If the export tonnage is over 3000 tons per shipment per port of call. Vessels chartering is feasible, depending on the charter rate.

- However, most suitable method of shipment, is to use container liner vessels.

- Such as FML, MEL and or Kyowa Line. Because their vessels calling regularly, either on a month to month or week by week basis. Shipper can depend of their own production merit with out big difficulty

Loading Scrap by Break Bulk Vessel

Loading scrap by Container

Collection of recycle materials for processing

Marketable Materials are as follow:-

- **Iron & Steel material:Rebar, beam, plate, channel, angle, junk car etc.**
- **Aluminum materials: Cans, window frame, cable, engine block etc.**
- **Copper and brass materials: Electric cable, telephone wire, hot water pipe, copper plate, radiator, condenser, water meter, pump etc.**
- **Lead materials : Lead pipe & cable, battery etc.**
- **Paper materials: Newspaper, computer card, cartoon box, packing material etc.**
- **Computer: Motherboard, computer card, computer cable, monitor, keyboard etc.**
- **Plastic: Plastic bottle, computer casing, printer, keyboard tray etc.**

Segregation & documentation recycle materials

It is very important to segregate products as per buyer's instruction. The price of each type of recycle material varies largely. Normally, buyers do not want material to be mixed in one container.

Shipping documents and reports must be carefully prepared, as arriving cargo will encounter large penalties by discharging port's customs. Full co-operation and understanding is the assurance of future continuous business, between seller and buyer.

1. **No impurity or foreign material mixed with the product.**
2. **Products combined shipments must be weight, pack and label.**
3. **Bill of lading, invoice and package list must specify clearly .**
4. **Cargo survey report regarding weight and type of commodity in loading port normally required by buyer. If there is no surveyor available in the Micronesia Island, prior arrangement must be made.**

Loading 3500 M/T of Break Bulk scrap on the Vessel. Using Ship's derricks, Shore side support with Tractor trailer. Hauling two 10 ton bucks with a 20 ton F/L moving the buckets from truck to ship side. The Loading rate about 750 M/T per day

Processing and segregation of Iron & Steel by cutting into sizes that can be loaded in the container or vessel.

Processing and segregation of Iron & Steel materials, baled it in to bundle size of 3’x4’X4’

Processing and segregation of light Iron & Steel baled it in to bundle size of 1’X1’x2’

Processing and segregation of Aluminum cans and baled it in to bundle size of 2’X2’x3’ block.

Segregation of copper cable, radiator, mixed aluminum & battery

Handling & Stockpiling of Material

Processing of the recycling material must comply with the international scrap definition. Selling price is based on how the material is being prepared. Once the material is processed, it should be stockpiled appropriately.

Buyer frequently will inspect materials prior to shipment. Until working relation is built, inspection will apply. If materials are not stockpiled properly and materials become mixed together, buyer will refuse shipment or postpone payment.

From the stockpile, exporter/operator can determine the quantity of sale and what type of vessel to engage. Then enter into sales agreement with buyer.

The followings are materials being processed and make ready for shipment.:-

Equipment and Machinery.

In order to produce recycle product that is marketable. The proper Facility, machinery and equipment is detrimental for a successful operation.

Followings requirement are:-

Land : 10,000 Sqft Meter – Collection Area 5,000 Sqm; Stockpile & Loading area 2,000 Sqm; 3,000 Sqm for office work shop etc.

Equipment : Cutting Machine, cable separating machine; Oxygen & acct. set with hose, touch & tips; floor scale

Machineries : Baling machine for aluminum & iron and steel; 5 tons fork lift; excavator with clam shell and finger; 10 ton dump truck and 3 ton flat bed.

Followings pictures of the equipment & machineries for illustration purpose.

Cutting machine; cable separating machine; Ox & Acct Set

5 Ton Fork Lift

Heavy Duty Baling Machine

Iron & Steel Baling Machine From China

兴发液压机械制造有限公司

XINGFA hydro-machine manufacture co.,ltd.

