



 PLATFORM
.....
SCHEEPSEMISSIES

Maritime Seminar

Shiprecycling and Sustainable Shipping

7 June 2012

**Chairman: Hans van Rooij
(Stichting De Noordzee)**

| | | |
|----------------------|--|---|
| 13.30 - 14.00 | Registration and Coffee | |
| 14.00 - 14.05 | Opening speech and introduction | Hans van Rooij, Stichting De Noordzee |
| 14.05 - 14.30 | Social and environmental impact and solutions | Ingvild Jenssen NGO Shipbreaking Platform |
| 14.30 - 14.55 | Sustainable shiprecycling | Martin Siecker, EC ship recycling Proposal |
| 14.55 - 15.20 | Certification for recycling | Robin Townsend, Lloyd's Register |
| 15.20 - 15.45 | Design for Recycling | Suzanne Vos, TNO |
| 15.45 – 16.00 | Coffee brake | |
| 16.00 – 16.25 | Economics of clean and safe shiprecycling | Tom Peter Blankestijn, Sea2cradle |
| 16.25 - 16.50 | Worldwide possibilities for green recycling | Arjen Uytendaal, ISRA |
| 16.50 – 17.30 | Forum discussion | Chairman |
| 17.30 | Networking opportunity | |

**The presentations can be found
on the website by next week**

www.scheepsemissies.nl

Reversing the toxic tide

GREEN AND SAFE SHIP DISMANTLING



Ingvild Jenssen
NGO Shipbreaking Platform
Maritime Seminar – Amersfoort 7 June 2012

OUTLINE

NGO Shipbreaking Platform
Current shipbreaking practices
Existing laws and loopholes
Advocacy work and litigation
Hong Kong Convention?

NGO Shipbreaking Platform

global coalition // environmental and human rights NGOs

- Awareness raising and fact finding
 - Advocacy work at national, European and international level
 - Legal action, incl. representation of workers
 - Develop standards for safe and environmentally sound ship recycling
 - Build coalitions with progressive industry and other stakeholders
-
- AIM: Protect human rights and the environment in developing countries



fidh
International Federation
for Human Rights

The North Sea
Foundation

TRANSPORT &
ENVIRONMENT



LIFE



Toxics Link
for a toxics-free world



BELLONA



GREENPEACE





NGO SHIPBREAKING PLATFORM

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LATEST NEWS



NGO SHIPBREAKING PLATFORM

2011 TOP EUROPEAN COMPANIES THAT DUMP THEIR VESSELS ON SOUTH ASIAN BEACHES

16 January 2012 | [European Policy](#), [Our News](#)

Media Alert – NGO releases 2011 list of top EU companies sending toxic ships to South Asia

NGO RELEASES LIST OF EU TOXIC SHIPS SENT TO SOUTH ASIA. IN 2011 The NGO Shipbreaking Platform calls on the EU Commission to act and prevent toxic waste trade of European end-of-life ships Brussels, 16 January 2012 – The NGO Shipbreaking Platform, a... [More](#)

| BO's country | Last known Beneficial owner | Name of ship | Last flag | Destination yard | Arrival date at yard (M/D/Y) | IMO |
|--------------|-----------------------------|----------------|-----------|------------------|------------------------------|---------|
| Belgium | Corn-Lines N.V | Panama Express | Belgium | Alang, India | 2/22/2011 | 9130241 |
| Bulgaria | Government of Bulgaria | Rila | Bulgaria | Dadari, Pakistan | 2/10/2011 | 7607596 |
| Bulgaria | Government of Bulgaria | Slovenka | Panama | Alang, India | 6/18/2011 | 7221216 |



CURRENT PRACTICE

80% of vessels are broken on the beaches of South Asia
severe pollution - extremely poor working conditions - more than
75 fatal accidents since 2009 - children under 15 years count for
20% of workforce - high risk of cancer - loss of local livelihood



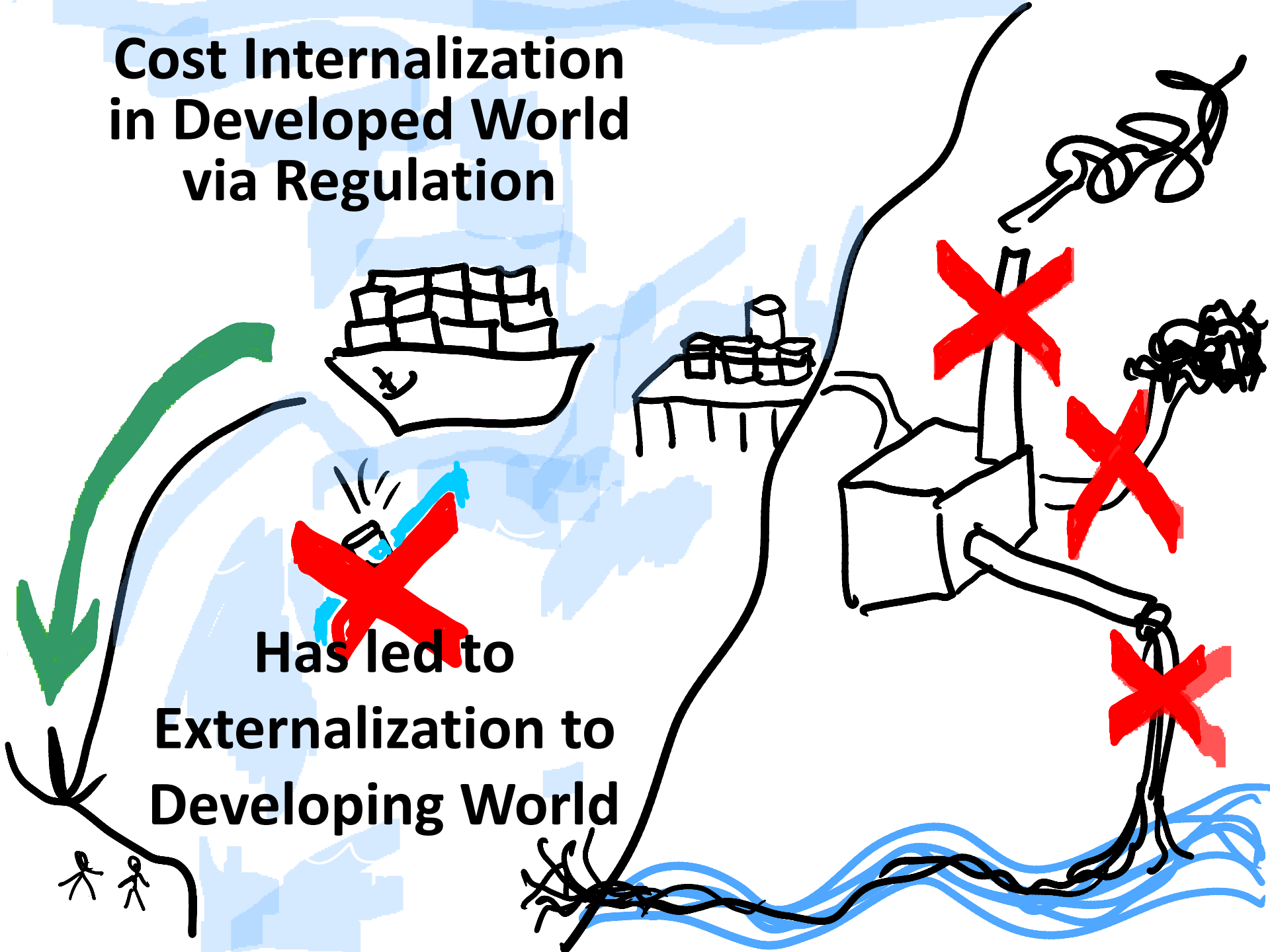
EXISTING LAWS & LOOPHOLES



History of Palliation



Cost Internalization in Developed World via Regulation



Has led to
Externalization to
Developing World

Basel Convention

- Adopted 1989, entered into force in 1992
- Controls transboundary movement of hazardous waste with a view to Protecting Developing Countries
- Applies to end-of-life ships (Decision VII/26)
- Calls for national self-sufficiency in waste management and a minimization of transboundary movement of wastes
- Requires prior informed consent for waste exports
- Requires Environmentally Sound Management

Basel Ban Amendment

- Adopted 1995
- Prohibits the export of all hazardous wastes - including end-of-life ships - from Annex VII countries to non-Annex VII countries for disposal or recycling
- Included at the European level in the European Waste Shipment Regulation

United States
Environmental Protection
Agency

Office of Enforcement and
Compliance Assurance

EPA 315-B-00-001
Summer 2000



A Guide for Ship Scrappers

Tips for Regulatory Compliance

Safety and health in shipbreaking Guidelines for Asian countries and Turkey



Guidelines for the Environmentally Sound Management of the Full and Partial Dismantling of Ships

Convention





TYPICAL SHIP



| | |
|----------------------|---------------|
| Name: | LORENA |
| Beneficial owner: | Norship AS |
| Commercial operator: | Norship AS |
| Registered owner: | Southship Ltd |
| Flag: | NORWAY / NIS |

BASEL LOOPHOLES

Parties required to implement the Basel Convention:

- (1) Exporting States
- (2) Importing States
- (3) Transit States









THE HUMAN COST OF BREAKING SHIPS

**One accident
every day**

**One death
every week**

ADVOCACY & LITIGATION



Root Principles

- Decent work
- Environmental Justice
- Polluter Pays & Producer Responsibility
- Clean Ship Building

The Four Fatal Flaws of the Beaching Method



13. The impossibility of containing pollutants on a vital beach where bulk sections of ships are often breached accidentally or by objects, sending persistent organic pollutants, heavy metals and oils onto the beach environment

14. The impossibility of rapidly bringing an emergency response equipment, including fire fighting equipment and vehicles, ambulances and cranes to remove persons hurt inside the hull and alongside the vessel in a shifting and soft tidal surface



OFF THE BEACH!



Litigation

Bangladesh - MT Enterprise case

Filed by Platform member BELA in 2008: successfully halted ship

March 2009 Court orders closure of all yards that do not have required environmental clearance and that rules in line with the Courts directions and Basel Convention be published

December 2010 Court bans import of toxic vessels

March 2011 BSBA successfully files dispensation from December order

October 2011 Government Draft rules on shipbreaking published

January 2012 Court demands that the Draft rules be revised

Policy development

Corporate level

Build coalitions with progressive ship owners and ship recyclers

European level

Gain support from European Parliament, track European ships, push for improved implementation of the European Waste Shipment Regulation, react to legislative proposal from European Commission published in March 2012

International level

Contribute to negotiations at Basel Convention meetings, at IMO meetings, push for rapid entry into force of Ban Amendment

HONG KONG CONVENTION ?



