



# Green Ship Recycling

Developments, Recent Trends & Outlook





# Green Ship Recycling

## Developments, Recent Trends & Outlook

Key Topics to be discussed;

- 1. What is Green Ship Recycling ?**
- 2. Financial and regulatory implications for ship owners selling their vessels for green recycling.**
- 3. Developments in key international ship recycling centers .**
- 4. Innovative and practical ways for ship owners to implement green ship recycling.**
- 5. Outlook**



# 1. What is Green Ship Recycling?



**Electrical Cables**



**Chilling  
Compressors**



**Engine**



**Furniture**



**Steel Scrap**



**Kitchen Ware**



**Spare Parts**



**Re-Rollable Steel**

**Waste  
<2-4%  
(only!)**



**Pipes**



**Motors**

Properly handled, ship recycling is, without question, a Green industry!



## 1. What is Green Recycling?

- Green recycling is about “Safe and Environmentally Sound” recycling of ships.
  - Hong Kong Convention (SR/CONF/45) of the **IMO** ;
    - » Draft guidelines for the development of the Ship Recycling Plan (SRP)
    - » Draft Guidelines for Safe and Environmentally Sound Ship Recycling (MEPC 61/3 Annex 2)
      - Technical Guidelines for the Environmentally Sound Management of Full and Partial Dismantling of Ships (**BASEL Convention**)
      - Safety and Health in Ship breaking guidelines developed by the **ILO**.
  - ISO 30,000



## 1. What is Green Recycling?

- Hong Kong Convention
  - Most comprehensive & consequential
    - Key items:
      - » Inventory of Hazardous Materials (New and existing ships of 500 GT)
      - » Ship Recycling Plan: Identification, Removal and Disposal of Hazardous Materials
      - » Facility Management & Worker Safety at Yards
      - » International Ready for Recycling Certificate





## 1. What is Green Recycling?

### IMO Hong Kong Convention

- Will become mandatory and not just for old ships!!
- Rush to get certifications.
- An Opportunity / threat to yards.
- Corporate Social Responsibility requirements.
- Media and NGO's becoming ever aggressive
  - loss of share value,
  - bad publicity,
  - lower esteem in the eyes of the public and market.



## 1. What is Green Recycling?

### – Typical Green Ship Recycling work Process :

#### – Step 1:

Preparation of the SRP,

#### – Step 2:

Removal of HazMats (incl. handling, storage, disposal) .

#### – Step 3:

Dismantling work.

#### – Step 4:

Documentation (e.g. monitoring results, handled/recycled/disposed materials as well as, incidences and accidents)





# 1. What is Green Recycling?

What is a typical “green facility”?

- » Authorization for handling hazardous materials
- » Recycling Facility Management System
- » Qualified and trained personnel
- » Occupational safety and health
- » Environmental protective measures and monitoring
- » Designated key personnel/ competent persons
- » Preparations (e.g. gas-free for hot work and asbestos removal)
- » Disposal arrangements (sub contractors)



HAZMAT DISPOSAL TEAM



SEALED LANDFILL



“Ship Recycling means all associated operations including, mooring or beaching, dismantling, recovery of materials and reprocessing”



**Green Ship Recycling can be carried out in any region of the world.  
(subject to implementing IMO’s Hong Kong Convention)**





## 2. Financial, regulatory and legal implications for ship owners and ship recyclers when selling their vessels for Green recycling.

- Inventory of Hazardous Materials (IHM)
  - Costs (Hazmat experts, Green passport ~ USD 35K-85K) , Accountability & Responsibility
- Where to recycle (yard capability wrt Hazmat)
  - Effect on residual values
- How much does overall green recycling cost? Including the potential price differential
  - Between USD 0 to USD 50 for a size of less than 10,000 Mt Light Displacement Tonnage .
- Sell directly to yards or through cash buyers?
  - Direct sale ;
    - » Relatively better returns from the sale.
    - » BUT viable only for the large shipping companies having dedicated staff to manage the sale.
    - » Require a detailed knowledge of the recycling market, specific information about the recycling country - majority of the owners unlikely to possess.
    - » Check a number of facilities for fitness and compliance with the Convention , require considerable in-house support, largely unavailable with many companies.
    - » Legal requirements.
- Selling via Cash Buyers who will purchase the vessel
  - » Cash buyers
    - Considerable knowledge of the recycling industry
    - Familiar with recycling facilities increases the likelihood of their finding a suitable green yard.