立式打包机、卧式打包机系列

YG-81-100吨卧式打包机

| YG-81系列液压打包机 |

主要适用于处理塑性金属废料（如：金属边角料、钢刨花、废钢、废铝等）。挤压成为高密度的冶炼原料。以降低运输和冶炼成本，是金属回收部门理想的加工设备。

YG-81-125A全自动卧式打包机

| 产品特点 |

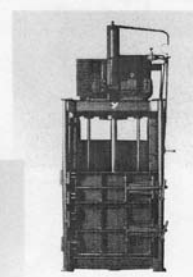
1）各种机型均采用液压驱动，有手动操作与PLC自动控制操作；

2）出包有：前推包和翻包，还有侧出包；

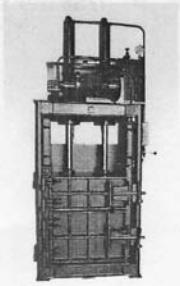
3）无电源的地方可配用柴油发电机作动力；

主要技术参数:

项目	单位	产品型号								
		YG81-630	YG81-1000	YG81-1250	YG81-1000	YG81-1000A	YG81-1250	YG81-1600A	YG81-2000A	YG81-2000B
公称推力	KN	630	1000	1250	1000	1000	1250	1600	2000	2000
压缩室尺寸（长X宽X高）	mm	1000X600X500	1000X600X500	1200X700X600	1300X550X550	1500X700X550	1200X800X600	1600X1000X800	1600X1200X800	1800X1400X900
包块尺寸（宽X高）	mm	(180-250)X200X200	(200-300)X230X230	(150-360)X300X300	(50-300)X550X250	(300-500)X300X300	(50-300)X600X250	(400-600)X340X340	(400-700)X400X400	(400-700)X400X400
包块密度	kg/h	>=2000	>=2000	>=2000	>=2000	>=2000	>=2000	>=2000	>=2000	>=2000
生产效率	kg/h	1000-1200	1200-1500	1200-1800	1000-1200	1200-1500	1500-2800	2000-3500	2500-4500	2500-4500
单次循环时间	s	90	120	120	80	100	80	150	160	160
配用功率	kw	7.5	11	11或15	15或18.5	18.5或22	18.5或22	22	30或37	30或37
出包/操作主法		翻包、手动操作	翻包、手动操作	翻包、手动操作	前出包、手动操作	前出包、手动操作、前推PC控制、手动操作	前出包、手动操作	前出包、手动操作	前出包、手动操作	PC半自动



YG82系列单缸立式打包机



YG82系列双缸立式打包机

| YG82系列及YB81系列打包机 |

广泛用于棉纱布、麻、羊毛、纸皮、废铝、废铜、废铁、不锈钢边角料等松散料压缩打包，压出的包块外形尺寸统一，比重密度大，适合集中装箱运输的需要。

| 特点 |

1）该系列无需地下基础，油缸立式安装，占地面积小，操作简单，实用。有手动控制和电动控制；

2）有单缸、双缸、多缸设计。

主要技术参数:

项目	单位	产品型号				
		YG82-250	YG82-300	YG82-500	YG82-600	YG82-1000
包型尺寸	mm	100X45X60	90X60X45	100X60X60	90X60X45	100X65X45
外型尺寸（长X宽X高）	mm	180X65X370	128X94X320	169X96X590	129X95X335	143X105X350
包重	kg	>=100	>=50	>=100	>=150	>=180
用途		针织绒打包	纸皮、塑料、不锈钢、薄铁皮	化纤生产线专用	不锈钢、废铝、废铜、废铁	不锈钢、废铝、废铜、废铁