- More than 100 NGO supported the NGO Shipbreaking Platform in condemning the Hong Kong Convention for legalising the dumping of toxic ships on the beaches of developing countries
- The majority of Basel Parties, the UN Special Rapporteur on Toxics and Human Rights and the Centre for International Environmental Law (CIEL) do not find that the Hong Kong Convention provides a level of protection equivalent to that of the Basel Convention
- The European Parliament has called for measures at the European level that « go beyond the weak remedies of the IMO »



SHAME: I.M.O. Dumps TOXIC SHIPS on Beaches
NGO Platform on Shipbreaking

HONG KONG CONVENTION

Principles Ignored

Polluter Pays/Producer Responsibility Principle

Substitution Principle/Prevention Principle

Self-Sufficiency Principle

Environmental Justice Principle

Principle of Common but Differentiated Responsibilities

Principle 14 Rio Declaration against transferring harm

Principle 16 Rio Declaration against externalizing costs

HONG KONG CONVENTION

Obligations Missing

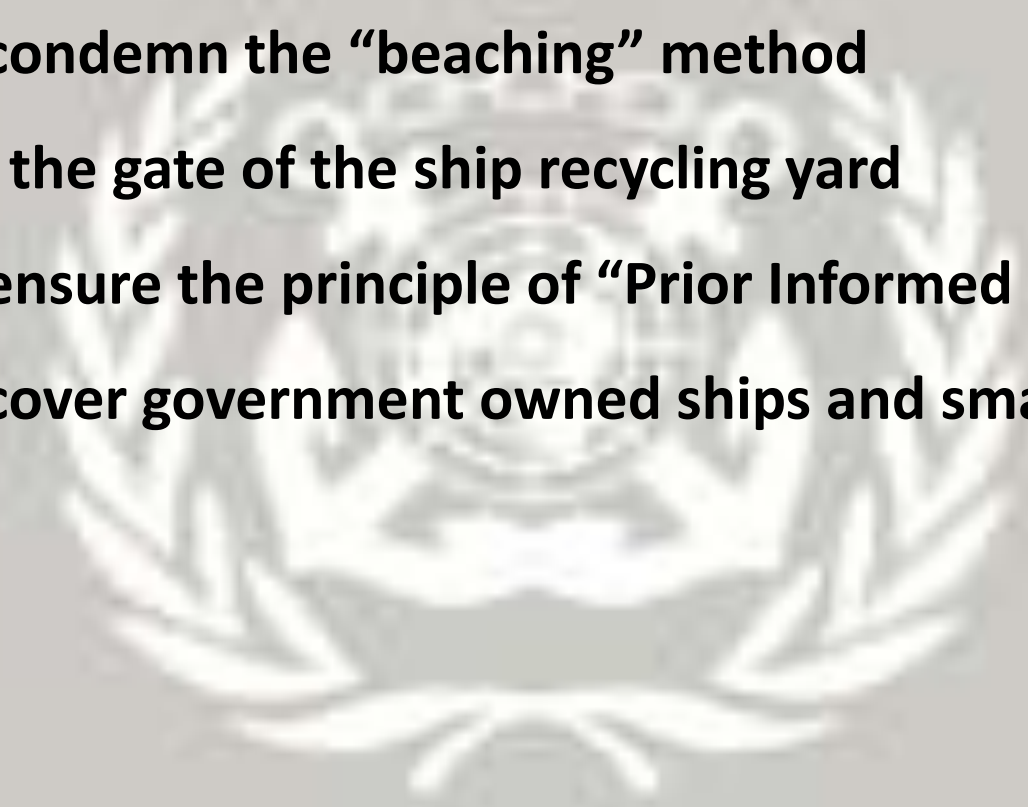
Fails to minimise exports of hazardous waste

Fails to condemn the “beaching” method

Stops at the gate of the ship recycling yard

Fails to ensure the principle of “Prior Informed Consent”

Fails to cover government owned ships and smaller ships

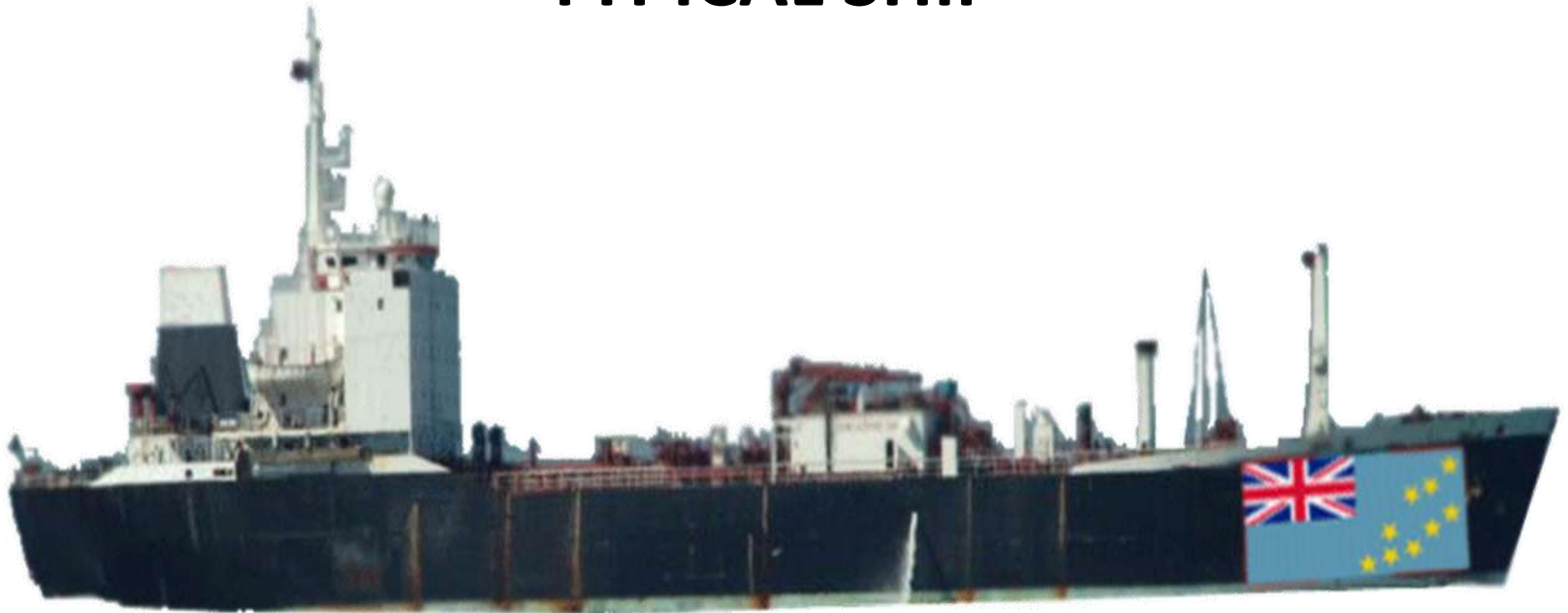


HONG KONG LOOPHOLES

Parties required to implement the IMO convention:

- (1) Flag States
- (2) Port States
- (3) Recycling States

TYPICAL SHIP



| | |
|----------------------|---------------|
| Name: | NORA |
| Beneficial owner: | Norship AS |
| Commercial operator: | Norship AS |
| Registered owner: | Southship Ltd |
| Flag: | TUVALU |



Call us at +65 6224 2345 or take a look at our contact details [here](#).

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▼ About Us

- ▶ Benefits
- ▶ Survey and Certification

▼ Online Services

- ▶ Ship Name Check
- ▶ Online Enquiry for Ship Registration
- ▶ Verification Of COE/GOC/DCE
- ▶ Verification of Registration

▼ Registration Procedures

- ▶ Normal Registration
- ▶ [Single Delivery Voyage Registration](#)
- ▶ BBC-In Registration
- ▶ BBC-Out Registration
- ▶ Mortgage Registration
- ▶ Change of Ownership
- ▶ COE/GOC/DCE

▶ Forms

- ▶ Tuvalu Maritime Legislation
- ▶ Marine Circulars
- ▶ Contact Us



Special Registration

Vessels may be registered for single delivery purposes such as:

- ◆ Delivery voyage
- ◆ Voyage for Scrapping
- ◆ Transfer to Dockyard

Procedure for registration is similar to Provisional Registration. Registration is valid up to a maximum of 3 months.

All Maritime Safety Regulations must be complied with during the period of the registration.

Click [here](#) to download Forms.



ST KITTS & NEVIS INTERNATIONAL SHIP REGISTRY



- [Home](#)
- [About St. Kitts & Nevis](#)
- [Ownership Requirements](#)
- [Procedure for Registration](#)
- [Certificate Validation](#)
- [Application Forms](#)
- [Mortgages](#)
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- [Authorised Organisation](#)
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- [EPIRB's](#)

Special Purpose Registration

Special Purpose Registration is available for delivery voyages/one-off voyages/scrap voyages. The period of registration is for 3 months only.

There is a simplified and speedier Registration procedure. Most such Registrations can be completed in one working day if all documents are correctly submitted at the one time.

A reduced rate of fees applies for such Registrations.

Application Forms which include a list of documents required can be downloaded from this website.

Please apply to the International Registrar of Shipping and Seamen or a Maritime Registrar or Service provider for full details and costs if you wish to register a ship under this procedure.

HOW TO REGISTER A SHIP

Register through a Maritime Registrar

Application for Registration of a vessel should be made to your nearest Maritime Registrar who will guide





**TURN BACK
THE TOXIC TIDE**

Help us get shipbreaking

OFF THE BEACH !

sign the petition

www.offthebeach.org

Certification for Recycling

The position of a classification society

Robin Townsend

Lead Specialist, Ship Recycling

External Affairs



Presentation overview

- Ship scrapping – current situation
 - The Convention
 - Responsibilities
- LR Background in Scrapping
- The Certification Requirements
 - Incl Inventories in more detail.



Current Situation

- Background and examples
- If other speakers have done this – it will go very fast!!
- Convention
- Responsibilities.

Beach scrapping techniques



Low cost

Primitive conditions

Little regard for health and safety of workers

Massive environmental pollution



Recent visits to beach facilities



Recent visits to beach facilities



Recent visits to beach facilities



The IMO Ship Recycling Convention

- Hong Kong Convention on the Safe and Environmentally Sound Recycling of Ships
- Signed by 67 countries at Diplomatic Conference in Hong Kong, May 2009
- No Ratification yet
- **EC position**



The Ship Recycling Convention

- Applies to ships over 500gt
- Port State Control inspection can be applied
- Party / non-party issue



The Ship Recycling Convention

- The Convention will enter into force 24 months after the date on which the following conditions are met:
 - 15 states have ratified it
 - The combined merchant fleets of the States constitutes 40% of the gross tonnage of the world's merchant shipping; and
 - The combined annual ship recycling capacity of the States constitutes 3% of their combined gross tonnage

Government Responsibilities

- Flag State responsible for
 - Green Passport / IHM
 - Initial Surveys
 - Certification
 - Final Survey
- National Authority responsible for
 - Authorisation
 - Ready for Recycling Plans
 - Reporting



Shipbuilder responsibilities

- Restrict hazardous materials as per Appendix 1 of the Convention
- Manage hazardous materials going onboard ship as per Appendix 2
- Coordinate subcontractor supply and information
- Produce Inventory of Hazardous Materials
- Repair yards should also co-ordinate subcontractor supply / information



Shipowner responsibilities

- Shipowner – person registered as owner of a ship, or company, or charterer
- Includes ‘those who have ownership of the ship for a limited period pending its sale or handing over to a Ship Recycling facility’
 - IHM / Green Passport
 - Notification of changes to the IHM
 - Preparation for recycling
 - Final Survey (completion of Inventory)
 - MUST use an authorised yard



Responsibilities of ship recycling facilities

- Must be authorised by National Authority
- Must produce Ship Recycling Plan (in consultation with owner)
- Must advise before starting dismantling
- Must report on completion



Lloyd's Register's Involvement

- A brief overview of Lloyd's Registers involvement in the subject from 1999 (1996) onwards.

