Seminar on
Ship Breaking and Ship Recycling in Bangladesh and
Compliance with International Regulations

Tuesday, 17 January 2012, 6:30 – 8:30 PM
Venue: Council Building, BUET

Coordinator: Dr. K. Shahriar Iqbal
Associate Coordinator: Dr. N.M. Golam Zakaria
Dr. Mir Tareque Ali

Organized By

Department of Naval Architecture & Marine Engineering
Bangladesh University of Engineering & Technology, Dhaka-1000

Sponsored By: Bashundhara Group
Programme Schedule

6:30 pm - 8:30 pm
Recitation from the Holly Qu'ran
Welcome address by Prof. Dr. M. Sadiqul Baree
Dean, Faculty of Mechanical Engineering, BUET

Presentation 1:
‘An Approach to Safer Ship Breaking: The Role of Naval Architects’
By Dr. K.S. Iqbal, Dr. N.M.G. Zakaria and Dr. M.T. Ali
Dept. of Naval Architecture and Marine Engineering, BUET

Presentation 2:
‘The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships’
By Dr. Nikos Mikelis
Head, Marine Pollution Prevention and Ship Recycling Section, International Maritime Organization (IMO)

Presentation 3:
‘Waste Management in Ship Recycling Yards’
By Mr. Roy Watkinson MBE
Director, RWEC Environmental Consulting

Speech by the Guest of Honour
H.E. Ms. Ragne Birte Lund, Ambassador, Royal Norwegian Embassy in Dhaka

Speech by the Guest of Honour
Prof. Dr. M. Habibur Rahman, Honourable Pro-Vice Chancellor, BUET

Speech by the Special Guest
Prof. Dr. S. M. Nazrul Islam, Honourable Vice Chancellor, BUET

Speech by the Chief Guest
Mr. Dilip Barua, Honourable Minister, Ministry of Industries Government of the People’s Republic of Bangladesh

Closing Address by the Chairman
Prof. Dr. M. Rafiquil Islam, Head, Dept. of Naval Architecture and Marine Engineering, BUET

Refreshment

Sponsored By: Bashundhara Group
AN APPROACH TO SAFER SHIP BREAKING: THE ROLE OF NAVAL ARCHITECTS

Presented by
DR. K. Shahriar Iqbal, Dr. N. M. Golam Zakaria, Dr. M. Tareque Ali
Department of Naval Architecture and Marine Engineering
Bangladesh University of Engineering and Technology (BUET)
Dhaka-1000
17 January 2012

Location of Ship-breaking yards in Bangladesh
History of Ship Recycling (SR) in Bangladesh

- Industry began in Bangladesh in 1960, when a violent storm left a giant cargo ship (named M D Alpine of Greek) and beached near sea shore of Fauzdarhat at Chittagong.
- 1974 - ‘Al Abbas’, a salvaged Pakistan Navy vessel sunk during liberation war scrapped.
- Other salvaged ships of liberation war boosted the scrapping industry.
- Dependency of scrap steel due to lack of iron ore deposits favored the appearance of this industry since 1970's.
- By 1984 become a major ship recycling industry in the world.
- By the mid-1990's, industry had risen to the number two spot behind India in tonnage scrapped.

Reason for expanding SR in Bangladesh

- Availability of long beach with combination of soft sand & mud
- Perfect slope for beaching
- Large tidal difference up to 6m
- High demand of recovered goods
- Availability of cheap labor forces
- Availability of linkage industries within a reachable distance
- Stable weather condition
General SR Practice in Bangladesh

- Beaching method is widely used in Bangladesh where ship is sailed with its own power during high tide and forced to be beached.
- Furniture, fixtures, electronic items, cookeries, etc. collected; Sometimes Auction called, highest bidder get the business.
- Oil/Sludge oil collected in drums.
- Equipment is dismantled (Sometime barge is used for heavy equipment handling).
- Cutter group begins cutting the ship into small pieces.
- Bigger parts are handled by motorized pulley, smaller parts handled manually.

Ship recycling contribution to national economy in Bangladesh

- Steel production: More than 350 re-rolling industry uses ship scrap as raw materials.
- Inland shipbuilding industry: More than 100 shipyard benefited from scrap yard.
- Heavy engineering.
- Light engineering.
Fatalities:
- 2008: 50
- 2009: 45
- 2010: 50
- 2011 (up to November): 35
- 2012: 40
- 2013: 30
- 2014: 25
- 2015: 20
- 2016: 15
- 2017: 10
- 2018: 5
- 2019: 0

Causes of Death (Percentage):
- Fire Exploration in oil Tanker: 48.48%
- Plate and Part of Ship Fallen: 25.25%
- Toxic Gas Inhalation: 16.16%
- Labour Fallen from Ship: 8.08%
- Other: 2.02%
To avoid the casualties there is no alternative of having a Safe Recycling Plan

Safe Ship Recycling Plan

In order to develop the SRP, the following plans and documents should be received from the ship owner in advance of preparation of the ship for recycling, to a maximum extent:

- Finished Drawings

  Final Specifications, General Arrangement, Midship Section, Construction Profile and Deck Plan, Shell Expansion Plan, Longitudinal and Transverse bulkhead, Fore and Aft Construction, Superstructures, Accommodation Plan, Capacity Plan, Hydrostatic Curve or Table, Trim and Stability Calculation, Light Weight Calculation Table, Deck Piping System, Fire Control Plan, Painting Scheme, Joiner Works, Engine-Room Arrangement, Pump-Room Arrangement, Engine-Room Piping Diagram, Manufacturers finished drawings of major equipment
Safe Ship Recycling Plan

These documents and drawings can be utilized for:

- Preparation of the acceptance of the ship,
- Planning of the ship recycling/dismantling sequence,
- Planning of the working schedule with provision of appropriate equipment for heavy lifting, hazardous material management, etc.,
- Calculating draft and trim to be adjusted and for weight and strength of the hull, and
- Utilization of the second-hand equipment.

- Finalized "Inventory of Hazardous Materials" including Part II and III.

The Inventory of Hazardous Materials is the vital document for Ship Recycling Facility to develop an SRP in order to plan and carry out safety removal of the hazardous materials.
Role of Naval Architect

In Ship Design stage:

- Structural design for easy dismantling
- Equipment product design facilitating easy and safe removal
- Select structural materials that support efficient recycling and disposal
- Maximizing the usage of recycled materials in hull and equipment
- Minimization the usage of non separable materials in hull and equipment
- Design measures to tackle removal of materials that are non separable from their specific individual substances.