Aluminum Baling Machine

Battery & Plastic Processing Machine From China

GUANGSHUN SULIAO JIXIE

廣順塑料機械廠

250型、400型塑料破碎机

采用先进技术参数、性能而改良设计，破碎机体是用45°钢板材料焊接制造，结构坚固耐用，产量比普通破碎机高出一倍多。

电功率：7.5KW、11KW

牵引机

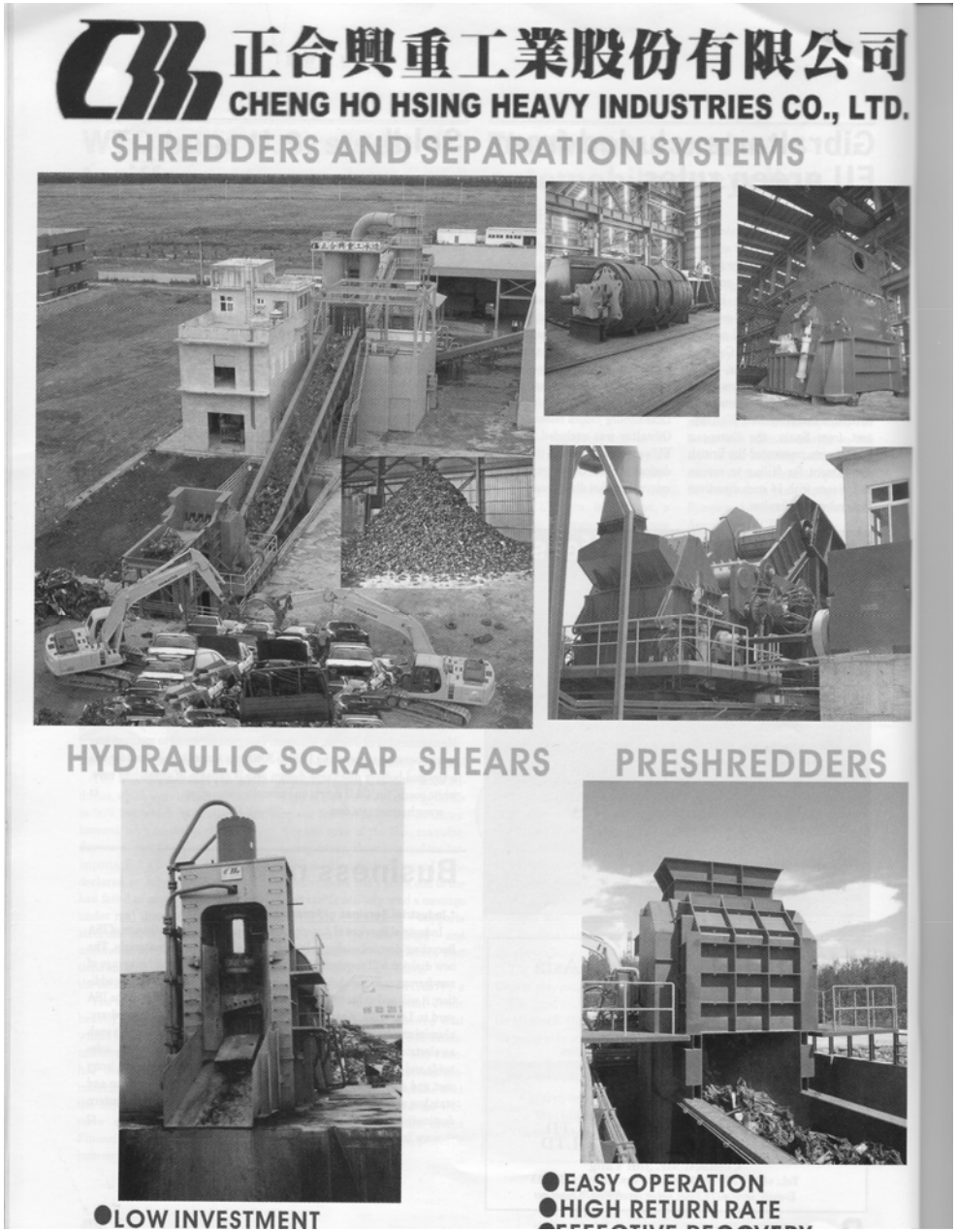
此机设计简单合理、操作方便，是生产管材、生产线不可缺少的产品。

结构与特点：

随着拼出机形成工艺的发展，提高挤出机的产品塑化效果要求，本机适用于有机玻璃、板材的挤出。机型规格可按客户要求订造。

Excavator with Clam Shell

Taiwan Manufacturer of Heavy Machinery for scrap



Manufacturer of Scrap Handling Equipment in States

KIESEL
better handling

All our machines are complete repaired, serviced and checked.
We can arrange worldwide transport. We are also specialised for spare part service worldwide. For more informations please call +49 751 500 425