LR in the development process

- First Global conference – 1999
- IACS representative for ship recycling to IMO 2003 to present
- Project Leader for ISO 30000 and 30004
- First 'Hong Kong Compliant' Ship Recycling – Turkey 2010
- World Leader in Inventories – by a huge margin – over 1000



First Green Passport - Granatina



The Foreseen Certification for Recycling

- A brief overview of all the classification services required
- An expansion on Inventories – since this is the subject Owner's are most interested in normally,
- But, happy to focus on any other area – please ask away.

Areas for Certification

- Inventory of Hazardous Materials
(Green Passport)
- ISO 30000 – standards for Recycling Facilities
- Approved Service Suppliers
- Approval of Ship Recycling Plan
- Final Survey
- Audit during Dismantling - Completion

GP / IHM newbuild process

- The requirement for an IHM should be included in the newbuild contract
- Shipowner and Shipyard meet to discuss prohibiting or minimizing hazardous materials
- Lloyd's Register on-site team and Shipyard agree procedures
 - Suitable inspection points are agreed
 - Similar to normal controls for outside supplier control
- Approval of the IHM is the responsibility of the on-site team

GP / IHM newbuild process – completing the Inventory

- The IHM should be prepared by the yard using the official PDF template
- The “Guide to the IHM” and pick-lists / hover help in the template is there to assist
- Lloyd’s Register cannot accept other versions of the IHM

| GREEN PASSPORT | | SECTION 1 MANDATORY | | Inventory Number: | | Page 3 of 10 | | |
|--|--------------|--|---|--------------------------------------|------------------------------|---|----------------|---|
| PART 1; POTENTIALLY HAZARDOUS MATERIALS IN THE SHIP'S STRUCTURE AND EQUIPMENT | | | | | | | | |
| Mandatory – materials listed in Appendix 1 of the Convention | | | | | | | | |
| 1A. Asbestos (Note: All asbestos containing materials (ACMs) or presumed asbestos containing materials (PACMs) should be listed here.) | | | | | | | | |
| Summary of asbestos status. (Supporting documents should be included in Appendix A.) <i>This summary is an alternative to completing the Part 1A table below.</i> | | | | | | | | |
| | Item* | Location* | Manufacturer trade name/designation | Relevant standard/certificate | Approximate Quantity* | Hazard Type | Remarks | Equipment/System |
| Add Item | | Accommodation Auxiliary spaces Boiler & steam systems Bridge Bulkheads | | | | ACM Actinolite Amosite Anthophyllite Blue | | |
| 1B. Ozone Depleting Substances (ODS) – CFCs, Halons etc | | | | | | | | |
| Supporting documents should be included in Appendix B. | | | | | | | | |
| | Item* | Location* | Manufacturer trade name/designation | Relevant standard/certificate | Approximate Quantity* | Hazard Type | Remarks | Equipment/System |
| Add Item | | Accommodation Cargo chilling equipment Cargo spaces Chillers Cold store insulation | | | | ODS / GWP GWP | | |
| 1C. Materials Containing PCBs (Polychlorinated Biphenyls) at levels of 50mg/kg or more. | | | | | | | | |
| Supporting documents should be included in Appendix C. | | | | | | | | |
| | Item* | Location* | Manufacturer trade name/designation | Relevant standard/certificate | Approximate Quantity* | Hazard Type | Remarks | Equipment/System |
| Add Item | | All lights Cargo spaces Deck lights Engine room Mercury vapour lamps | All dry type Marks inaccessible Not marked Painted over Removed | | | No PCB/PCT/PE Not known PCB/PC T/PBB Potential PCB/P | | Ballast water Cargo Control Electrical/Electronic Engine room |
| <small>*Must be completed for compliance with the requirements of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009, Regulation 5.2 for Existing Ships.</small> | | | | | | | | |
| <small>© Lloyd's Register 2009, LR Green Passport (2.0)</small> | | | | | | | | |

Statement of Compliance with new Convention

Certificate No.
Page 1 of 2

Lloyd's Register Green Passport Statement of Compliance
 Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009.

Issued in the pursuance of the above Convention, Regulation 5.2 for Existing Ships.

| Name of ship IMO number Flag, Law and Port of Registry Ship's name Length overall (metres) Depth, moulded (metres) Ship Code | Particulars of ship | Ship type Classification Society Date of build New building (Y/N) Length, moulded (metres) Lightweight (tonnes) ADMRs |
|--|---------------------|---|
| | | |

This is to certify that this document and the accompanying Inventory comply with the provisions in the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships for the requirements of an Inventory of Hazardous Materials onboard, as laid out in Regulation 5.2 of that Convention.

This Statement is valid until _____
 Date of completion of the survey on which this Statement of Compliance is based
 Issued at _____

This document is to be accompanied by the Inventory of Hazardous Materials Onboard, Certificate Number _____ which forms a part of it.

 Director Lloyd's Register EMEA
 A member of the Lloyd's Register Group

Lloyd's Register, its affiliates and subsidiaries, and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the "Lloyd's Register Group". The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by or arising from the information or advice in this document or any associated system, that arises from or is caused by the incorrect, false or otherwise defective information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in RSG 12000001.

Form LR8112300-00

Lloyd's Register Green Passport Inventory of Hazardous Materials Onboard EXECUTIVE SUMMARY

Ship Name:
 Inventory Number: Page 1 of 10

MANDATORY:

| | |
|---|----------------------|
| Asbestos | <input type="text"/> |
| ODS – CFCs, Halons etc. | <input type="text"/> |
| Materials containing PCBs | <input type="text"/> |
| Paint on vessel's structure (TBT, TPT etc.) | <input type="text"/> |

ADDITIONAL:

| | |
|--|----------------------|
| Plastic and rubber materials | <input type="text"/> |
| Chemicals in ship's equipment | <input type="text"/> |
| Electrical and electronic equipment | <input type="text"/> |
| Constructional materials | <input type="text"/> |
| Cadmium and compounds | <input type="text"/> |
| Hexavalent chromium and compounds | <input type="text"/> |
| Lead and compounds | <input type="text"/> |
| Mercury and compounds | <input type="text"/> |
| PBBs | <input type="text"/> |
| PBDEs | <input type="text"/> |
| Polychlorinated Biphenyls (more than 3 chlorine atoms) | <input type="text"/> |
| Radioactive substances | <input type="text"/> |
| Shortchain chlorinated paraffins | <input type="text"/> |
| Other substances | <input type="text"/> |
| Tanks | <input type="text"/> |

© Lloyd's Register 2009, LR Green Passport (2.0)

GP / IHM existing ships – current process

- Once a contract is in place, the Shipowner is provided with:
 - Inventory template
 - Guide to the Inventory of Hazardous Materials
 - Named contact within a local GP Approval Office
 - Training (if required)



GP / IHM existing ships – current process

- The ship operator prepares the IHM:
 - usually a nominated member of crew
- IHM is submitted to a specified GP Approval Office:
 - Approval Team reviews the IHM
 - checks for all expected hazards for ship of similar age / type
 - amendments are made as necessary
- Once office based review is complete:
 - GP Approval Office arranges for onboard verification survey
- Issue 'Green Passport Statement of Compliance'

GP / IHM existing ships – sampling plans

- The Convention states:
 “...for existing ships, a plan shall be prepared describing the visual / sampling check by which the IHM is developed, taking into account the guidelines developed by the Organisation.”
- Lloyd's Register has developed a visual / sampling check plan, based on the Guidelines MEPC 197(62)

Page 2 of 8

Visual / sampling check plan

Table C – Sampling Methods

| Appendix 1 materials | | | | |
|---|--------------------------|--------------------|--------------|---------------|
| Hazard type | Lab analysis method used | Name of laboratory | Contact name | Sampling date |
| Asbestos | | | | |
| Chlorine depleting substances | | | | |
| Polychlorinated Biphenyls (PCBs) | | | | |
| Organotin compounds | | | | |
| Appendix 2 materials | | | | |
| Hazard type | Lab analysis method used | Name of laboratory | Contact name | Sampling date |
| Cadmium and Cadmium compounds | | | | |
| Hexavalent chromium and hexavalent chromium compounds | | | | |
| Lead and lead compounds | | | | |
| Mercury and mercury compounds | | | | |
| Polychlorinated biphenyls (PCBs) | | | | |
| Polychlorinated diphenyl ethers (PCDEs) | | | | |
| Polychlorinated Naphthalenes (more than 2 chlorine atoms) | | | | |
| Radioactive substances | | | | |
| Short-chain chlorinated paraffins (bitarans, C10-C13, chloro) | | | | |

Lloyd's Register EMEA, Southampton, WPC 192004/1

GP / IHM existing ships – sampling plans

- Shipowners are encouraged to employ third party subcontractors to develop sampling plans
- Procedures to help identify subcontractors can be found in the Guide to the IHM
- Lloyd's Register is developing a list of Approved Service Suppliers
- Authorised yards should be capable of checking the principle hazards



GP / IHM existing ships – maintaining the IHM

- Statement of Compliance is valid for no more than 5 years
- Inventory reviewed every year during the annual Class Survey
- Renewal survey in the 5th year (or sooner)



Lloyd's Register: EMEA
ISO 30000



Approved Service Suppliers



Approval of Ship Recycling Plan



Audit During Ship Dismantling

- Strategic Partnership with Sea2Cradle,
- Sea2Cradle produce;
 - Inventory
 - Ship Recycling Plan
 - (Final Survey Held)
- Yard pre assessment (ISO 30000?)
- Ship Dismantling
 - Sea2cradle manage – LR verify
- Final Certificate

Challenges for shipowners

- In summary, shipowners will need:
 - An Inventory of Hazardous Materials from newbuild, or based on a
 - Documentation / Visual / Sampling Plan
 - The IHM must be maintained throughout the life of the ship
 - A Ship Recycling Plan, developed in partnership with
 - An Authorised Facility (ISO 30000? HKC?)
 - Permission from the Flag State to conduct a
 - Final Survey, in order to issue an
 - International Ready for Recycling Certificate

Lloyd's Register: EMEA

For more information, please contact:

Robin Townsend
External Affairs

Lloyd's Register EMEA
71 Fenchurch Street
London, EC3M 4BS

T +44 (0)20 7423 1415
E robin.townsend@lr.org
W www.lr.org/marine



Services are provided by members of the Lloyd's Register Group.
For further information visit www.lr.org/entities





Design for Recycling

Complete Life Cycle Assessment in the Shipping Sector

Suzanne de Vos





Design for recycling: using Life Cycle Assessment to optimise environmental performance