Role of Naval Architect

In Ship Recycling stage:

- Well designed cutting plan for particular types of vessel considering safety, quick and trouble free dismantling
- Ease disassembling operation with planned scheme and set up such as scaffolding , fixtures and support
- Analysis hull part for safe lifting operation, pollution prevention and assuring safety
- Designing buffering and secondary cutting for sorting and coding
- Optimize the infrastructure , human resource allocation in a safe manner.
16.1 Requirements of Ship Recycling Plan (SRP) shall be as under:

(i) details about the ship, and in particular,
(ii) a fair assessment of hazardous wastes and hazardous materials.
(iii) Ship breaking schedule with sequence of work. As sample shown in Annexure VII and it can be adjusted as per the situation of individual yard.
(iv) Operational work procedures.
The Ship Breaking and Ship Recycling Rules 2011

44. Prevention of unauthorized entry:

Visitors should not be allowed access to ship breaking facilities or ships, as appropriate, unless accompanied by or authorized by a competent person and provided with the appropriate protective equipment.

(Proposal from dept. of NAME)

44. Prevention of unauthorized entry:

Visitors should not be allowed access to ship breaking facilities or ships, as appropriate, unless accompanied by or authorized by a competent authority/person, showing valid reason/s (e.g. research, report etc) and provided with the appropriate protective equipment. (as mentioned in DOE guidelines)
The Ship Breaking and Ship Recycling Rules 2011

45.1 In the event of any accident/fire/explosion on any yard and/or on any ship leading to a death or serious bodily injury to any person or for the noncompliance of any of these rules, resulting in any accident on any yard and/or on the ship, the following actions shall be taken:

In the event of major fire/explosion/accident causing damages with or without death or serious bodily injury to any person all activities related to ship recycling on the yard be suspended by the SBSRB with immediate effect for an investigation to be conducted by 7 (seven) days. During this period, The SBSRB will conduct detailed investigation through a team comprising of professionals having experience and qualification of Industrial Safety and Health Management, Master Mariner/Marine Engineering, Safety officer’s panel, Environment and Pollution Control.

The Ship Breaking and Ship Recycling Rules 2011

(Proposal from dept. of NAME)

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Some More Observations

- In the SBSRB, there must be at least one post for ‘Chief Naval Architects’ as the Naval Architects are the only professionals who possess academic knowledge on ship design, ship structure, ship construction, ship dismantling and ship modification.
- Ship building and ship recycling Board (SBSRB) will provide one stop service to shipbuilding and ship recycling industry and also approve training curriculum, supervise, monitor and evaluate academic training activity and on the job training for workers provided by designated training institute according to section 3.9. SBSRB shall carry out the detailed analysis on improvement of the beaching methods with a mandate to evolve recycling methods targeting zero waste and zero accident at every year time interval according to section 18(viii).

Direction from IMO Guideline

IMO guidelines on Ship Recycling adopted on 5 December 2003, section 8 (ship recycling plan), it is clearly spelt out that while preparing the ship recycling plan technical advice from the shipbuilder (section 8.3.2.4) ship stability during cleanup and transits etc. are necessary.

Only Naval Architects can perform these tasks professionally.
Dept of NAME may Contribute

As, Dept. of Naval Architecture and Marine Engineering of BUET has been conducting research work (including Ph.D.) to improve overall situation of current ship breaking practice to upgrade this industry into a safe and environmental friendly ship recycling industry. So sharing of research findings may be useful and necessary for the industry. **Therefore, it is strongly recommended to include academician/researcher from the Dept. of Naval Architecture and Marine Engineering of BUET in these activities.**

Threats to Ship Recycling in Bangladesh

- Expansion of Green ship recycling facilities by other countries like China (Dalian Shibuilding industry ship recycling co. Ltd. is expanding their capacity. Upon completion of the project in June 2012, the annual recycling capacity will be 75 vessels ranging from 50,000 DWT to 300,000 DWT.)

- Non-compliance of rules and regulations particularly Hong Kong Convention for safe and environmentally sound recycling of ship 2009 may pose threat to the long term sustainability of present ship recycling in Bangladesh.
Present Research Works in the Dept. of NAME

Developing methodology for ship recycling industry in Bangladesh through:

1. Critical analysis of existence practice and method in ship breaking process
2. Integration of scientific and technological knowledge, risk and safety, environment and economics
3. Optimization of infrastructures and ship recycling activities by investigating alternative process, techniques and regulations

Future Research Scope

- Inventory of Hazardous Material (IHM): to be addressed at the design and construction stage with due consideration of using less hazardous materials in the ships structure and their equipment:
  1. Capacity building through training of the faculties
  2. Introduction of new curriculum in the NAME courses
  3. Helping to disseminate knowledge to stakeholders through short courses, seminar/ workshop etc.

- Regular environmental sampling of air, water, soil in and around ship breaking yard in Bangladesh to study short term and long term impacts
Conclusions

- Naval Architects may play significant role in the ship breaking and ship recycling activities in Bangladesh

- Collaboration program with Dept. of Naval Architecture and Marine Engg. should be promoted for establishing sustainable environment friendly ship recycling in Bangladesh.

THANK YOU
The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships

by
Dr Nikos Mikelis
Head, Marine Pollution Prevention & Ship Recycling Section
International Maritime Organization

BANGLADESH UNIVERSITY OF ENGINEERING & TECHNOLOGY
Dhaka, 17 January 2012

A few words on terminology

SHIP DISMANTLING
used by Basel Convention; by Ministries of Environment; and for the time being by European Commission

SHIP BREAKING
used by ILO; by Environmental NGOs; and also in Bangladesh

DEMOLITION or DEMO
used by ship brokers

DISPOSALS
often used in shipping statistics

SCRAPPING
traditionally used by shipowners; and by ILO/IMO/BC Joint Working Group

SHIP RECYCLING
used by IMO and by Ministries of Transport/Shipping
Some facts and figures (data by IHS Fairplay):

In 2010 the world fleet of ships over 500 GT was around 56,000 ships while the fleet over 3,000 GT was around 32,000 ships.

Ships have a limited life-span, reflecting economic, technical and occasionally regulatory considerations.

A realistic average life-span of a ship presently is 30 years and thus on average around 1,800 ships of over 500 GT, or 1,000 ships over 3,000 GT need to be recycled each year.