Visit the biggest machinery show in the world.
www.kiesel.net

Materialumschlagmaschinen
material handling machines

Baumaschinen
construction machinery

Gebrauchtmaschinen
used equipment

FUCHS 713MU-C
7 units, with generator and grab

FUCHS 714MU-C
4 units, with generator and grab

FUCHS MHL320
3 units, 9,5 m reach
2000 / 1999

FUCHS MHL330
1997, 2780 hours
special price

FUCHS MHL330H
1996 log handler
all options

FUCHS MHL331
5 units
2001 / 2000 / 1999 / 1998 / 1996

FUCHS MHL340
4 units, 12,5 m reach
1999 / 1998 / 1997 / 1997

FUCHS MHL350
5 units, 15 m reach !!!
1993 - 2003 all options

FUCHS MHL360
2 units, 18 m reach, generator, A/C, 2000 / 1999

FUCHS MHL430
original 400 hours, all options
2001, ask for price

LIEBHERR A912 Litr.
all options, complete repaired
new engine, 1992

LIEBHERR A922 Litr.
generator, highlift cabin
very nice machine, 1996

KOMATSU WA470-5
2.100 hours, bucket, new tires
2002

Revolution:
with Genesis quick connect
change your tools in 10 seconds

GENESIS GMS1000
mobile monster scrab shere

GENESIS GMS300
mobile scrab shere
new + used

...100 more material handlers from 25.000 - 150.000 Euro

Kiesel GmbH, Baindter Straße 21, D-88255 Baienfurt/Ravensburg

Marketing & Sale

Internet Website is a good place to learn about the trade, a lot of information is available for your reference.

Contact a broker, who can the connections with buyers in China, Korea, Japan, Hong Kong and Taiwan etc.

Good buyer: China is the biggest buyer in the Far East, they buy all kind of recyclable materials. Because their labor is cheap, they can segregate and still able to sell for profit. Japan only buy cleaned and well processed materials. Korea is kind of in the middle between China and Japan. They buy semi-segregated materials. Hong Kong basically working as broker or middleman. Sometimes, they will re-process the material and sell for a higher price. Taiwan is a good market for recycling materials, but they also very particular about the quality of the product they import.

The price levels, please reference to the following sample spread sheet, indicated in the Income & Expense projection on Guam.

The following are web sites you can contact and browse through.

Web Site 1

- Automotive cores and **scrap buyer Scrap** and Cores.com pays cash Automotive **scrap** and automotive cores **buyer Scrap** and Cores.com pays cash for automotive **scrap**, industrial **scrap** and automotive cores. ... Automotive cores and **scrap** metal **buyer. Scrap** and Cores.com has been in business for over 15. www.scrapandcores.com/automotive_cores.htm
- Automotive **Scrap**, Diesel Engine Cores, Gas Engine Cores **Buyer** Automotive **scrap** and automotive cores **buyer Scrap** and Cores.com pays cash for automotive **scrap**, automotive cores, diesel engine cores, gas engine cores, transmission cores and differential cores.... www.scrapandcores.com
- Industrial Plastic **Scrap Buyer** - Midwest Plastics Recycler Industrial Plastic **Scrap Buyer** and Plastics Recycler. Plastics Identification. Recycling industrial plastic waste: polyethelene, polypropolene, pvc, polystyrene, poly vinyl chloride, pvc, **scrap**plasticsrecycler.ersg.us
- **Scrap** metal **buyer**, dealer high temperature alloy **scrap** - Globe Metal Globe Metal is a **scrap** metal dealer and **buyer** of industrial metals such as high temperature alloy scraps. ... We are a **scrap** metal **buyer** and dealer, specializing in the processing of all industrially generated metals, high temperature alloy **scrap** and carbide as well as grinding ... www.globemetal.com/overview.php
- A+ **Scrap Buyer** in Global Recycling Network --- Industry Directory A+ **Scrap Buyer** is registered in the Industry Directory at . ... Industry Directory. A+ **Scrap Buyer**. Buy **Scrap** Aluminum. A+ **Scrap Buyer**. Fresh Meadows New York ... grn.com/trade/aa658979.html
- 11-97 New Steel: **Scrap**: How to improve **scrap** buying: Define specs better, communicate more ... Quality is the hottest issue in today's **scrap** market. Unlike a few years ago, www.newsteel.com/features/NS9711f6.htm
- **Scrap** Page ... OUR **SCRAP BUYER** IS: TAMMY RINKEMA ... Assistant to **Scrap Buyer**. MARI JO KINSEY ... www.jupiteraluminum.com/SCRAP.htm