## 2. Financial, regulatory and legal implications for ship owners when selling their vessels for Green recycling.

### **Role of cash buyers in the light of IMO Convention;**

- Cash buyers will have the same legal responsibility for the ship as a shipowner.
- Cash Buyers would need to have Green technical expertise!



### 3. Developments in key international ship recycling centers.

#### INDIA

**Coastal Location:** Arabian Sea, Gulf of Khambat, West Coast, India

**Latitude:** 21 29.5' N

**Longitude:** 72 21.3' E

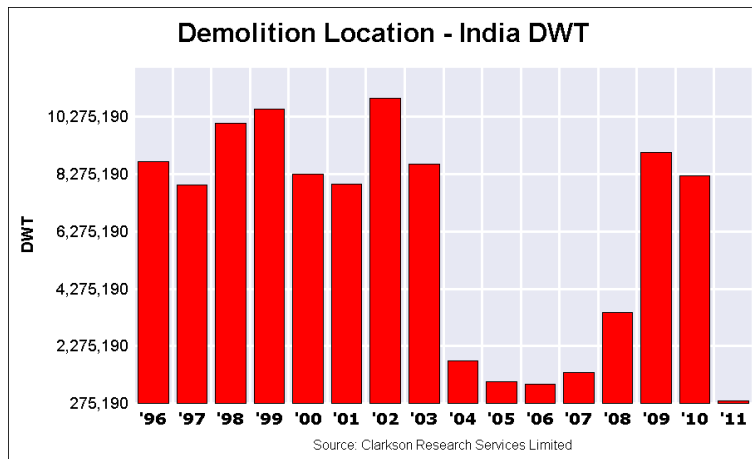
**Number of Plots:** 175



- Continues to lead the Ship Recycling industry in both numbers and green capacity.

- 37% of the yards are fully ISO Certified.

- A number of western and Japanese development banks and NGOs working towards increasing the country's green recycling capacity.



**GREEN RECYCLING:** About 65-70 yards (37%) are fully ISO Certified.

**BENEFITS:**

- Leading Number of Ship Recycling Facilities – excess 100!
- Market Maker / Leader
- Experienced Recyclers.
- Top price levels for Specialized Vessels
- Premium for Bunkers, Non-Ferrous Items, Certain Machinery Items Such as Main Engine, Generators, etc.
- Wide Variety of Buyers. Buyers range from ULCC buyers to the smallest fishing trawlers. Everything goes!

**DISADVANTAGES:**

Beaching Tides

**BEST MARKET FOR...**

- Specialized High Value Vessels such as ROROS , Reefers , Passenger Ships (leading market)
- Dry Vessels
- 6,000 LWT



### 3.Developments in key international ship recycling centers.

## BANGLADESH

Coastal Location: Bay of Bengal

Latitude: 22 26 N

Longitude: 91 44' E

Number of Plots: 32



- Embroided in a legal battle between environmental lawyers (BELA) and local ship recyclers (BSBA) .
- No clear direction by the Government.
- Drip-feed of clearances to re-open granted .

#### **GREEN RECYCLING:**

Recently 3 yards have achieved ISO Certifications. However, due local environ-legal issues, market virtually closed.

#### **BENEFITS:**

- Leading Recycler of Tankers
- A very competitive market for VLCCs and ULCCs
- Excellent option for Ships opening up on East Coast of India and further East.

#### **DISADVANTAGES:**

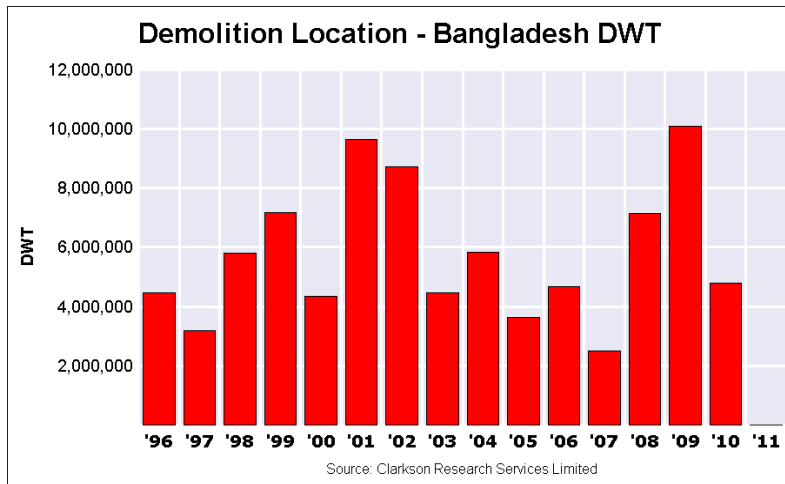
Short Beaching Tide windows with wide gaps between tides