Five countries recycle around 97% of the world’s tonnage:

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<tbody>
<tr>
<td>TOTAL TOTAL</td>
<td>50,209,181</td>
<td>50,370,051</td>
<td>56,308,023</td>
<td>41,394,977</td>
<td>37,854,304</td>
<td>36,518,066</td>
<td>35,957,543</td>
<td>36,479,721</td>
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<tr>
<td>BANGLADESH</td>
<td>1,449,887</td>
<td>1,483,879</td>
<td>2,099,938</td>
<td>1,678,937</td>
<td>1,419,702</td>
<td>1,409,986</td>
<td>1,472,338</td>
<td>1,579,452</td>
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<tr>
<td>CHINA</td>
<td>1,805,139</td>
<td>3,575,678</td>
<td>2,076,713</td>
<td>1,752,567</td>
<td>1,577,987</td>
<td>1,558,765</td>
<td>1,604,205</td>
<td>1,709,836</td>
</tr>
<tr>
<td>INDIA</td>
<td>2,494,773</td>
<td>3,618,291</td>
<td>3,009,928</td>
<td>2,518,993</td>
<td>2,197,498</td>
<td>2,168,460</td>
<td>2,222,790</td>
<td>2,378,551</td>
</tr>
<tr>
<td>PAKISTAN</td>
<td>3,986,296</td>
<td>3,932,890</td>
<td>4,268,648</td>
<td>3,016,060</td>
<td>3,156,487</td>
<td>3,475,536</td>
<td>3,671,630</td>
<td>3,979,327</td>
</tr>
<tr>
<td>MALAYSIA</td>
<td>1,169,243</td>
<td>1,547,978</td>
<td>1,067,441</td>
<td>1,172,581</td>
<td>1,273,487</td>
<td>1,208,657</td>
<td>1,207,927</td>
<td>1,399,827</td>
</tr>
</tbody>
</table>

The methods employed for ship recycling are:

**Tidal beaching**
as practiced in Bangladesh, India, and Pakistan, who provide 65% or more of the world’s recycling capacity in GT terms

**Non-tidal beaching**
as practiced in Turkey, who provides about 2% of the world’s capacity

**Alongside**
as practiced in China, who provides around 31% of the world’s capacity

**Graving dock or drydock**
used in very limited cases
Seminar on
Ship Breaking and Ship Recycling in Bangladesh and Compliance with International Regulations  17/01/2012

India, Alang

Pakistan, Gadani

Department of Naval Architecture and Marine Engineering
Bangladesh University of Engineering and Technology
BACKGROUND TO THE DEVELOPMENT OF
THE HONG KONG INTERNATIONAL CONVENTION FOR THE SAFE
AND ENVIRONMENTALLY SOUND RECYCLING OF SHIPS,
Ship recycling contributes to sustainable development because virtually every part of a ship’s hull, machinery, equipment, fittings and even furniture is re-used.

The industry also creates economic development for local and regional communities by the large-scale direct employment it brings, and by the additional employment and economic activity its associated industries generate, and also by the large scale of trading in second hand equipment and machineries that takes place.

There are also important economic benefits to the economies of the recycling countries from the recycling of steel, wood, machinery and equipment, that would otherwise have to be imported.

Furthermore, the well being of the recycling industries in Bangladesh, China, India, Pakistan and Turkey is very important to the world’s shipping industry.

However, while the principle of ship recycling is a sound one, the working practices and environmental standards in recycling yards often leave much to be desired.

Pressure demanding a safer and a more environmentally friendly ship recycling industry has been building up over the past 15 or so years, and has found outlets amongst politicians and Administrations, who have looked for ways to regulate ship recycling with international common standards. Also, these pressures have led an increasing number of shipping companies to adopt policies for the green recycling of their ships.

The first attempt to address the problem was to try to implement an existing international treaty, “The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal”, which was adopted in 1989, which entered in force in 1992, and which currently has 178 Parties.

The purpose of the Basel Convention is to protect the human health and the environment against adverse effects that result from the generation and management of hazardous and other wastes. In particular, the Basel Convention focuses on regulating the international (transboundary) movement of hazardous wastes, in its effort to protect developing countries from importing hazardous wastes that they are unable to manage in an environmentally sound manner.
In a further effort to strengthen the protection to developing countries, in 1994, Parties to the Basel Convention adopted the “ban amendment”, banning the export of hazardous waste from OECD to non-OECD countries. The ban amendment is still not in force internationally. It is however enforced unilaterally by the European Union, through the European Waste Shipment Regulation.

At the end of the 1990s Parties to the Basel Convention considered its implementation for the regulation of the dismantling of end-of-life ships. Towards this end, the Basel Convention also developed and approved in December 2002 voluntary guidelines for the ship recycling industry, entitled: *Technical Guidelines for the Environmentally Sound Management of the Full and Partial Dismantling of Ships.*

The Basel Convention however had not been developed for regulating end-of-life ships and therefore it does not take into account the governance structure of international shipping. Quite early it became evident that there were practical and legal difficulties in enforcing the Basel Convention to ships, especially in the European Union where the Convention is implemented along with the ban amendment forbidding the export of hazardous wastes (and arguably the export of ships) to non-OECD countries.

Examples of serious enforcement difficulties include the Otapan, the Sea Beirut, the Sandrien, the Margaret Hill, the Tor Anglia, the Onyx, and others. With the exception of European government owned ships, no other ships appear to follow the requirements of the Basel Convention.

Consequently, the Conference of the Parties to the Basel Convention, in October 2004, decided to invite IMO to establish in its regulations mandatory requirements that would ensure an equivalent level of control as that established under the Basel Convention, and also ensure the environmentally sound management of ship dismantling (decision VII/26).

Thereafter, IMO’s Assembly 24 adopted on 1 December 2005 its resolution A.981(24), instructing its Marine Environment Protection Committee to develop a “new legally binding instrument on ship recycling”.
Resolution A.981(24) stated that the new instrument will regulate:

1. the design, construction, operation and preparation of ships so as to facilitate safe and environmentally sound recycling, without compromising their safety and operational efficiency;

2. the operation of ship recycling facilities in a safe and environmentally sound manner; and

3. the establishment of an appropriate enforcement mechanism for ship recycling (certification / reporting requirements).