Scrap Web site 2

- MetalWorld -- **Scrap** Metal Recycling Section is a business-to-business trading community hub for raw material commodity exchanges in **Scrap** Metal Recycling and other similar kinds of materials. www.metalworld.com/a/0100.html

  Scrap Magazine - People ... as well as new and ongoing projects for the company in **scrap** optimization, **scrap** handling, and **scrap** processing ... was a copper and brass **scrap buyer** for ingotmaker Colonial Metals Co ...
  www.scrap.org/people.htm

- Want Ad: **BUYER** OF **SCRAP** COPPER WIRE AND ALUMINUM WIRE! Community. My offer. Search. Help / FAQ. **BUYER** OF **SCRAP** COPPER WIRE AND ALUMINUM WIRE! Want Ads > Miscellaneous > Other > Want Ad # 14947. Looking for: WILL BUY YOUR **SCRAP** COPPER AND **SCRAP** ALUMINUM WIRE, WILL NEGOTIATE SHIPPING, CONTACT US NOW!
  www.ioffer.com/viewWantAd.do?wantedID=14947

- Non~Ferrous **Scrap** Metal Recycling -- **Scrap** Aluminum Recycling Category Recycle.Net is a business-to-business trading community hub providing Global Access to Recycling Markets in **Scrap** Aluminum Recycling and other similar kinds of materials. ... A Recycling Center. A+ **Scrap Buyer**. A-1 Hauling Inc. A-1 Recycling (CA) A-1 **Scrap**. A-Ten-C, Inc ... Burnaby,BC) ABC Salvage and **Scrap** Metal. ABC Traders Ltd ...
  www.recycle.net/Metal-N/Aluminum

- Global Recycling Network -- **Scrap** Metal Recycling Section is a business-to-business trading community hub for raw material commodity exchanges in **Scrap** Metal Recycling and other similar kinds of materials.

Assistance from Government & Business Entity (Page 1)

Recycling in Micronesia requires Government and private businesses participation and financial assistance.

The fact is that most of the Micronesian islands are thousands of miles away from Guam. Therefore the shipping rate is more then double in comparison to Guam.

Local Government should allot free land usage for construction of a recycling facility and also purchase of all major essential machineries and equipments for recycling all the material.

Assistance from Government & Business Entity(Page 2)

Private enterprises, to negotiate a semi-donation shipping rate with carrier which serve the islands in Micronesia. Oil companies such as Mobil Oil Company and Air Lines such as Continental, should participate and help the recycling project to move ahead.

As we believe that “ALL LIVING THINGS OF THE EARTH ARE ONE” recycling is the major objective.

A recycling fee for all kind of materials, should be implemented. The funds received should be put forward for financing the continuation of the recycling projects.