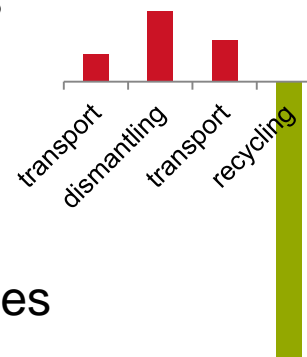
- › Environmental effects of dismantling & recycling
- › Design for recycling: lessons from other industries
- › Environmental life cycle assessment to support design
 - › Example: comparing Hull materials
- › Optimising environmental performance





Dismantling and recycling Environmental effects

- › Transport to dismantling facilities
- › Dismantling: separation of materials
 - › Removal of hazardous components
 - › Cutting
 - › ...
- › End-of life treatment of material-flows
 - › Transport to treatment-locations
 - › Recycling of metal
 - ›
 - › Landfill/ Incineration ...
- › Result depends on (design) choices





Design for recycling: Lessons from other industries



- › Initiative starts to develop in shipping industry
- › Lessons from other industries
 - › Easy dismantling (saves production costs as well)
 - › Decrease number of materials
 - Labelling for separation
 - › Recyclable materials
 - Metals versus GRP
 - Value: High End recycling
- › Optimise environmental performance
 - Life Cycle Assessment





Optimise environmental performance: LCA Methodology to calculate environmental impact

Approach
used by
large
industries

- ✓ Life Cycle Assessment: Eco-indicator calculation
 - ✓ **Environmental impact** of products and services
 - ✓ Over the **life cycle** expressed in **one number** to support design

Climate change

Ozone layer

Land-use

Ecotoxicity

Carcinogen. S.

Acidification

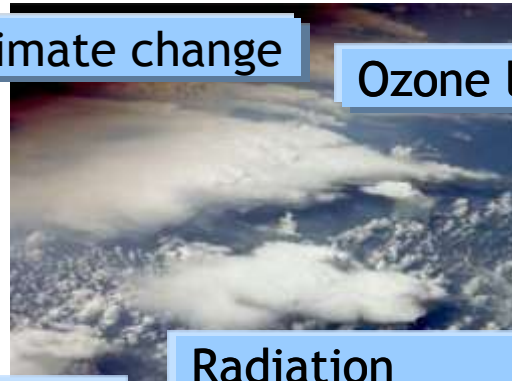
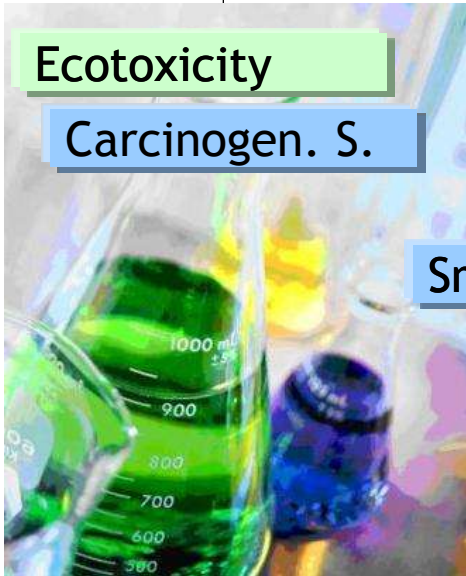
Radiation

Smog

Eutrophication

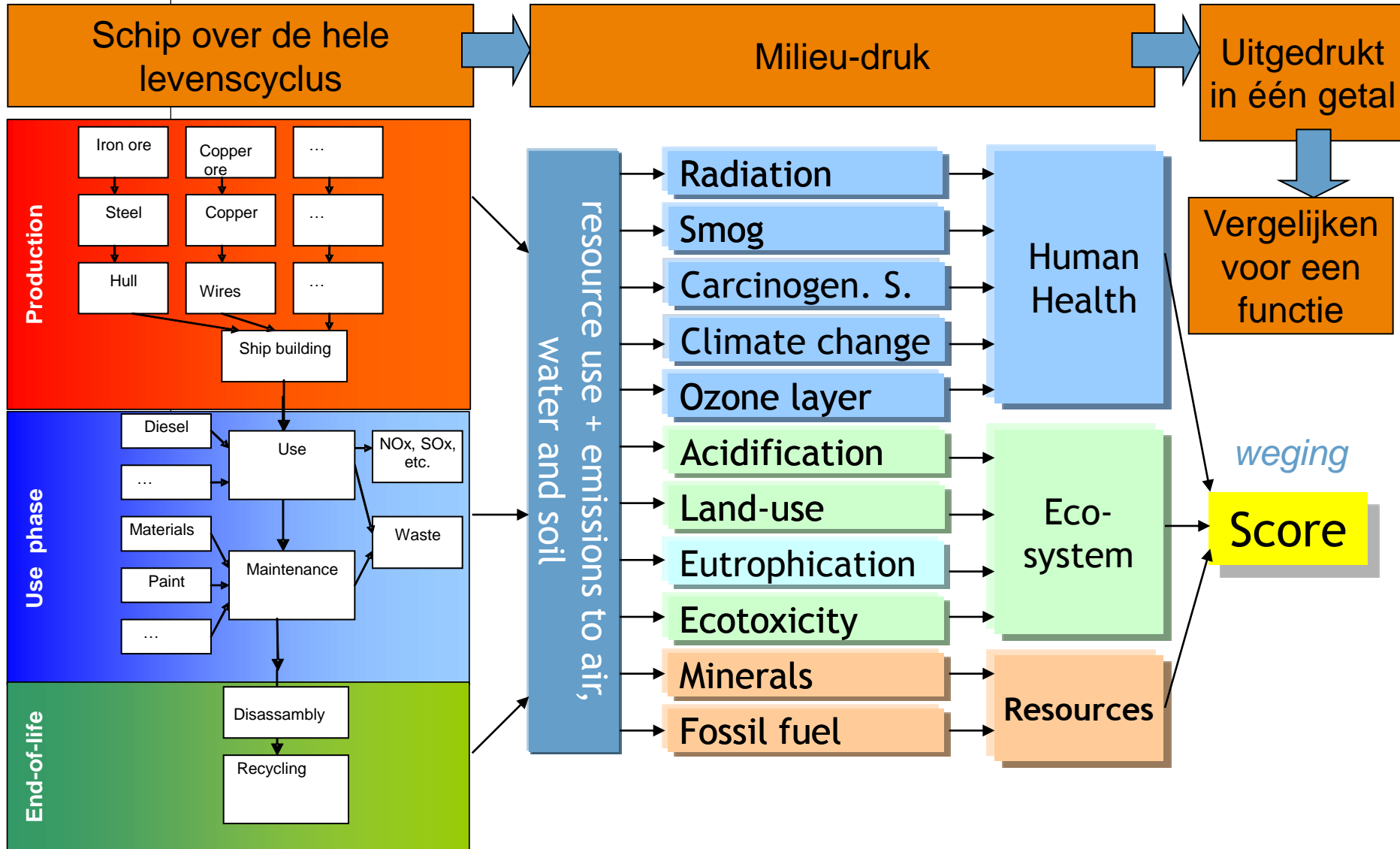
Fossil fuel

Minerals



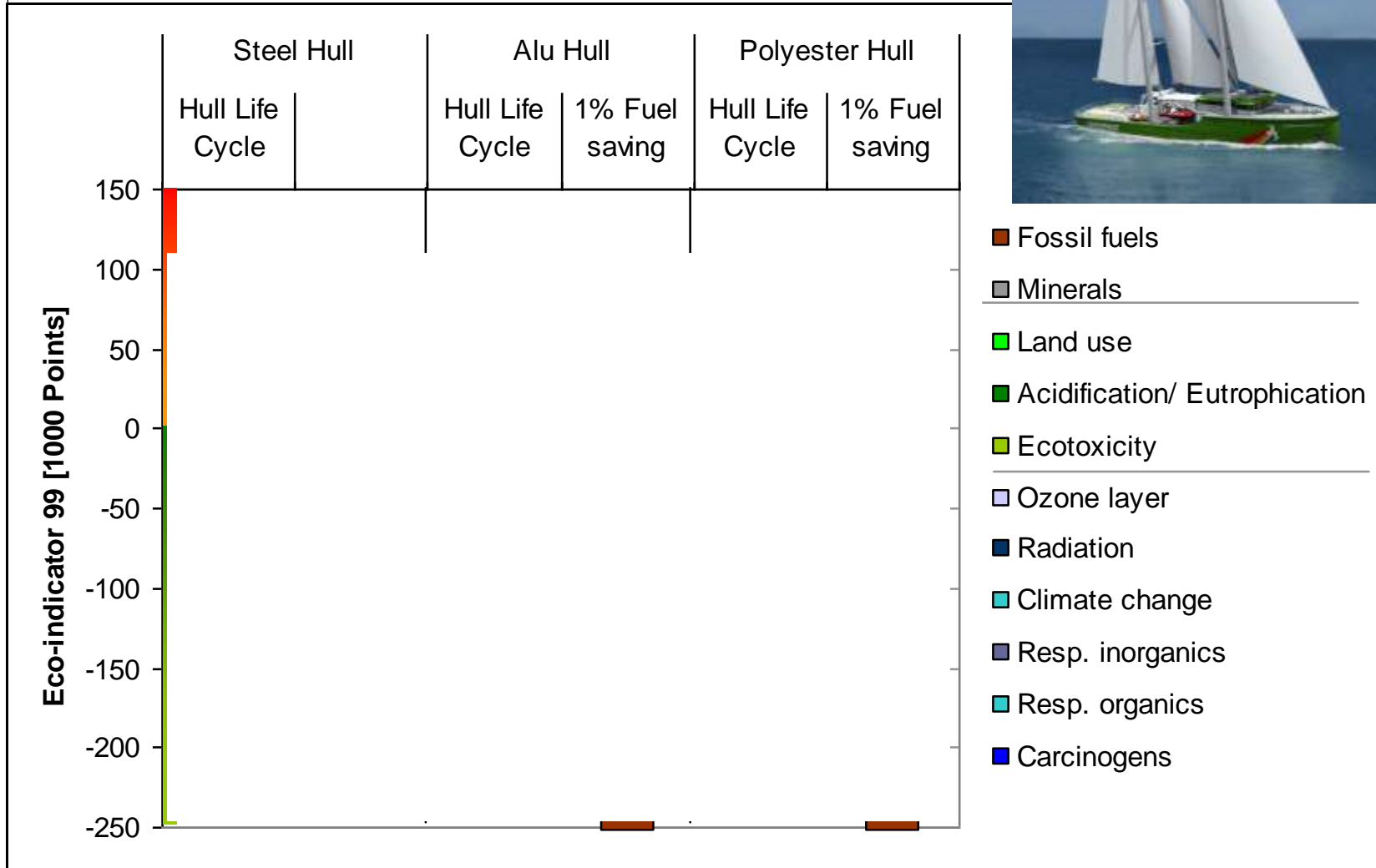


Calculating environmental impact





Example: Comparing Hull Materials on Environmental Impact



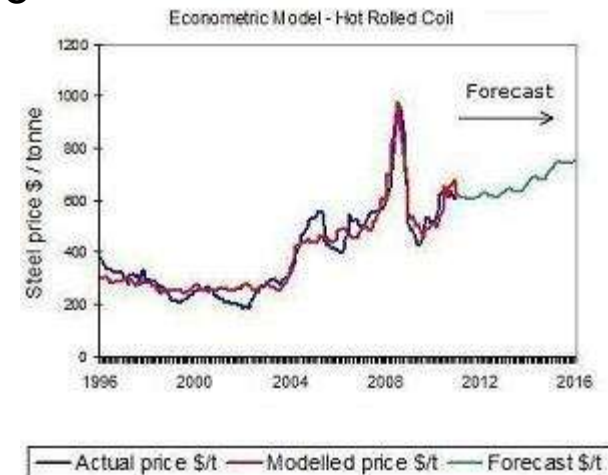
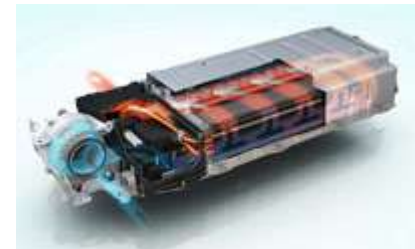