Following the instruction of Assembly 24, MEPC 54 (20-24 March 2006) convened a Working group on Ship Recycling which developed the draft text which had been submitted by Norway. Thereafter numerous meetings were arranged for the further development of the draft text of the convention:

Correspondence group reporting to MEPC 55;
MEPC 55 & Working group (October 2006);
2nd Intersessional Working group (May 2007);
Correspondence group reporting to MEPC 56;
MEPC 56 & Working group (July 2007);
3rd Intersessional Working group (January 2008);
Correspondence group reporting to MEPC 57;
MEPC 57 & Working group (March 2008);
4th Intersessional Working group (September 2008);
Correspondence group reporting to MEPC 58;
MEPC 58 & Drafting group (October 2008); and
Diplomatic Conference (May 2009)

3 years and 2 months from the first submission of draft text up to the adoption of the Convention is probably a record.
Note that the three UN bodies that share competences on matters relating to ship recycling, i.e. Basel Convention, ILO and IMO, have co-operated since 2005 by establishing the Joint ILO/IMO/BC Working Group on Ship Scrapping.

The aim of the JWG has been to avoid duplication of work and overlapping of roles, responsibilities and competencies, and also to identify any further needs. The JWG could not be a forum for a joint development of the Convention on ship recycling, but instead, the Secretariats of the Basel Convention and ILO have contributed directly at IMO to the development of the Hong Kong Convention.

The Joint Working Group has undertaken a comparison of the technical guidelines of the three organizations; has promoted implementation of the guidelines; and most importantly has encouraged collaboration in technical cooperation activities through an arrangement known as the “Global Programme for Sustainable Ship Recycling”.

The diplomatic conference that was held in Hong Kong, was attended by representatives of 63 States, two Associate Members, the Secretariats of the Basel Convention and of ILO, and other stakeholders. Having finalized the text of the convention, the representatives of the sovereign Governments attending unanimously adopted the “Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009”, also known as “the Hong Kong Convention” (here HKC).

The ship recycling industry of Bangladesh, represents more than a quarter of the world’s recycling capacity, and is therefore very important to the world’s maritime transport and consequently to the world’s commerce. The Government of Bangladesh participated actively in the development and the adoption of the HKC. The international community at IMO hopes that Bangladesh, as a leading recycling country and as Council member of IMO, will show leadership in starting to implement the requirements of the Convention, step by step.
The diplomatic Conference
The diplomatic Conference

The diplomatic Conference
The equivalency between the Basel and the Hong Kong Conventions

In June 2008, the ninth Conference of the Parties (COP 9) to the Basel Convention, in its decision IX/30 on Dismantling of Ships, expressed, once again, its support for the development of the mandatory instrument by IMO for ship recycling and also requested the seventh session of its Open-Ended Working Group to carry out in 2010 a preliminary assessment on whether the ship recycling convention, as adopted, establishes an equivalent level of control and enforcement as that established under the Basel Convention and to transmit the results of that assessment to COP10, to be held in 2011.

In May 2010, OEWG 7 of the Basel Convention commenced work on the assessment of the equivalency between the two conventions. Following long discussions, the group compiled a set of criteria for the comparison between the two conventions but was unable to agree on a preliminary assessment.

In October 2011, the tenth Conference of the Parties (COP 10) to the Basel Convention met in Colombia. It quickly became evident, however, that consensus would not be reached on the issue of the equivalency.

States attending COP 10 that had participated actively in the development of the Hong Kong Convention expressed their strong support for the conclusion that the Hong Kong Convention provides a level of control and enforcement that is at least equivalent to that established under the Basel Convention.

On the other hand, some other States at COP 10 expressed concerns over the effects the Hong Kong Convention may have on the transboundary movement of hazardous wastes and even expressed unfounded fears that the Hong Kong Convention may lead to increased numbers of abandoned ships in their coasts. These States therefore did not support the conclusion that the Hong Kong Convention is equivalent to the Basel Convention.

Because of the lack of consensus on the issue of equivalency, COP 10 adopted decision BC-10/17, which: (i) notes that there was no agreement on equivalency; (ii) calls for early ratification and entry into force of the Hong Kong Convention; and (iii) notes that the Basel Convention has a role to play in the management of waste streams from ships.
IMO certainly draws some comfort from the decision of COP 10 encouraging its Parties to ratify the Hong Kong Convention.

Also, the IMO Secretariat is troubled for having failed to address and to dispel the concerns of those States who did not support the conclusion on equivalency. Unfortunately, none of those States have a ship recycling industry or a significant involvement in internationally trading shipping and therefore they did not actively participate in the development of the Hong Kong Convention. Consequently they have not yet appreciated the real progress this Convention will make in improving safety, health and environmental standards throughout the world’s recycling industries.

The IMO Secretariat certainly will strive to disseminate a better understanding of the structure, mechanisms and benefits to be derived from the Hong Kong Convention, to any State that has concerns.

The decision of COP 10 on equivalency disregards the fact that it was the Parties to the Basel Convention that requested in the first place IMO to establish mandatory requirements for ship recycling; and it also disregards the fact that the representatives of the 63 sovereign Governments attending the Hong Kong Diplomatic Conference unanimously adopted the Hong Kong Convention.

The HKC was developed taking into account the governance structures of international shipping; whereas this was not even envisaged under the scope of the Basel Convention. Furthermore, the HKC has created a complete and detailed set of appropriate requirements for ships and ship recycling facilities; whereas the Basel Convention contains only generic requirements that apply to the international movement and management of land based hazardous waste.

In summary, the level of control and enforcement established by the HKC for the recycling of ships is certainly not equivalent to that of the Basel Convention, but is in fact far superior. Thus, decision BC-10/17 must not result in a single day’s delay of the entry into force of the HKC.
Whereas after its entry into force the HKC will fulfill a cradle to grave control of hazardous materials on ships, and will also implement and enforce safety and environmental protection procedures in authorized ship recycling facilities, on the other hand it needs to be recognized and stressed that the requirements of the Basel Convention for the environmentally sound management of hazardous waste are consistent with and complementary to the requirements of the new convention and it cannot be considered that they are superseded by the HKC.

One important area of application of the Basel Convention to ship recycling activities will be in the management of waste streams outside the gates of ship recycling facilities, which is an area that the HKC has only generic requirements.

In a similar manner, the health and safety requirements of applicable ILO conventions will not be superseded by the requirements of the HKC but will remain complementary to the new convention.