Recycling Fees

- **<u>The following is the recycling fees presently being implemented on Guam</u>**

• Standard Price: Including pick up Automobile	$150
• Appliance w/o Freon	$20
• Appliance w/ Freon	$28-$32
• Passenger Tires	$5.50
• Commercial Truck Tires	$10.50-$20.50
• Loose Metals (Pick-up truck load)	$50
• Loose Metal dump truck load per cubic yard	$5.00
• Batteries	$10
• Wood Pallets	$2

A Sample of a Guam Scrap Operation					
Income and Expense Projection					
		Buying	Metric Ton	Monthly	
	In Lbs	Per lbs	Per month	Income & Expense	
Name of Material	**2204**				
Sales :		**Price/MT**			
Aluminium Cans		$1,350.00	35.00	47,250	
Mixed Aluminium		$1,350.00	25.00	33,750	
Copper		$1,750.00	25.50	44,625	
Computer Scrap		$125.00	24.00	3,000	
HMS - Iron & Steel		$85.00	500.00	42,500	
Bundle Scrap Iron & Steel		$88.00	1000.00	88,000	
Battery		$0.00	2.00	0	
Total Sales				**$259,125**	
Recycling Fee:					
Aluminium Cans		$0.00	37.00	0	
Mixed Aluminium	Per M/T	$0.00	27.50	0	
Copper	Per load	$50.00	2.00	50	
Computer Scrap	Per Load	$50.00	3.00	50	
HMS - Iron & Steel	Per Load	$150.00	25.00	3,750	
Bundle Scrap Iron & Steel	None	$0.00	0.00	0	
Battery	Per Piece	$15.00	160.00	2,400	
Total Collected Fees:				**$6,250**	
Gross Monthly Revenue					**$265,375**

Cost of Goods Sold:					
Aluminium Cans		$0.30	37.00	24,464	
Mixed Aluminium		$0.30	27.50	18,183	
Copper		$0.40	26.00	22,922	
Computer Scrap		$0.05	25.00	3,000	
HMS - Iron & Steel		$45.00	650.00	29,250	
Bundle Scrap Iron & Steel		$48.00	1000.00	48,000	
Battery		$0.00	120.00	0	
Total Cost of Goods Sold					**$145,819**
Gross Profit					**$119,556**
Operating Expenses:					
Salaries and wages				1,500	
Manager	1			2,750	
Field worker	5			5,100	
Machanic	1			1,750	
Equipment Operator	2			2,380	
FICA Tax	7.65%			1,031	
Scrap Yard Rental				750	
Management Fee				1,750	
Utiltities				375	
Repairs and maintenance				575	
Insurance				1,750	
Travel				1,000	
Telephone				250	
Postage				50	
Office supplies				135	
Advertising				350	
Freight Guam to Far Eastern	Per Container	$650.00	81	52,374	
Guam Inland Trucking	Around Trip	$150.00	79	11,824	
GRT	4%			10,615	
Total Expenses per month:					**$96,309**
Profit Before Tax per month:					**$23,247**

Conclusion & Suggestion P-1

The set backs of recycling in Micronesia are:-

(1)High Cost of Shipping. Almost 200% higher than Guam.

(2)The lack of experience in handling & processing of the recycling materials.

(3) The high cost to purchase the necessary equipments and machineries.

(4) The lack of contacts and experiences in marketing and the sale of materials.

Conclusion & Suggestion P-2

To over come the above we suggest:-

(1) **To discuss with existing liner services, such as Kyowa Line, Far East Micronesia Line and Mariana Express Line to give a special recycling rates to the Micronesia Inlanders.**

(2) **To solicit a recycling Company who has the knowledge and experience to handle processing and marketing of the recycling material in Micronesia. The qualification must meet the following Criteria :-**

- **a. 5 year working experience in processing ferrous & non-ferrous materials.**
- **b. Owned and managing recycling equipments and machineries no less then two years.**
- **c. Proof of exporting recycling material to other country no less than 50,000 M/T per year.**
- **d. Have chartering vessel experience for at least 3 to 5 voyage a year.**
- **e. Evidence to show contract of sale no less than 10,000 M/T per year.**

(3) **To discuss with the Micronesian government to implement a recycling fee in their island, so that money can be generated to help finance the purchasing of the equipment and machineries.**

END OF PRESENTATION