D/A cost slightly higher than India

Low prices for Dry Tonnage

#### **BEST MARKET FOR...**

Tankers 12000 LWT and above





### 3.Developments in key international ship recycling centers.

## PAKISTAN

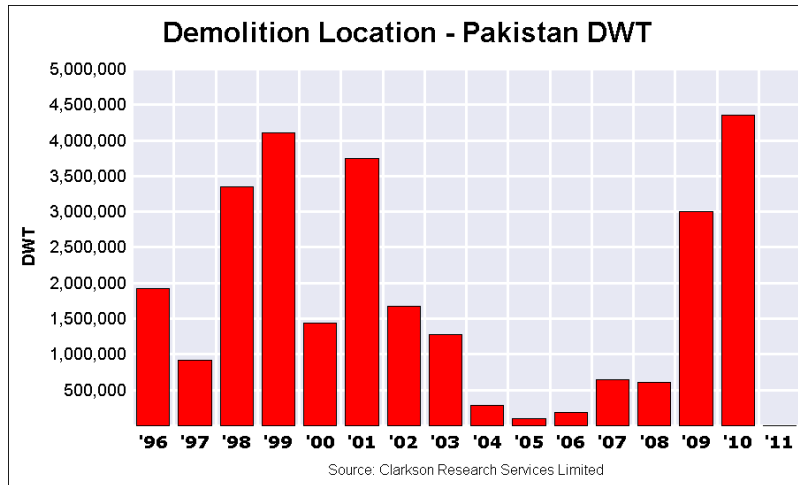
Coastal Location: Arabian Sea

Latitude: 24 48' N

Longitude: 66 59' E

Number of Plots: 127 (50 active)

- 2010 has been the best year for the recycling industry.
- World Bank currently working to increase the capacity of ship recyclers and of regulators in complying with the IMO Convention.



**GREEN RECYCLING:**

Only 1 yard having ISO Certifications.

**BENEFITS:**

- Prompt Delivery Due to No Beaching Tides
- Low D/A

**DISADVANTAGES:**

Specialized Vessels

**BEST MARKET FOR...**

- Tankers
- Small LDT Under Tow Vessels



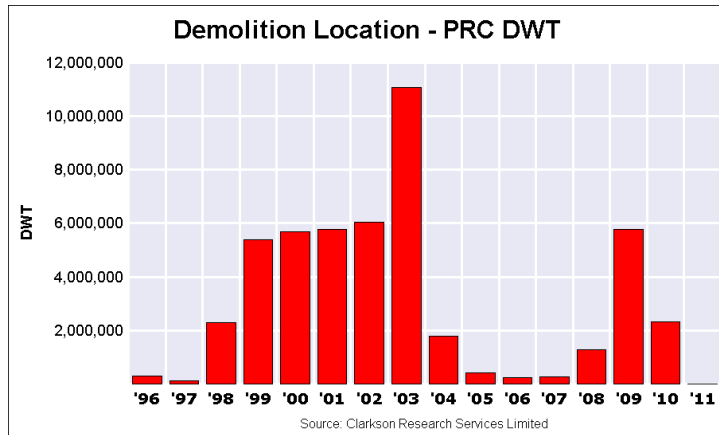
### 3.Developments in key international ship recycling centers.

## CHINA

Latitude: 113 4' E

Longitude: 22 19' N

- 2010 has seen a massive decline in volume of vessels recycled.
- Has been a choice for owners wanting green recycling, but with India catching up fast, competition is getting tougher as more and more owners opening up to India for their green recycling needs.



#### **GREEN RECYCLING:**

15 Yards having ISO Certifications.

#### **BENEFITS:**

- Very Competitive prices for tankers
- Gas free for Man Entry Only
- More efficient recycling than the India Sub-Continent
- Large appetite for Large Ships (VLCCs and ULCCs)

#### **DISADVANTAGES:**

- High D/A Costs
- Poor prices for Dry Tonnage
- Not a keen buyer of Specialized Ships

#### **BEST MARKET FOR...**

- VLCC's and ULCC's



### 3.Developments in key international ship recycling centers.

## TURKEY

#### GREEN RECYCLING:

25 ship recycling yards.

**Turkey signed Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships.**

**The only recycling country to have ratified the convention todate.**

#### BENEFITS:

- Member of OECD

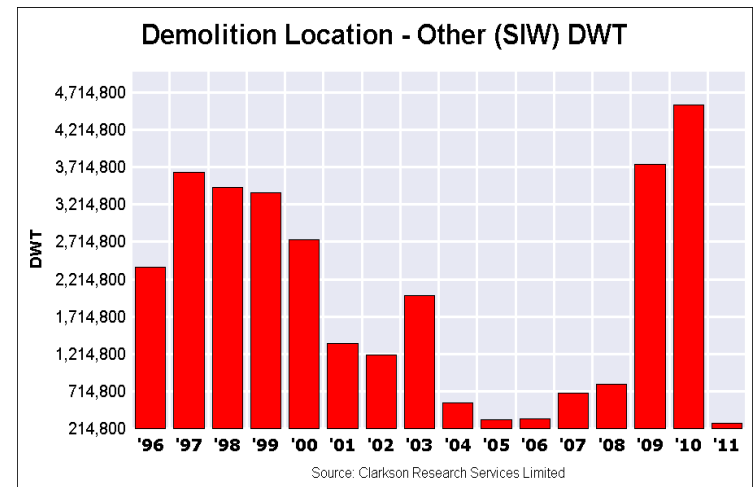
#### DISADVANTAGES:

- Can take smaller LDT

#### BEST MARKET FOR...

- Vessels located in the Medi and Americas and not economical for them to move to East of Suez.

- 2010 has seen a sizeable rise in volume of vessels recycled outside China & Subcontinent.
- Turkey is an automatic choice for Government vessels in the EU region that by law require recycling only in the OECD region.





## 4. Innovative and practical ways for ship owners to implement green ship recycling .

- **Introducing the GMS - GL Green Ship Recycling Program.**
  - » Perhaps the world's most pioneering and sensible green recycling initiative by ;
    - **Global Marketing Systems (GMS)**  
**World's Largest Cash Buyer**
    - **Germanischer Lloyd (GL)**  
**World's leading IACS classification society.**







## 4. Innovative and practical ways for ship owners to implement green ship recycling .

### The GMS - GL Green Ship Recycling Program.

- Seamless implementation of Safe and Environmentally Sound ship recycling guidelines developed by the IMO's Hong Kong Convention.
- Designed to address the needs of the most demanding Corporate Social Responsibility (CSR) programs of the leading ship owners of the world
- Mitigate risk of potential legal action against owners.
- Offers the BEST combination of cost effective practical solutions without sacrificing superior quality.
- In compliance with the guidelines established not only by the IMO's Hong Kong Convention, but also by other leading shipping organizations (Intertanko, ICS, Intercargo, BIMCO, OCIMF, IACS etc):





## 4. Innovative and practical ways for ship owners to implement green ship recycling .

### The GMS - GL Green Ship Recycling Program.

Typically stages once a vessel is bought for Green recycling on an 'as is where is' basis or "delivered" basis:

1. **GL will supervise the preparation of the Inventory of Hazardous Materials (IHM) and certify it.**
2. **GL will vet the ship recycling yard to ensure compliance with international quality standards and issue conclusive report.**
3. **GL will approve the Green Ship Recycling Plan for the vessel.**
4. **GL will supervise and audit the ship recycling process.**
5. **GL will review and approve the final report on the ship recycling process.**
6. **GMS will manage the complete project and do all of the reporting under the auspices of GL.**





## 4. Innovative and practical ways for ship owners to implement green ship recycling .

### The GMS - GL Green Ship Recycling Program.

In summary owners will get;

A Ship Recycling Certificate stamped and endorsed by GL ;

*'STATEMENT' to owners certifying that*

*the vessel xxxxxxxx*

*was recycled on xxxxxx*

*at xxxxxxxx*

*in accordance with IMO (Hong Kong Convention) guidelines  
for Safe and Environmentally Sound Recycling of Ships .*





# 5. Outlook

Green Ship recycling is set to grow.

A burgeoning fleet orderbook.

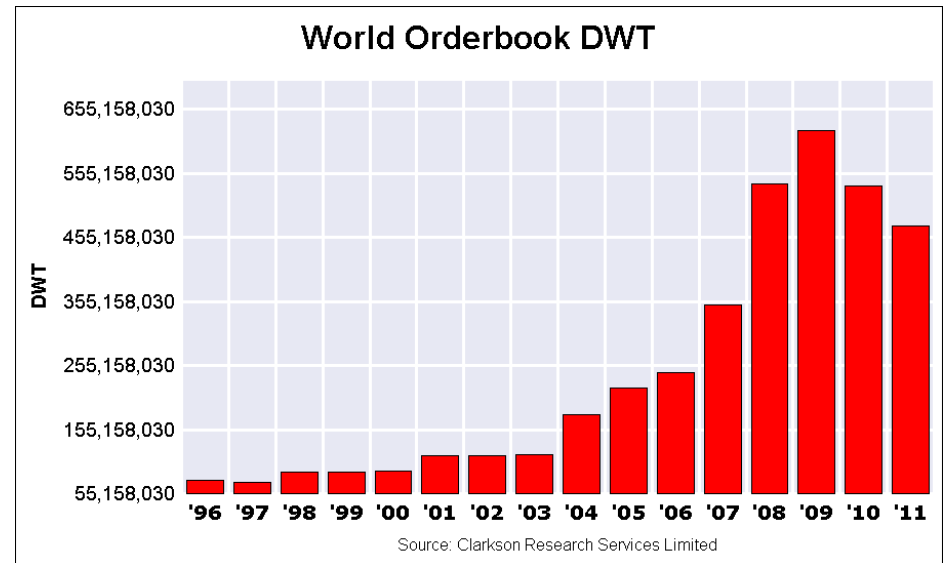
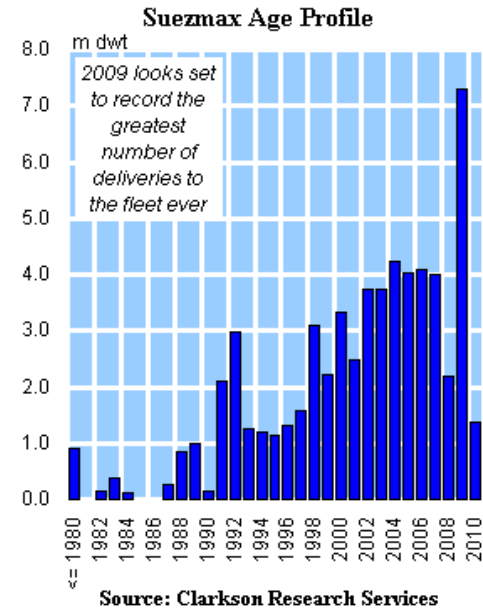
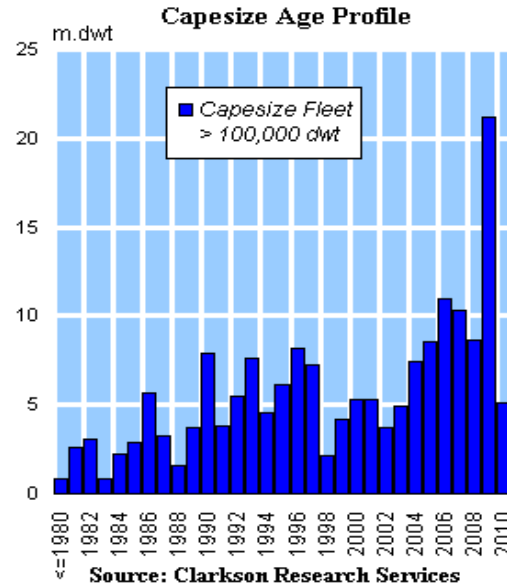
Yards becoming more and more aware of Green Issues.

Ship recycling is an important ingredient of the economies of the Indian sub-continent countries.

Challenges ahead.

	1986		1991		1995	
	GT	%	GT	%	GT	%
Taiwan	7773	38%	48	2%	0	0%
China	4567	23%	172	7%	754	9%
S.Korea	2658	13%	8	0%	3	0%
Pakistan	861	4%	445	19%	1670	20%
Japan	770	4%	81	3%	146	2%
India	636	3%	695	29%	2809	33%
Spain	581	3%	13	1%	40	0%
Turkey	418	2%	77	3%	207	2%
Italy	311	2%	8	0%	1	0%
Bangladesh	268	1%	512	22%	2539	30%
Others	1444	7%	306	13%	354	4%
<b>Total</b>	<b>20287</b>	<b>100%</b>	<b>2365</b>	<b>100%</b>	<b>8523</b>	<b>100%</b>

Source: Lloyd's Register of Shipping





# Closing Thought

## A healthy, vibrant Green ship recycling industry

– Is good for the environment

- Steel from ship vs Iron Ore
- Old ships at sea... accidents
- Outlet for safe disposal of old/unsafe environmentally unfriendly vessels

## Is good for the shipping industry

– Improves Residual values and provides incentives to upgrade to safer and greener vessels

## Is good for World & Local Economies

– Creates employment for about 300,000 people