THE STRUCTURE OF THE HONG KONG CONVENTION

Department of Naval Architecture and Marine Engineering
Bangladesh University of Engineering and Technology
Structure of the Hong Kong Convention

The Convention includes:

- 21 Articles, establishing the main legal mechanisms

- 25 regulations, containing technical requirements, divided in four chapters:
  1. General (regulations 1-3)
  2. Requirements for ships (regulations 4-14)
  3. Requirements for ship recycling facilities (regulations 15-23)
  4. Reporting requirements (regulations 24-25)

- 7 appendices, with lists of Hazardous Materials, forms for certificates etc

Separately, 6 non-mandatory guidelines are currently being developed providing clarifications, interpretations, and uniform procedures for technical issues arising from the provisions of the Convention.

Schedule for the development of the guidelines associated with the Hong Kong Convention

<table>
<thead>
<tr>
<th>MEPC Session</th>
<th>MEPC 59</th>
<th>MEPC 60</th>
<th>MEPC 61</th>
<th>MEPC 62</th>
<th>MEPC 63</th>
<th>MEPC 64</th>
</tr>
</thead>
</table>

- Guidelines for the development of the Inventory of Hazardous Materials (Inventory Guidelines)
  - Adopted in MEPC 59
  - Revised in MEPC 61

- Guidelines for safe and environmentally sound ship recycling (Facility Guidelines)
  - Planned adoption

- Guidelines for the development of the Ship Recycling Plan (SRP Guidelines)
  - Planned adoption

- Guidelines for the authorization of Ship Recycling Facilities (Authorization Guidelines)
  - Planned adoption

- Guidelines for survey and certification
  - Develop and then refer to FSI 20 (end March 2012) or FSI 21?

- Guidelines for inspection of ships
  - Develop and then refer to FSI 20 (end March 2012) or FSI 21?
The main elements for the underlying mechanisms of the HKC

**Inventory of Hazardous Materials (IHM)** (Parts I, II, III; different scope for new ships and for existing ships)

**International Certificate on Inventory of Hazardous Materials (ICIHM)** (issued to ship by flag State after initial or renewal survey; valid for 5 years)

**Ship Recycling Facility Plan (SRFP)** (the document describing the system and processes of the yard for ensuring safety and environmental protection)

**Document of Authorization to conduct Ship Recycling (DASR)** (issued to the yard by the recycling State’s Competent Authority; valid up to 5 years)

**Ship Recycling Plan (SRP)** (plan prepared by recycler based on ship’s IHM and other particulars; usually approved by Competent Authority)

**International Ready for Recycling Certificate (IRRC)** (issued to ship by flag State after final survey on basis of IHM and SRP)

### APPENDIX 1

#### CONTROLS OF HAZARDOUS MATERIALS

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<thead>
<tr>
<th>Hazardous Material</th>
<th>Definitions</th>
<th>Control measures</th>
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<tbody>
<tr>
<td>Asbestos</td>
<td>Materials containing asbestos.</td>
<td>For all ships, new installations of materials containing asbestos shall be prohibited.</td>
</tr>
<tr>
<td>Ozone-depleting substances</td>
<td>Ozone-depleting substance means controlled substance defined in paragraph 4 of article 1 of the Montreal Protocol on Substances that Deplete the Ozone Layer, 1987, as listed in Annex A, Article 1, or as it may be amended in force at the time of application or interpretation of this Annex.</td>
<td>New installations which contain ozone-depleting substances shall be prohibited on all ships, except that new installations containing Hydrofluorocarbons (HFCs) are permitted until 1 January 2020.</td>
</tr>
<tr>
<td>Polychlorinated biphenyls (PCB)</td>
<td>Polychlorinated biphenyls means aromatic compounds formed in such a manner that the chlorines replace carbon atoms (the biphenyl molecule (two benzene rings bonded together by a single carbon-carbon bond) may be replaced by up to ten chlorine atoms).</td>
<td>For all ships, new installation of materials containing polychlorinated biphenyls shall be prohibited.</td>
</tr>
<tr>
<td>Anti-fouling compounds</td>
<td>Anti-fouling compounds and systems regulated under Annex I to the International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001 (AFS Convention) in force at the time of application or interpretation of this Annex.</td>
<td>No ship may apply anti-fouling systems containing organotin compounds as a biocide or any other anti-fouling system whose application or use is prohibited by the AFS Convention.</td>
</tr>
</tbody>
</table>

Department of Naval Architecture and Marine Engineering
Bangladesh University of Engineering and Technology
APPENDIX 2
MINIMUM LIST OF ITEMS FOR THE INVENTORY OF HAZARDOUS MATERIALS

| Any Hazardous Materials listed in Appendix 1 |
| Cadmium and Cadmium Compounds |
| Hexavalent Chromium and Hexavalent Chromium Compounds |
| Lead and Lead Compounds |
| Mercury and Mercury Compounds |
| Polybrominated Biphenyl (PBBs) |
| Polybrominated Diphenyl Ethers (PBDEs) |
| Polychlorinated Naphthalenes (more than 3 chlorine atoms) |
| Radioactive Substances |
| Certain Shortchain Chlorinated Paraffins (Alkanes, C10-C13, chloro) |

Requirements for ships in service

Parties (i.e. countries that have ratified the HKC) shall ensure that hazardous materials listed in Appendix 1 to the Convention will not be used in their shipyards, nor will they be installed on their ships.

All ships, throughout their operational lives, shall be provided with an Inventory of Hazardous Materials (IHM) identifying and quantifying in Part I any materials listed in the HKC’s Appendix 1 and Appendix 2 (mandatory for new ships), taking into account the Inventory Guidelines (see resolution MEPC.197(62)).

Existing ships (in service at the time of HKC’s entry into force) shall have onboard an IHM no later than 5 years after entry into force, or when the ship goes for recycling if that is earlier.

The IHM shall be updated after any installations of materials listed in Appendix 2 of the HKC.