Optimising ship design for decreased environmental impact

- › (Use phase dominant for many environmental effects)
 - › New propulsion techniques
 - › Light materials to decrease fuel consumption
 - ›

- › Promote recycling in favour of other end-of-life techniques (sinking) by:
 - 1.Design
 - › Easy dismantling / low risk
 - 2.Material Recyclability (GRP versus metals)
 - 3.Value of materials
 - › potential for High-end recycling

- › Support ship design with TCO/ environmental LCA





Thank you for your attention!

- › TNO Contacts for sustainable Shipping:
 - › Dan Veen: dan.veen@tno.nl
 - › Peter Coenen: peter.coenen@tno.nl
 - › Suzanne de Vos: suzanne.devos@tno.nl



How to put the requirements of the
HK Convention into action
and
can it be done economically?

Tom Peter Blankestijn



Topics in this presentation

1. Requirements for Ship Owners basis HKC
2. Actions by EU and The Netherlands
3. Factors that influence the buying price
4. Is it complicated to implement today?
5. When to get ready?
6. An example of real recycling (LNG carrier)





What does the HK Convention and New proposed EU regulation require from ship owners

- Create an inventory of Hazardous Materials
 - For new build vessels
 - For existing vessels
 - For vessels going for recycling
- Select a recycling yard that matches the criteria HKC / EU
- Make sure that (jointly with the yard) the Ship Recycling Plan matches the IHM and the capabilities of the yard (part of contract)
- Request and obtain the International ready for Recycling Certificate
- Request and obtain a legally binding certificate of full demolition according to the Ship Recycling Plan (neutral? Or between parties?)



The EU will aim to implement similar as the HKC but in some cases more strict and earlier as IMO entry into force

1. Ships do not have to comply with the European waste regulation.
2. A new set of rules will apply to ships in line with the Hong Kong Convention. So allow shipments to non-OECD countries.
3. Only approved yards which are placed on a special list will be allowed to recycle European flagged ships.
4. Yards can be placed on this list on a voluntarily basis (read not via the recycling state governments)
5. These yards need 3rd party auditing approved by the European commission



The EU will aim to implement similar as the HKC but in some cases more strict and earlier as IMO ratification

6. Annex 1 and 2 of the Hong Kong convention (these are the lists of hazardous materials) will be combined in 1 list.
7. All European flagged ships need the IHM within 5 years of agreement of the EU new law for ships.
8. All steps of the Hong Kong convention need to be followed for approval and proof of recycling.
9. Also stricter waste disposal requirements will have to be followed (voluntarily)
10. If a ship owner is selling it ship for further trading, but the next owner sells the vessel for recycling within 6 month to a yard which is not on the European approved list, the previous owner will still be hold responsible for not following the EU law



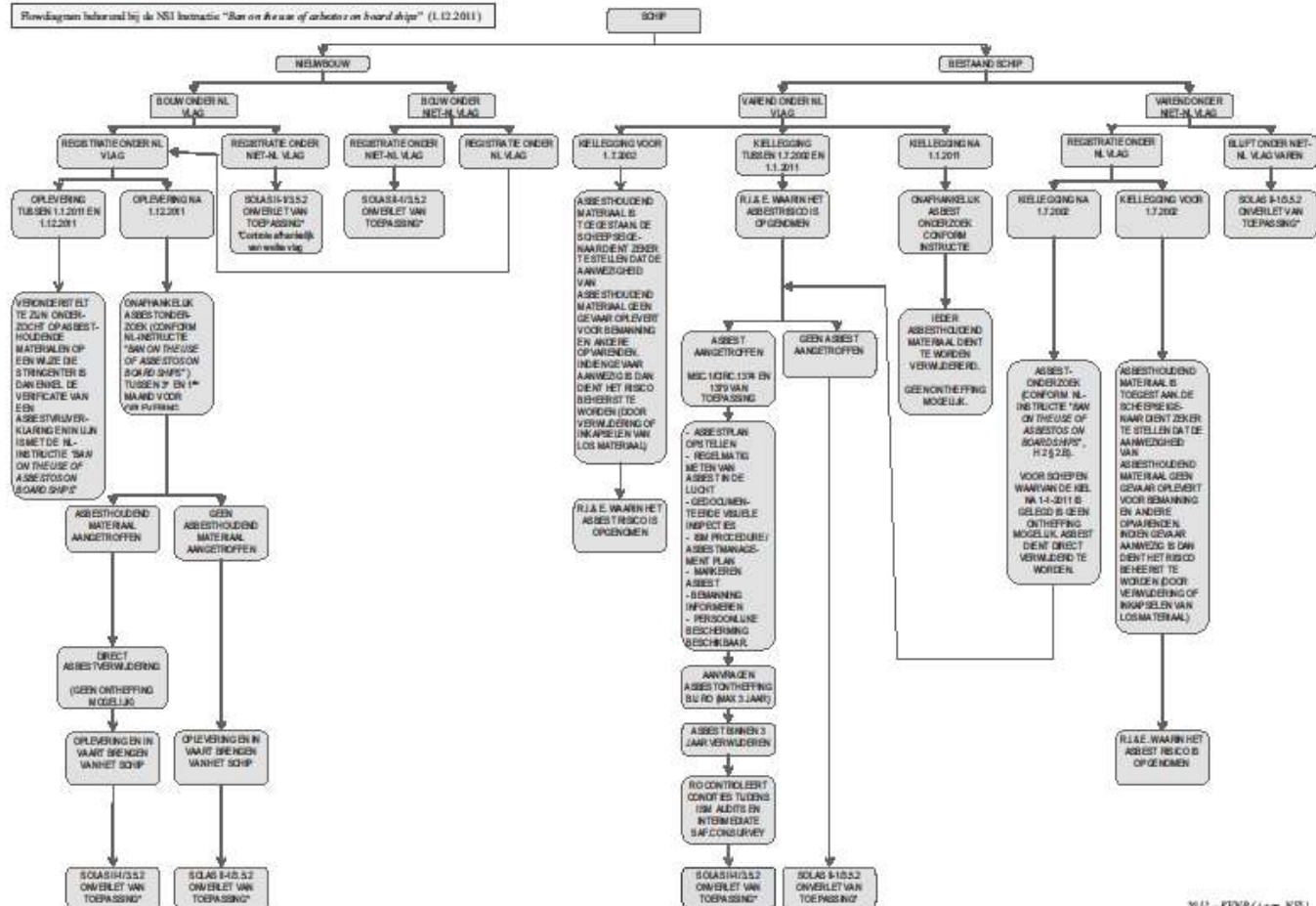
The Netherlands have announced to strictly maintain the existing Asbestos Regulations

According to the SOLAS Convention, the use of materials containing asbestos is allowed on vessels built prior to 1 July 2002, provided they do not constitute a health risk to their crews.

From 1 July 2002 onwards, the installation of materials containing asbestos on both new and existing vessels has been prohibited by the SOLAS Convention, barring a few exceptions to this rule. Since 1 January 2011, new installations using materials containing asbestos has been banned from all ships without any exceptions at all.

On 1 December 2011, the instruction “Ban on the use of asbestos on board ships” was implemented by the Human Environment and Transport Inspectorate (ILT),

For reference check this at home!





Factors that influence the buying Price (1)

- India subcontinent (paying most and often re-negotiate)
 - Beaching allowed
 - No requirement for infrastructure
 - Cold re-rolling of steel allowed
 - High demand for (second hand) steel
- China (Close to prices India subcontinent)
 - Along quay. Beaching prohibited
 - Re-rolling of steel prohibited. All needs to be melted
 - National laws for environmental protection on infrastructure and enforced
 - High domestic demand for second hand steel



Factors that influence the buying Price (2)

- Turkey (pays the least of the 3 big areas)
 - Slipway with collection system in non tidal zone
 - Beaching prohibited
 - Environmental investment required
 - Sufficient domestic demand for second hand steel
- Belgium and The Netherlands
 - Slipway with collection system in non tidal zone
 - Beaching prohibited
 - Environmental investment required
 - Limited domestic demand for second hand steel



Is it complicated to implement? (1)

- Creation of IHM

Is possible for new build, existing and vessels destined for recycling. Need experienced and trained inspectors

Be aware you do not pay too much

Make sure it is in your new build contracts as from today

- Selecting a green recycling facility

Is possible, there is enough compliant capacity available already

- Creation of Ship Recycling Plans

Ship Recycling Plans have been created by various parties.

Know-how is available today

Is it complicated to implement? (2)

- Obtain certificates
 - Classes are (getting) ready to facilitate
- Getting the correct contracts in place
 - BIMCO has completed and published a new contract
- Getting the right price
 - Fair and commercial prices can be obtained





When to get ready (1)

- If all ship owners wait till the last moment to get into action to create the IHM, there will be a shortage of inspectors and classification staff to create and certify the IHMs on all vessels.

- Effect will be :
 - High prices (supply and demand)
 - Times stressed products (Quality staff will try to speed-up)
 - Poor quality inspectors (get in the market to make a quick income)
 - Risk of non-compliance



When to get ready (2)

- Our advice :
 - Start now
 - Make use of quality inspectors and operational planning and efficiency
 - Plan for the 5 years ahead and negotiate prices in contract now
 - Make sure these are budgeted (not have all cost in 1 year)
 - Operational procurement procedures for hazardous materials
 - Have IHMs in you new build contracts (3rd party control)
(also to comply with with Dutch and Australian asbestos enforcement)
 - Have policy in place for end of life vessels
 - Know which yards can take your vessels (select more than one for negotiating purpose)

When to get ready (3)

Result :

- Positive PR
- Reduced risk for health and safety for sea-staff
- Reduction in future claims (no pollution due to green recycling)
- Save cost medium and long term
- Full compliance for Asbestos
- Early compliance EU regulation



Proof of proper and early implementation

Recycling of the S.S. Bekalang

Completed on 6th September 2011

Recycled at the Changjiang Ship Breaking Yard, Jiangyin, China





Pre-arrival Surveys, conducted between Sodegaura and Lumut



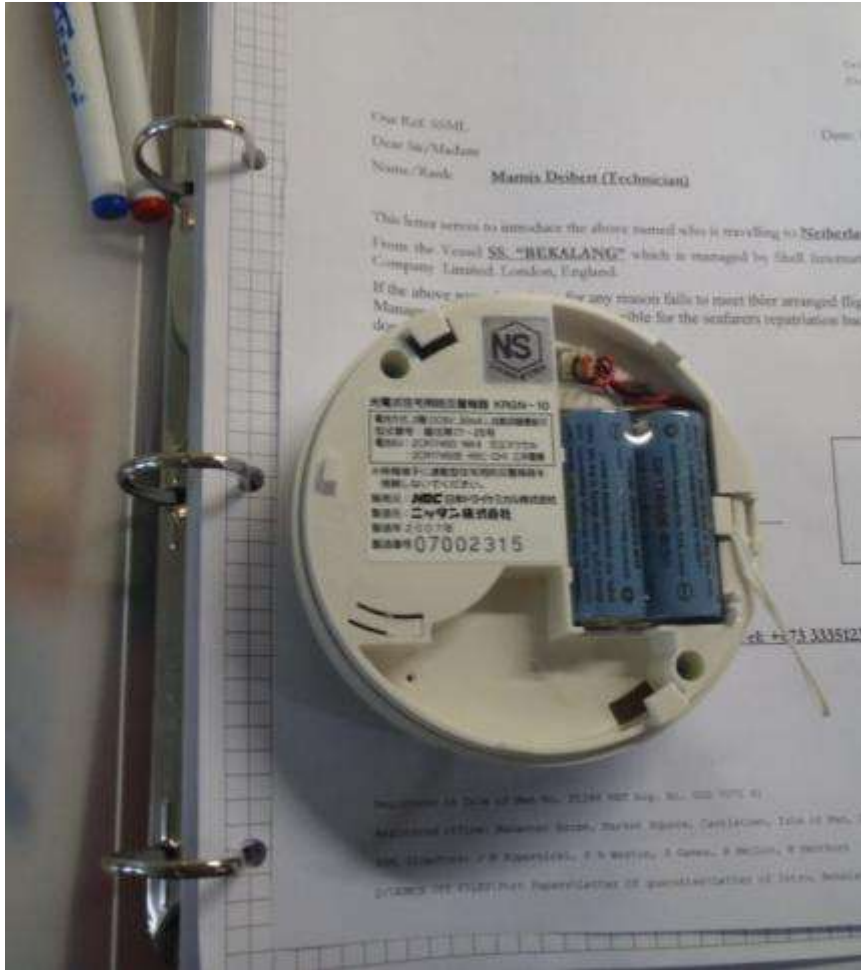
Asbestos Survey



Asbestos Survey



Radiation Survey



PCB Survey



Toxic Material Survey and Inventory



Toxic Material Survey and Inventory



Toxic Material Survey and Inventory



Tank marking before arrival



Waste Segregation





Arrival At The Yard

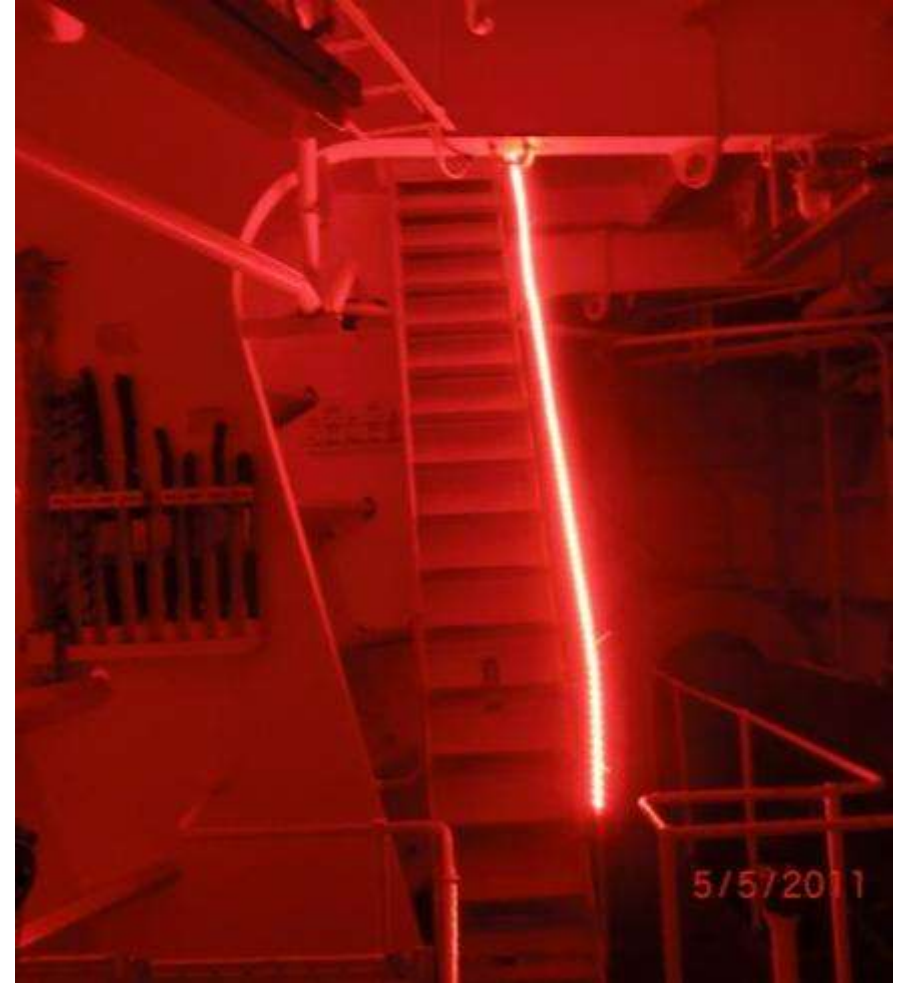




Stages of recycling after delivery

- Crew depart ship
- Thorough search of the ship by customs, clearance is issued to the yard
- Fumigation for 2 days
- Light and ventilation holes are cut for safe access and working space
- Removal of loose items and fittings
- Asbestos removal
- Pre-cleaning
- Steel cutting
- Site cleaning and clearance

Safe access & escape routes created



Light and ventilation holes cut





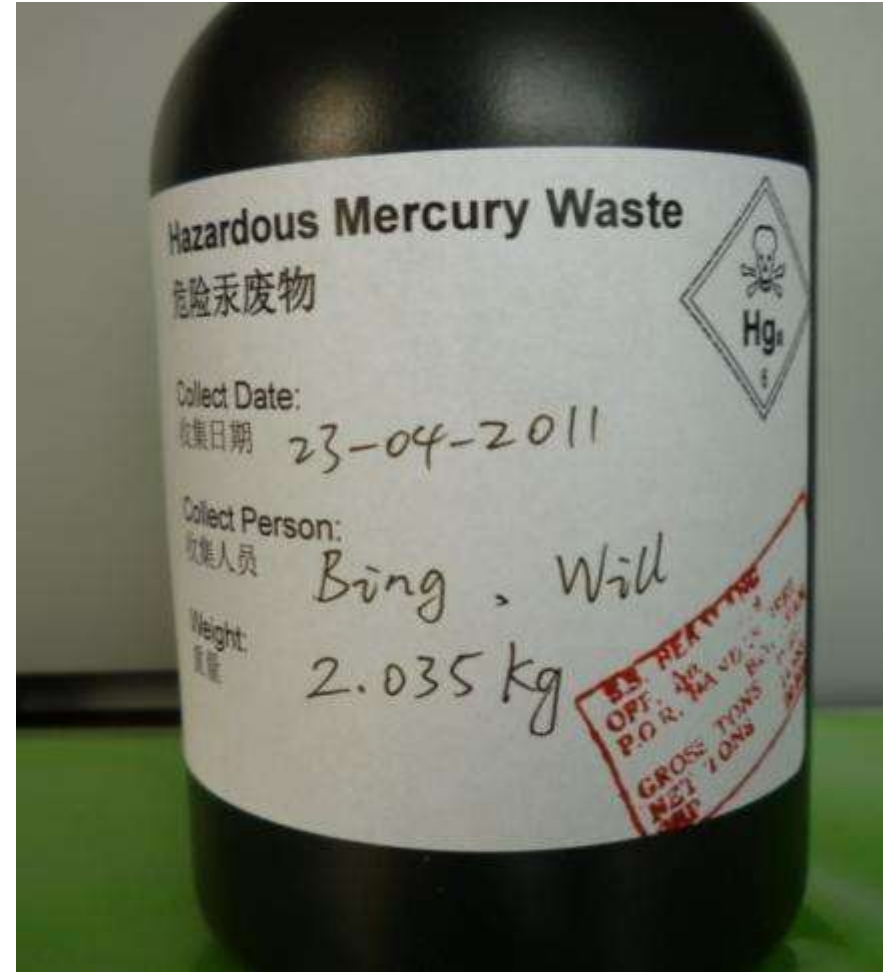
Incineration of food, perishables and medicines with the yard's incinerator



Asbestos marking



Mercury recovery



Loose items collected



Refrigerant recovery



PCB material recovered from wheelhouse windows



Insulation Removal



Cable cutting & removal



Asbestos paneling removal from accommodation



Asbestos removal & packing



Oil removal



Lifeboats landed & sold on with davits



Accommodation pre-cleaning complete and ready for cutting



Commence cutting accommodation



Accommodation blocks ashore



Cutting commences at the fore ship



Gas testing IS & IBS



Engine Room dismantling



Engine Room dismantling



Tank entry No 5 Cargo Tank



Initial cutting into cargo tanks & filling IS and IBS with water



Preparing top of no.1 cargo tank with channels



No 1 Cargo Tank top removal & liquid dome ashore



Removal of tank sides with insulation still attached



Insulation scraped off onshore with digger



No 5 Cargo Tank membrane removed



No 3 Cargo Tank insulation removed



Last part of DB put into floating dry dock for final deconstruction





Thank you for your attention

We are ready to assist you

Tom Peter Blankestijn

Managing Director

Blankestijn@sea2cradle.com

Mobile : +31 6 536 77 232

Office : +31 10 28 27 203

Scheepmakershaven 59

3011 VD Rotterdam

The Netherlands

www.sea2cradle.com

Wouter Rozenveld

Director Operations

Rozenveld@sea2cradle.com

Mobile : +31 6 512 58 386

Office : +31 10 28 27 691





Maritime Seminar
Ship recycling and Sustainable Shipping
7 June 2012





**Worldwide possibilities for
GREEN SHIP RECYCLING**

Arjen Uytendaal



Introduction

- ISRA – brief introduction
- What is green ship recycling
- Rules and Regulation
- Capacity

Note: all pictures in this presentation are made by ISRA members unless otherwise mentioned. No pictures have been taken from the Internet.

International Ship Recycling Association

The Association promotes:

- Environmentally sound and safe ship recycling
- Uniting the responsible yards of the globe
- Increasing green recycling capacity
- Establishment of alliances with ship owners
- Creating a global level playing field
- Certification of its members on ISRA standards

International Ship Recycling Association

We have members from

- China
- Turkey
- United States
- The Netherlands
- Mexico
- UK
- Germany
- Hong Kong
- Middle East
- Norway
- Open for members from ALL countries



m.a.r.c

Maritime Asbestos & Recycling Consultant



I.S.R.A. full branch organisation

Active in various roles **for and with** the members.

- Working Group Standards
 - Certification
- Working Group IMO
 - Critically follow development of the guidelines
 - Involve in Capacity discussion
- Working Group PR
- Statistics and Market trends
- We are NOT a commercial organization!

I.S.R.A Standards for A-members

- ISRA Certification
- **Legal Requirements**
 - Local, IMO, Basel and ILO guidelines
- **Physical requirements**

Sheltered environment, protected from currents and tides Adequate coverage of the yard, concrete imparable floors, using lifting equipment etc
- **Workers Health and Safety requirements**
 - Training, personal protective equipment, facilities
- Down stream hazardous waste management system,
- Emergency Responds system.

Summarizing Key figures

- 90% - 97% of a ship is really recycled!
- On average growing to about 1400 ships per year
- Increasing ship size
- About 7 million ton scrap steel per year from ships
- > 70 % demolition in Indian Subcontinent
- Adding China and Turkey > 97% of the market
- Fluctuating price levels with regional differences
- Worldwide only 16% done in an environmentally sound way.
- ISRA's Green yards still under utilized, also in China

But main question is: how is it done?

Blast kills 4 workers (18 Jan 2011, Bangladesh)

Scrap ship brought in ignoring HC directives; ship-breaker among 20 companies operating with govt's controversial conditional permission



A plume of smoke billows from a vessel at a ship-breaking yard of Sitakunda in Chittagong following an explosion that killed four workers yesterday. Photo: STARStar Report



Green ship recycling

- What is “Green” ? Who determines what is green?
 - IMO?
 - EC?
 - Local authorities?
 - ISRA?
 - NGO’s?
 - Workers?
 - Ship owners?
 - Shippers?
 - Class?
 - Media / Public opinion?
 - Insurance / banks?

INFRASTRUCTURE
+
MANAGEMENT SYSTEMS



Rules and Regulations

- Ship owners guidelines - ILO – Basel - IMO
 - IMO Hong Kong Convention 2009
in force 2020?
- European Commission
 - draft regulations com(2012) 118
- Local Rules
 - different per country, also in Europe!



I.M.O. Ship Recycling Convention

Chapter 3 regulation 15.1

- Each Party shall establish legislation, regulations, and standards that are necessary to ensure that Ship Recycling Facilities are **designed, constructed, and operated in a safe and environmentally sound manner** in accordance with the regulations of this Convention.

Today we fail to see how you can construct a beach to comply with this regulation.



Traditional Ship Scrapping January 2008

Designed



Traditional Ship Scrapping January 2008

Constructed



Traditional Ship Scrapping January 2008

Operated



Traditional Ship Scrapping April 208

Environmentally Sound Manner



EU COMMISSION PROPOSAL FOR A REGULATION

- For European flag ships it will be allowed to be recycled in facilities located in non (European) OECD countries.
- Provided that these facilities are recognized as “green” as as such approved and on the list.
- Who approves? In Europe the flag state administrator, outside europe to be appointed by EC.
- If owner complies to EC regulation, ship not subject to the Basel Convention and not classified as waste.



EU COMMISSION PROPOSAL FOR A REGULATION

- Impact for facilities;
 - ensure you come on the EC list!
 - Ship Recycling Plan (art 7)
 - Contract (art 9)
 - Reporting
 - planned start report
 - 14 days before start notification
 - completion report
 - comply to to EX requirements (art12)



Requirements for ship recycling facilities (art 12)

- Designed, constructed and operated in a safe and environmentally sound manner
- Establish management and monitoring systems, procedures and techniques .. Not pose health risk to workers ...population
- Ship recycling facility plan
- Emergency preparedness and response plan
- Worker safety and training
- Incident recording systems
- Sound management hazardous materials
- Authorised by competent authorities



Requirements for ship recycling facilities (art 12)

- Ensure access for emergency response equipment to all areas of the ship recycling facility (fire-fighting vehicles, ambulances, cranes)
- Ensure containment of all hazardous materials present on board; Prevent any release into the environment; (intertidal zones)
- Demonstrate the control of any leakage, in particular in intertidal zones.
- Handle hazardous materials and waste only on impermeable floors
- Ensure waste only to authorised waste management facilities
- Provide evidence for all above (art 13)



Authorization for ship recycling facilities

- Member state / non member state
- Outside the Union
 - Application form to the Commission
 - Supply all evidence
 - Accept possibility of being subject to a site inspection by the Commission or agents acting on its behalf
 - 5 year valid, provide new evidence



Green capacity

- Europe – America's
 - Good infrastructure, good management systems but limited capacity
- Turkey
 - Landing on concrete coast, varying quality of management systems, all over process controlled by shipbreaker association / authorities.
 - Capacity; about 900.000 LT not fully utilized



Green capacity

- Asia – China rest minimal
 - Quay operations, floating dock, slipway
 - varying quality of management systems
 - Fast growing capacity, ship building capacity converted into recycling.
 - 2009 2,83 millions LDT
 - 2012 4,10 millions LDT (just the ISRA members!)
- Not fully utilized at all!



Green capacity

- India Sub Continent
 - India Bangladesh Pakistan
 - Infrastructure beaching in tidal zone areas
 - Weak management systems (slowly improving in India)
 - No green capacity (YET!)

Our approach is technology neutral as long as facilities can provide evidence that the criteria are fulfilled. Of course, we do not expect the current substandard facilities to meet these criteria.

Soledad BLANCO

Director

Directorate for Sustainable Resource Management, Industry and Air
Environment Directorate General
European Commission















New I.S.R.A. members

Are you a responsible ship breaking yard?

JOIN ISRA AS A FULL MEMBER!

Are you a responsible ship owner?

JOIN ISRA AS AN ASSOCIATED MEMBER!

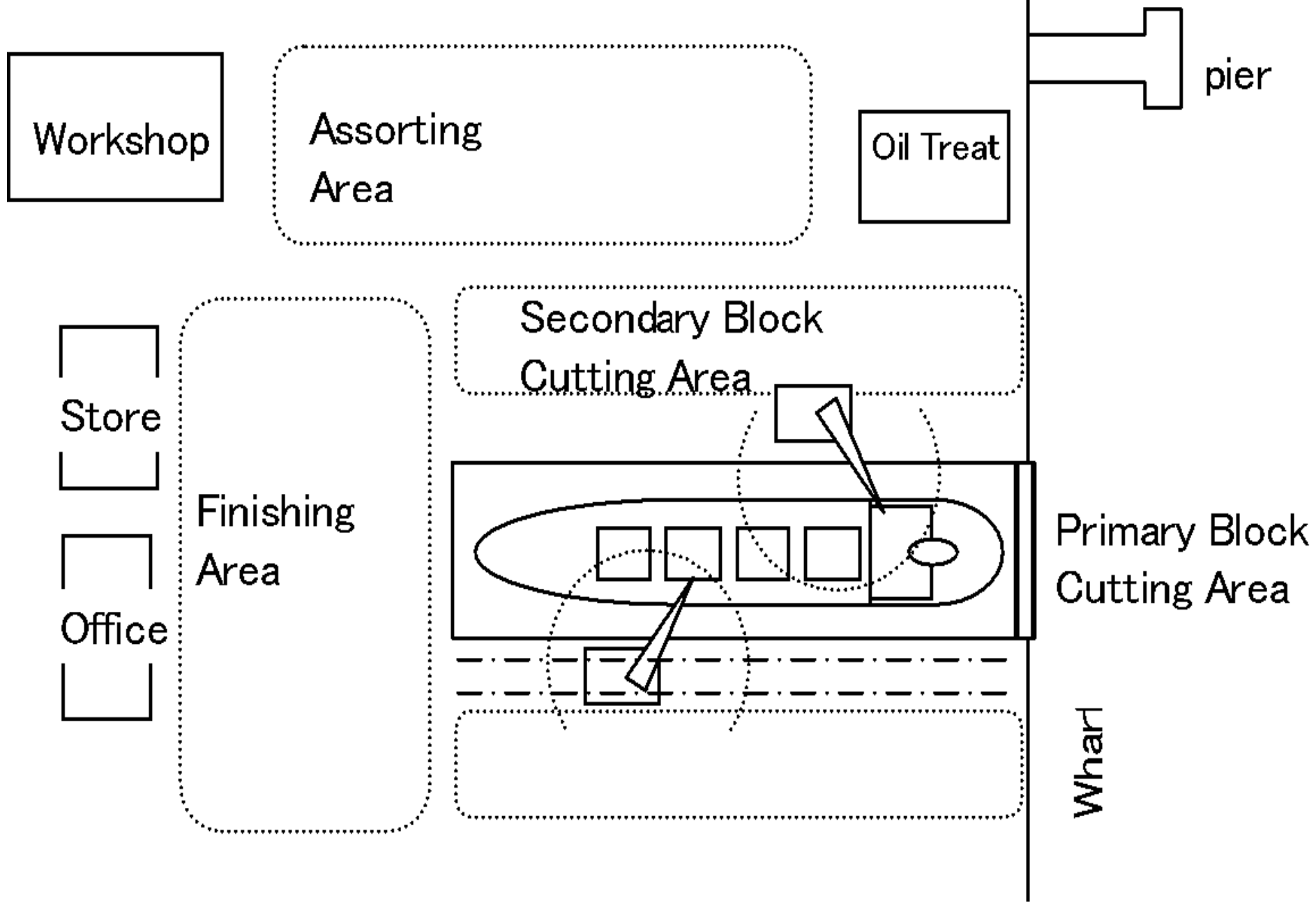
**Also for all other maritime stakeholders with
CSR join ISRA as an associated member!**

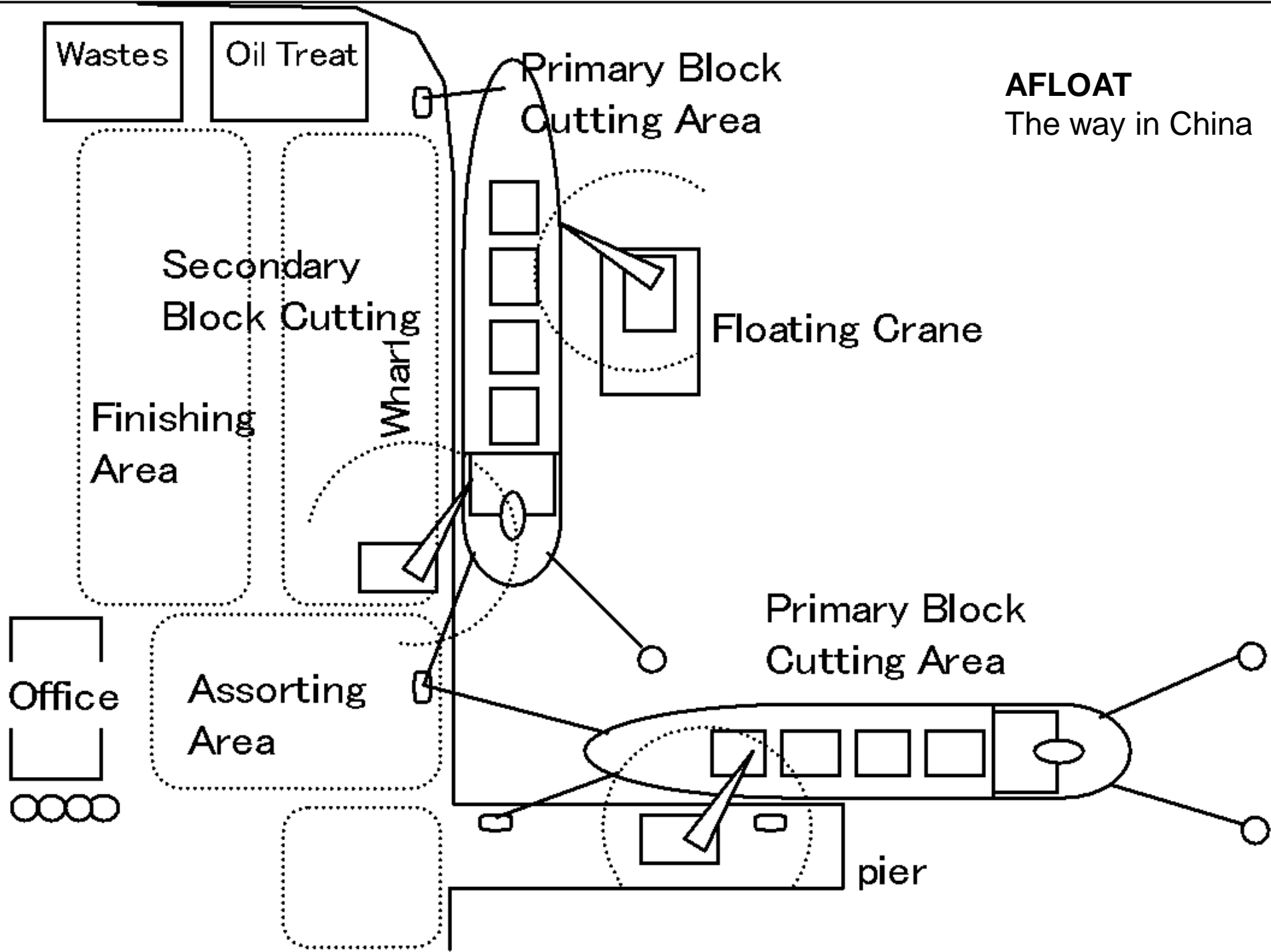
WWW.ISRANETWORK.COM

ARJEN.UYTENDAAL@ISRANETWORK.COM



DRY DOCK - Mainly Europe

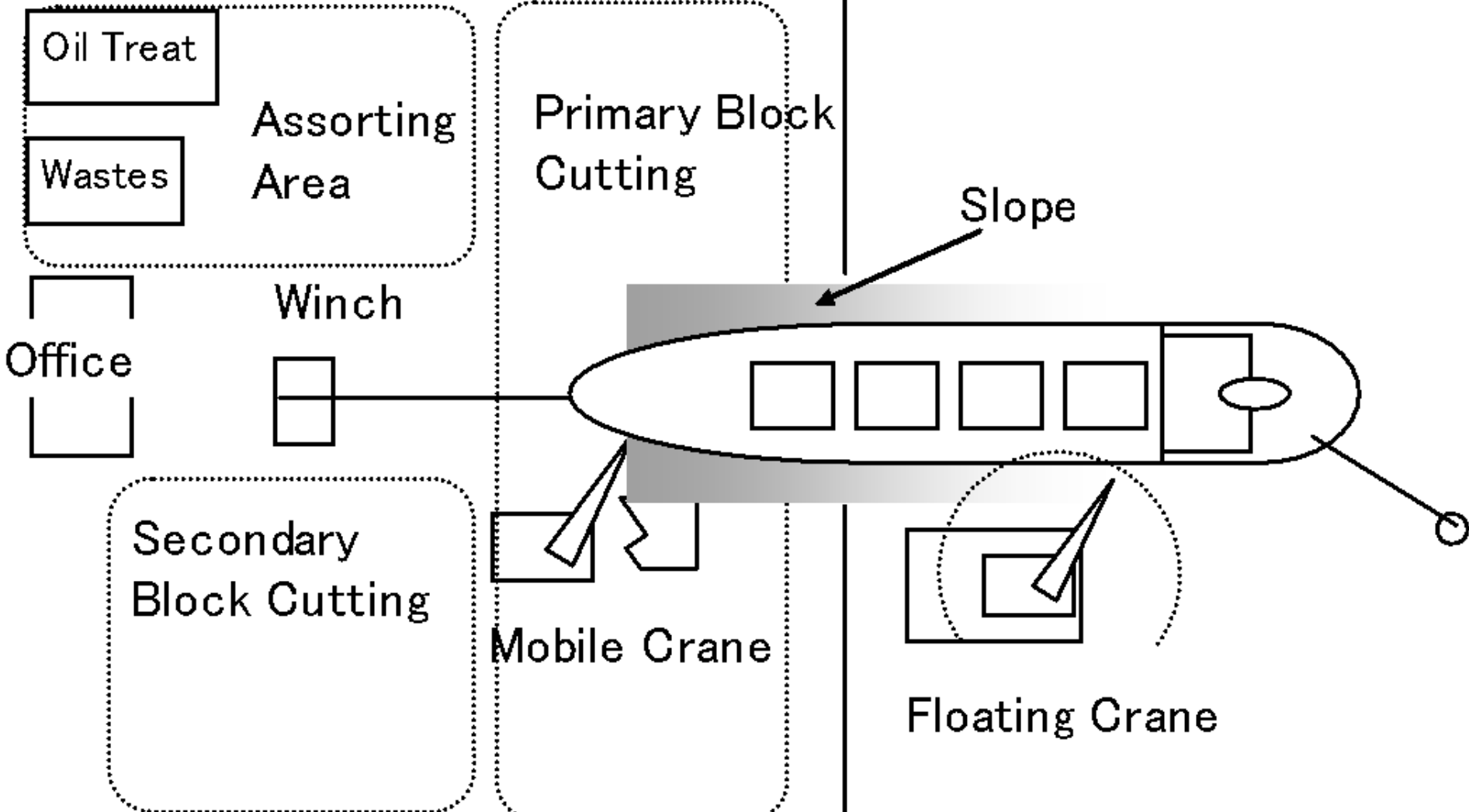




LANDING on concrete area like in Turkey

shore

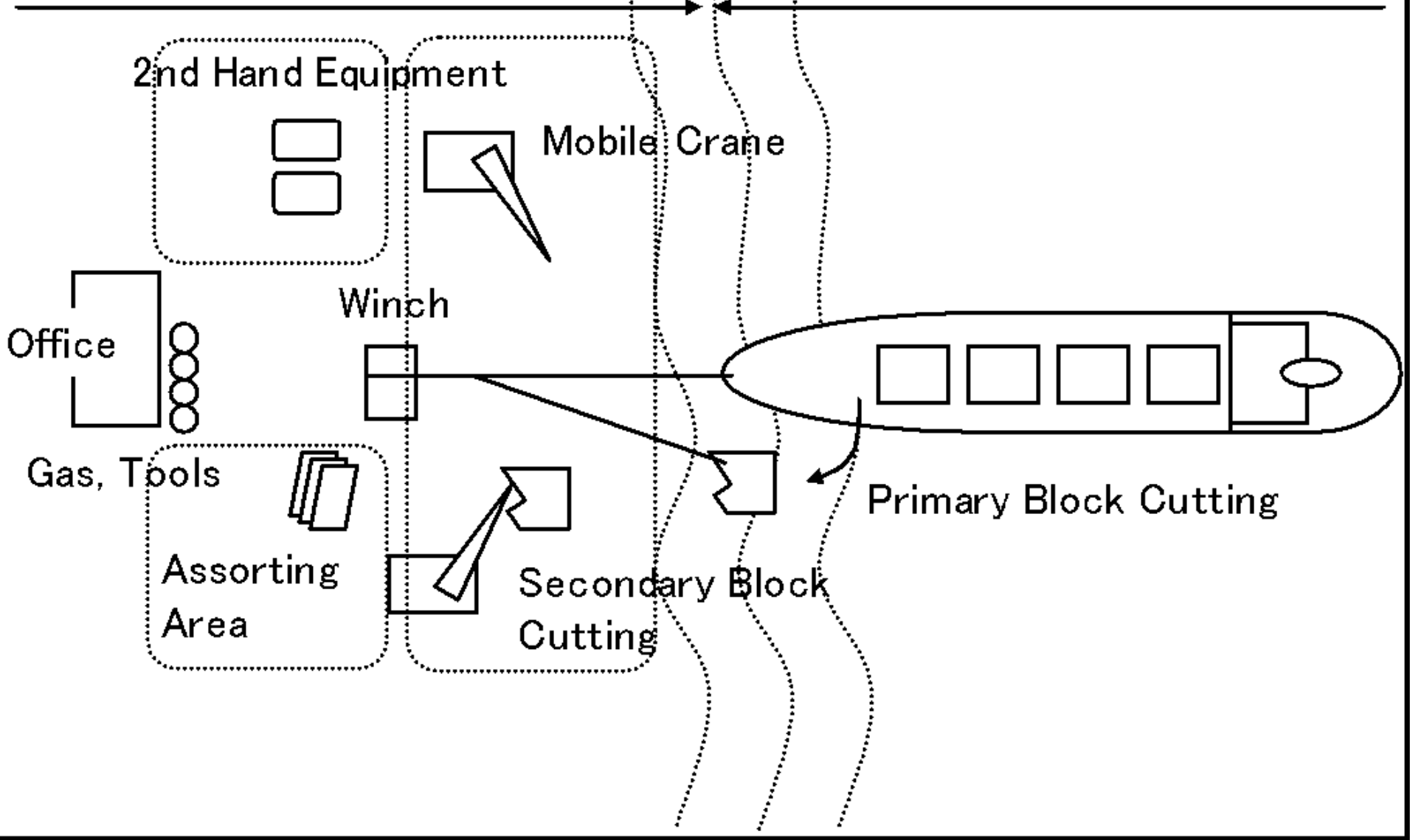
off shore



BEACHING in India sub continent

Beach

Inter-tidal Zone



Hazardous materials on board

- Asbestos (for landfill)
- PolyChloorBifeny (cables..)(for incineration)
- Chemicals and paints (reprocessing)
- TBT
- Fuels/ Oil/ sludge (refining)
- Oil waste contaminated (to energy generation)
- Ozone depleting gasses (for controlled incineration)
- Electronics and batteries (for recycling)
- Explosive gasses (gas free certificate)