All ships shall undergo renewal surveys verifying that the IHM continues to meet the requirements of the HKC and shall be issued with the International Certificate on Inventory of Hazardous Materials (I IHM) with 5 years’ maximum validity.
# EXAMPLE OF AN INVENTORY OF HAZARDOUS MATERIALS
from IMO's Inventory guidelines, resolution MEPC.197(62)

## Part I. HAZARDOUS MATERIALS CONTAINED IN THE SHIP'S STRUCTURE AND EQUIPMENT

### I-1. Paints and coating systems containing materials listed in Table A and Table B of appendix 1 of the Guidelines

<table>
<thead>
<tr>
<th>No.</th>
<th>Application of paint</th>
<th>Name of paint</th>
<th>Location *1</th>
<th>Materials (classification in appendix 1)</th>
<th>Approx. quantity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flat paint</td>
<td>Unknown paints</td>
<td>Flat bottom</td>
<td>TBT</td>
<td>60.00 kg</td>
<td>Confirmed by sampling</td>
</tr>
</tbody>
</table>

### I-2. Equipment and machinery containing materials listed in Table A and Table B of appendix 1 of the Guidelines

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of equipment and machinery</th>
<th>Location *1</th>
<th>Materials (classification in appendix 1)</th>
<th>Parts where used</th>
<th>Approx. quantity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Main engine</td>
<td>Lower floor</td>
<td>Asbestos</td>
<td>Exh. pipe packing</td>
<td>3.50 kg</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Aux. boiler</td>
<td>3rd deck</td>
<td>Asbestos</td>
<td>Unknown packing</td>
<td>10.00 kg</td>
<td>PCHM (potentially containing Hazardous Material)</td>
</tr>
<tr>
<td>3</td>
<td>Piping/flange</td>
<td>Engine-room</td>
<td>Asbestos</td>
<td>Piping</td>
<td>10.00 kg</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Ref. provision plant</td>
<td>2nd deck</td>
<td>HCFC Refrigerant (R22)</td>
<td>Refrigerant (R22)</td>
<td>20.00 kg</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Batteries</td>
<td>Navig. deck</td>
<td>Lead</td>
<td></td>
<td>96.00 kg</td>
<td></td>
</tr>
</tbody>
</table>

### I-3. Structure and hull containing materials listed in Table A and Table B of appendix 1 of the Guidelines

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of structural element</th>
<th>Location *1</th>
<th>Materials (classification in appendix 1)</th>
<th>Parts where used</th>
<th>Approx. quantity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Back deck ceiling</td>
<td>Upper deck</td>
<td>Asbestos</td>
<td>Engine-room</td>
<td>3.80 kg</td>
<td>Confirmed by sampling</td>
</tr>
</tbody>
</table>

## Part II. OPERATIONALLY GENERATED WASTE

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of item (classification in appendix 1) and detail (if any) of the item</th>
<th>Approx. quantity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Garbage (food waste)</td>
<td>35.00 kg</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Bilge water</td>
<td>15.00 m³</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>No.1 cargo hold Dry cargo residues (iron ore)</td>
<td>110.00 kg</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>No.2 cargo hold Waste oil (sludge) (crude)</td>
<td>120.00 kg</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>No.1 ballast tank Sediments</td>
<td>2,500.00 m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>250.00 kg</td>
<td></td>
</tr>
</tbody>
</table>

## Part III. STORES

### III-1. Stores

<table>
<thead>
<tr>
<th>No.</th>
<th>Location *1</th>
<th>Name of item (classification in appendix 1)</th>
<th>Unit quantity</th>
<th>Figure</th>
<th>Approx. quantity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No 1 fuel oil tank Fuel oil (heavy fuel oil)</td>
<td>-</td>
<td>-</td>
<td></td>
<td>100.00 m³</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>CO₂ room</td>
<td>CO₂</td>
<td>100.00 kg</td>
<td>50</td>
<td>5,000.00 kg</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Workshop</td>
<td>Propane</td>
<td>20.00 kg</td>
<td>10</td>
<td>200.00 kg</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Medicine locker</td>
<td>Miscellaneous medicines</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Paint stores</td>
<td>Paint, ex Co., #800</td>
<td>20.00 kg</td>
<td>5 pcs</td>
<td>100.00 kg</td>
<td>Cadmium containing</td>
</tr>
</tbody>
</table>

### III-2. Liquids sealed in ship's machinery and equipment

### III-3. Gases sealed in ship's machinery and equipment

### III-4. Regular consumable goods potentially containing Hazardous Materials

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Seminar on Ship Breaking and Ship Recycling in Bangladesh and Compliance with International Regulations 17/01/2012

Department of Naval Architecture and Marine Engineering Bangladesh University of Engineering and Technology
Requirements for ships preparing for recycling:

The shipowner of a ship flying the flag of a Party has to:

- recycle the ship in recycling facilities of a Party State;
- select an authorized recycling facility which must be capable to deal with the types and quantities of hazardous materials contained in the ship (as per IHM);
- complete Part II (for operationally generated wastes) and Part III (for stores) of the IHM;
- provide the facility with copies of the IHM, the ICIHM, and with any other relevant information (with which the facility will develop the Ship Recycling Plan);
- notify the Administration (flag State) of the intention to recycle the ship;
- (once the approved Ship Recycling Plan is received from the facility) arrange for a final survey to verify the IHM and that the SRP reflects correctly the IHM and that it contains other required information;
- following the final survey obtain the International Ready for Recycling Certificate (IRRC) from the flag State or its Recognized Organization.
Requirements for recycling States

- establish legislation implementing the HKC;
- designate one or more Competent Authorities (CA) and a single contact point to be used by interested entities;
- establish a mechanism for ensuring that SRF comply with the HKC; and
- establish a mechanism for authorizing SRF. (This authorization also provides information on any limitations imposed on the SRF as condition for its authorization. The SRF may be limited by way of the types or sizes of ships they recycle and by way of the categories and quantities of hazardous materials they can safely process.)

Requirements for Ship Recycling Facilities (general)

- SRF shall develop and implement a Ship Recycling Facility Plan (SRFP) that covers: worker safety and training; protection of human health and the environment; roles and responsibilities of personnel; emergency preparedness and response; and systems for monitoring, reporting and record-keeping;
- SRF located within the jurisdiction of a Party shall be authorized by that Party. The authorization shall have 5 years’ maximum validity; and
- SRF shall only accept ships that comply with the Convention, or which meet its requirements. Furthermore SRF shall only accept ships they are authorized to recycle.
Requirements for Ship Recycling Facilities (ship specific)

- A ship-specific Ship Recycling Plan (SRP) shall be developed according to the SRP Guidelines (see resolution MEPC.196(62)) taking into the account information provided by the shipowner (i.e. IHM, ICIHM, etc);

- A SRF preparing to receive a ship shall notify its CA (the notification shall include details of the ship, its owner and the IHM and the draft SRP);

- The SRP shall be approved (tacitly or explicitly) by the CA and then shall be made available to the ship for its final survey;

- When the ship has acquired the IRRC, the SRF shall report to its CA the planned start of recycling (the report shall include a copy of the IRRC; recycling of the ship shall not start prior to the submission of this report.)
A group of critics of the Hong Kong Convention have expressed strong dissatisfaction over two issues:

the Hong Kong Convention does not ban beaching;

and

the Hong Kong Convention does not mandate pre-cleaning

Let us next examine the practicality of these claims.
Beaching

The Hong Kong Convention does not ban the beaching method of recycling.

The developers of the Convention realized that banning of beaching would be meaningless, since sixty-five to seventy percent of the world’s recycling capacity relies on the beaching method.

Instead, the Convention addresses the reduction of the risks to human health and safety and to the environment through requirements on worker safety and training; requirements for the protection of human health and the environment; for emergency preparedness and response; and systems for monitoring, reporting and record-keeping.

In this way the Hong Kong Convention promises to become the universal standard for regulating ship recycling activities, whether these are conducted in countries that employ beaching, or countries employing the alongside recycling method.

Pre-cleaning of hazardous wastes

The HKC does not require that all ships arrive at the recycling facilities of developing countries pre-cleaned of all hazardous materials.

This is because a ship that is pre-cleaned is unseaworthy, since its insulation is stripped, its electrical cables are removed, etc. It is therefore necessary to tow pre-cleaned ships to their place of recycling. And if pre-cleaning was to be done only in OECD (note: there is no international requirement for this, only a European one), it is highly unlikely that the economics, practicality and hazards of towing will allow many ships to be recycled in South Asia, or China.

Instead, HKC recognizes that pre-cleaning can take place in any country, and not only within the OECD, and therefore empowers the recycling State to authorize or restrict each recycling yard according to its capability. In this way, a ship may either be pre-cleaned in the facility where the recycling takes place, or if the recycling facility is not suitably equipped, the pre-cleaning can be done at another facility (possibly nearby) that is equipped and authorized to do so.

Of course, a recycling State can, through the HKC, prohibit some or all its facilities from receiving any hazardous materials. However in the later case it will curtail ship recycling business.
thank you for your attention

The views expressed in this presentation are those of its author
Waste Management in ship recycling yards

Roy Watkinson MBE
RWEC Ltd

Bangladesh University of Engineering & Technology
Dhaka, Bangladesh
January 2012

Contents

• Introduction – scope
• Environmentally Sound Waste Management
  – defining ESM
  – objectives
  – ESM in practice
  – waste treatment and disposal
  – regulating facilities
• What is required
• What is already in place
• Infrastructure needs - downstream
• Potential gaps?
• Steps to implement
Environmental scope

Other Multilateral Environmental Agreements also impact on waste and chemicals management such as:

• Stockholm Convention
  - Persistent Organic Pollutants

• Montreal Protocol
  – Ozone Depleting Substances

• New Mercury instrument

Environmentally Sound Management
the Basel Convention

ESM is the basis for domestic control of waste defined in Article 2(8) of the Basel Convention as:

"...taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes"

Applies to domestic and transboundary movements.
Environmentally Sound Management and the Hong Kong Convention

Full title of the Convention:
“HONG KONG INTERNATIONAL CONVENTION FOR THE SAFE AND ENVIRONMENTALLY SOUND RECYCLING OF SHIPS, 2009”.

Applies to all ships subject to the Convention.

Article 6 of the Hong Kong Convention with Chapter 3 of the Regulations and Guidance set out measures to be taken for ESM.

Environmentally Sound Management in practice

• Key features of ESM
  ➢ practical standards
  ➢ management control
  ➢ regulatory compliance

• A practical definition of ESM:
  “The combination of regulatory provisions, practical standards and management controls brought to bear on processes that ensures the protection of human health and the environment from the potential impacts of waste management activities”.

ESM-continuity between the Hong Kong and Basel Conventions

- substances that may give rise to pollution and endanger the environment and human health, in short or long term are identified;
- measures are designed, procured and put in place to control emissions releases to the environment in a cost-effective manner;
- regular monitoring confirms that the environment is protected;
- record keeping demonstrates effective control.

Objectives for waste management control

Are to:

• protect the environment and human health from the potential adverse consequences of waste management activities
• demonstrate compliance with applicable environmental laws
• prevent long term problems from arising
• provide reassurance to the public and others that waste is being managed properly
• ensure sustainable management of wastes
General requirements for all waste facilities

They should:

– posses a permit
– comply with conditions of permit
– be monitored and inspections recorded

• Where process changes the characteristics of the waste, the new waste must be described so that others know how it is to be managed

• Where treated waste is sent on to landfill the process has to produce waste that is acceptable for landfilling.

What is in place: practical standards
ESM in a national context

Are there published:

• national (or local) environmental criteria that identify the expected level of environmental protection?
• environmental standards, using such criteria or e.g. recognised international standards)?
• industry standards?
• technical standards for operation of facilities including practical manuals?
• environmental assessment techniques or procedures for identifying the potential impact of facilities?
What is in place - Management Control
What of these are being used:
- documented site operational procedures?
- quality management systems – for auditing by a third party, such as an accredited independent auditor?
- staff who are trained and technically competent?
- provisions such as emergency plans or shut down procedures, for dealing with incidents and problems?
- monitoring of the operation of individual facilities by the operator to check for compliance with the permit?
- monitoring of the environment within and outside the facility, records of which are kept for inspection?

The interface between the recycling facility and downstream waste management operations
- Important for the ship recycling facility and the downstream waste treatment to be compatible. Operations such as:
  - Storage
  - Treatment
may be carried out at both the ship recycling facility site and elsewhere but:
  - Advanced treatment
  - Incineration
  - Landfilling
- Will usually be carried out off-site
Identification of hazardous materials and wastes

These will mainly be from the ship but also
• From the methods of operation at the facility
  – How carefully materials are removed
  – Dismantling method
• Depend on what local markets can absorb some materials may become waste.

Based on expected throughput:
• Assess types, quantities, removal frequency,
• Availability of downstream waste treatment,
• Determine size and range of on-site storage and treatment needed.

Likely hazardous materials

<table>
<thead>
<tr>
<th>Hazardous Material</th>
<th>Treatment/Disposal Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asbestos</td>
<td>Landfill, Solidification, Vitrification</td>
</tr>
<tr>
<td>Polychlorinated Biphenyls</td>
<td>High Temperature Incineration, chemical dechlorination</td>
</tr>
<tr>
<td>Ozone Depleting Substances</td>
<td>High Temperature Incineration</td>
</tr>
<tr>
<td>Antifouling materials</td>
<td>Solidification, Landfill</td>
</tr>
<tr>
<td>Cadmium</td>
<td>Physico-Chemical Treatment, Landfill</td>
</tr>
<tr>
<td>Chromium</td>
<td>Physico-Chemical Treatment, Landfill</td>
</tr>
<tr>
<td>Lead</td>
<td>Physico-Chemical Treatment, Landfill</td>
</tr>
<tr>
<td>Mercury</td>
<td>Physico-Chemical Treatment, Landfill</td>
</tr>
<tr>
<td>Poly Brominated Biphenyls PBB</td>
<td>High Temperature Incineration</td>
</tr>
<tr>
<td>Poly Brominated Diphenyl ethers (PDBE)</td>
<td>High Temperature Incineration</td>
</tr>
<tr>
<td>Poly Chlorinated Naphthalenes</td>
<td>High Temperature Incineration</td>
</tr>
<tr>
<td>Radioactive substances</td>
<td>Recovery, Secure landfill</td>
</tr>
<tr>
<td>Paraffins</td>
<td>Incineration</td>
</tr>
</tbody>
</table>
What is not used – is waste

Other materials as waste

<table>
<thead>
<tr>
<th>Material</th>
<th>Treatment/Disposal Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilge water</td>
<td>Physico-Chemical Treatment, Landfill</td>
</tr>
<tr>
<td>Compressed gas cylinders</td>
<td>Metal recovery</td>
</tr>
<tr>
<td>Electrical Equipment</td>
<td>Recycling, residues to Landfill</td>
</tr>
<tr>
<td>Fibre glass</td>
<td>Landfill</td>
</tr>
<tr>
<td>Fluorescent Tubes</td>
<td>Mercury, glass recovery</td>
</tr>
<tr>
<td>Lead Acid Batteries</td>
<td>Recycling and Physico-Chemical Treatment, Residues to Landfill</td>
</tr>
<tr>
<td>Oils</td>
<td>Recovery, Incineration</td>
</tr>
<tr>
<td>Oily water</td>
<td>Physico-Chemical Treatment</td>
</tr>
<tr>
<td>Pyrotechnics</td>
<td>High Temperature Incineration</td>
</tr>
<tr>
<td>Sludges</td>
<td>Incineration</td>
</tr>
<tr>
<td>Tank Bottoms</td>
<td>Incineration</td>
</tr>
<tr>
<td>Wood</td>
<td>Incineration, Landfill</td>
</tr>
</tbody>
</table>
Preparation for waste removal at a Ship Recycling Facility

...
Clearly laid out stockpiles-

Safe storage of hazardous materials

Subare, Lithuania: Covered asbestos skip. Quayside dismantling area.
Clear labelling of stored waste

controlled handling and protective equipment used when needed
Safe handling = environmentally safe too

Similarity of approach for on-site storage or off-site transfer station

Figure 1: An example of a bunded area
Infrastructure: downstream waste management - treatment/transfer facilities

• Should
  – possess a permit
  – comply with conditions of permit
  – be monitored and inspections recorded

• Where process changes the characteristics of the waste the new waste must be described so that others know how it is to be managed

• Where treated waste is sent on to landfill the process has to produce waste that is acceptable for landfill

The transport interface (open truck, closed truck, flat bed, road tanker, pipeline etc)
Downstream - Advanced treatment - tank farm

Tanks for
• Aqueous wastes
• Flammable liquid wastes
• Blending wastes
• Heavy and light fuel oil

Downstream - Drum storage area

May serve intermediate storage of the wastes to be incinerated in drums divided into sub-areas.
• Sampling area
• Intermediate storage
• Storage of flammable wastes
• Storage of toxic substances
• Drum discharging area
BASEL CONVENTION
TECHNICAL GUIDELINES
ON INCINERATION ON LAND

Basel Convention on the Control of
Transboundary Movements on
Hazardous Wastes and Their Disposal

No. 4

Downstream - Hazardous waste incineration
/energy generation plant
Downstream - Hazardous waste landfill
Access control – signage, gates and fencing

Sanitary Landfill
What is required for regulatory compliance

- is the Basel Convention implemented into national law?
- what laws provide for regulation of waste activities i) at domestic level and ii) for imports and exports of waste?
- Who is the competent authority (environmental regulator) ensuring compliance with the legislative regime?
- are site-specific permits issued with conditions limiting emissions to air, water and land?
- are there penalties for failure to comply, enforceable through the courts?
- are there records of documented inspections and data on monitoring of the facilities by a competent authority?

Regulatory Compliance

The environmental regulator will have (or be able to call upon) powers:
- of entry into premises
- to inspect waste and premises
- to take samples and photographs
- to take evidence from witnesses, employees etc
- to seize other evidence (documentary records, computer files)
- to order waste to be detained and disposed of in an environmentally sound manner
- to issue summonses for court proceedings
- to share information with other enforcement authorities
- undertake surveillance operations.
Regulatory Compliance in Chittagong

Compliance gaps* with the Hong Kong Convention are:

• No recognition of the industry
• No authorizations for yard facilities
• No standards or guidelines applied to ship recycling
• Low level of application of health and safety practices
• Few inspections


Way Forward - Infrastructure for Chittagong

“Significant infrastructure and capacity development in the hazardous waste management sector is required to achieve basic proper storage/disposal levels in the long term, leading to compliance with the HKC and other relevant international agreements and guidelines. The implementation of interventions in the area of hazardous waste management and disposal may present opportunities for engaging public-private partnerships in Bangladesh to the benefit of the greater urban zone of Chittagong, the Port of Chittagong, and the ship breaking industry”.

Summary

For successful ESM of Ship Recycling and its waste management:
• facilities to operate to ESM standards
• technology to be appropriate for the waste
• good quality data and management systems in place
• effective communication between industry and regulator
• sharing of best practice information
• appropriate guidance from Government and regulator
• regulation

Comments for discussion

• a replica Basel control system is not necessarily ideal for end of life ships;
• prior-informed tacit assent, as envisaged by the HKC may work as well for recycling ships as prior-informed consent for wastes; provided that
• good quality data and environmental management systems are in place; and
• supply and flows of adequate information operate effectively –key to assessing the practical impact and value of any system;
• effective communication between industry and regulator is vital;
• enforcement – as means of last resort – must be tangible;
• More guidance on all this is likely to be needed.
Thank you for your kind attention

Roy Watkinson MBE
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Notes: