DECOMMISSIONING IN THE CIRCULAR ECONOMY - LESSONS LEARNED FROM SHIP RECYCLING

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17 May 2023

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INTRODUCTION

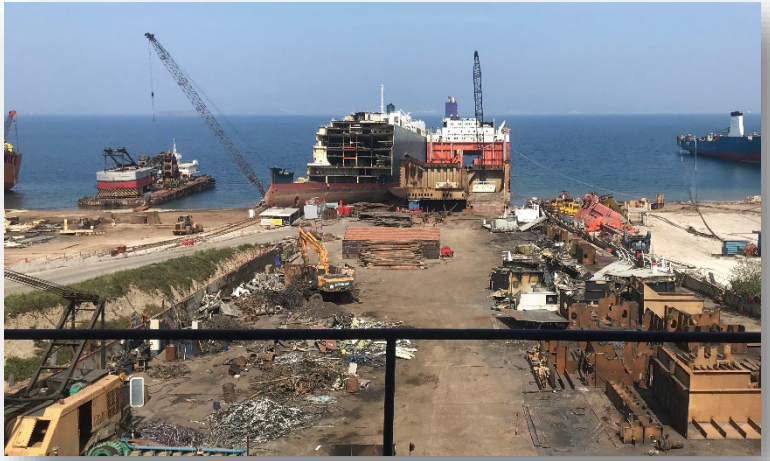
Understanding the circular economy is fundamental

Circular Economy principles can make the decommissioning process safer and more efficient

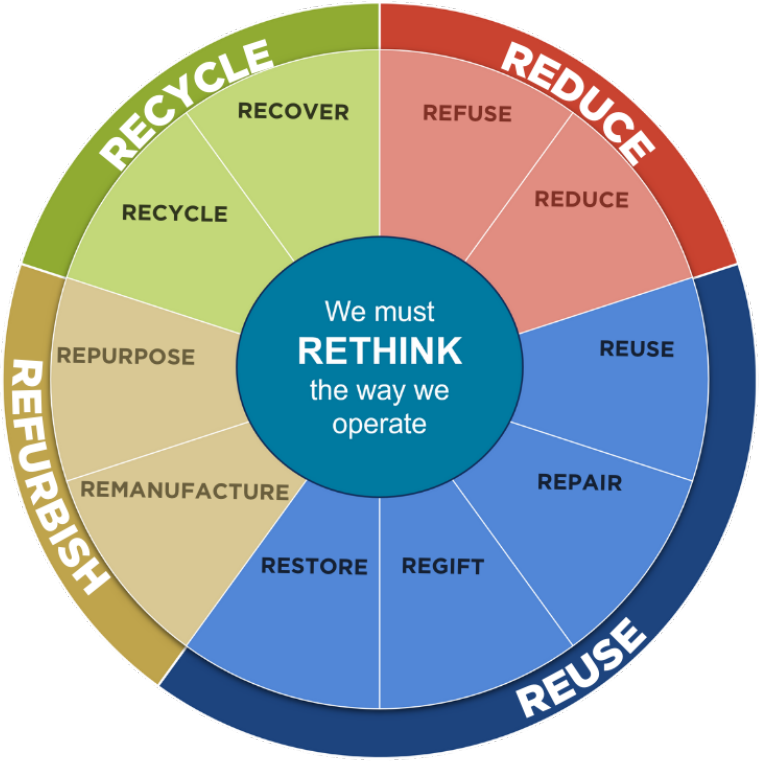
Applying best practices from ship recycling will provide improvements in project outcomes

Simple concepts:

- Control of materials from design to disposal
- Applying existing knowledge from other industries
- Improve decommissioning capacity and capability



CIRCULAR ECONOMY PRINCIPLES



RETHINK: The 10 Rs of the Circular Economy

Ship recycling example – **Refuse** asbestos

Ship recycling example – **Reuse** machinery / parts

Decom example – **Repurpose** steel (wind turbines)

Decom example – **Regift** laundry equipment

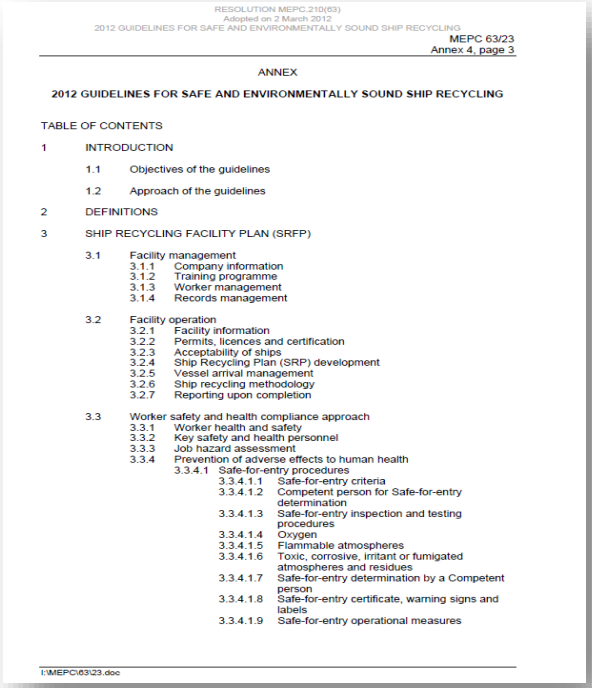
Great example = steel production

Every tonne of steel recycled saves 1.5 tonnes CO_2, 1.4 tonnes iron ore, 740kg coal and 120kg Limestone

2.6 billion tonnes direct CO_2 – 8% man made emissions

EXISTING MARINE LEGISLATION & GUIDELINES

Hong Kong Convention for the Safe & Environmentally Sound Recycling of Ships



RESOLUTION MEPC.210(63)
Adopted on 2 March 2012
2012 GUIDELINES FOR SAFE AND ENVIRONMENTALLY SOUND SHIP RECYCLING

MEPC 63/23
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ANNEX

2012 GUIDELINES FOR SAFE AND ENVIRONMENTALLY SOUND SHIP RECYCLING

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Adopted May 2009

Detailed requirements and guidelines for:

- Shipbuilders – Shipowners – Ship Recycling Facilities – Regulators
- Ships need to develop and maintain an *Inventory of Hazardous Materials (IHM)*
- Recycling facilities need to produce a *Ship Recycling Facility Plan* and ship-specific *Ship Recycling Plans*

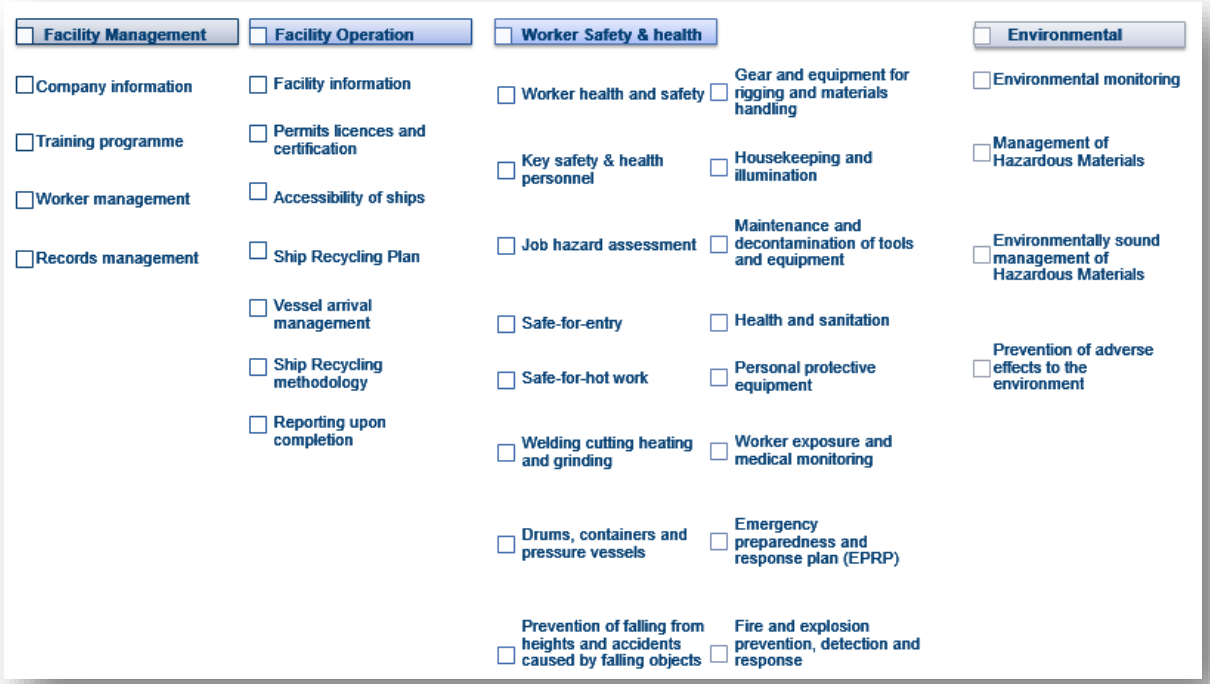
EXISTING MARINE LEGISLATION & GUIDELINES

Hong Kong Convention for the Safe & Environmentally Sound Recycling of Ships

Definition of 'ship' in the Convention

"Ship means a vessel of any type whatsoever operating or having operated in the marine environment and includes submersibles, floating craft, floating platforms, self elevating platforms, Floating Storage Units (FSUs), and Floating Production Storage and Offloading Units (FPSOs), including a vessel stripped of equipment or being towed."

EXISTING MARINE LEGISLATION & GUIDELINES



Why not apply the exact same requirements to land-based decommissioning?

Land-based activities account for 3% of the total decom budget

3% of £39bn = £1.17bn

Manage risk, follow best practice, avoid financial and reputational cost

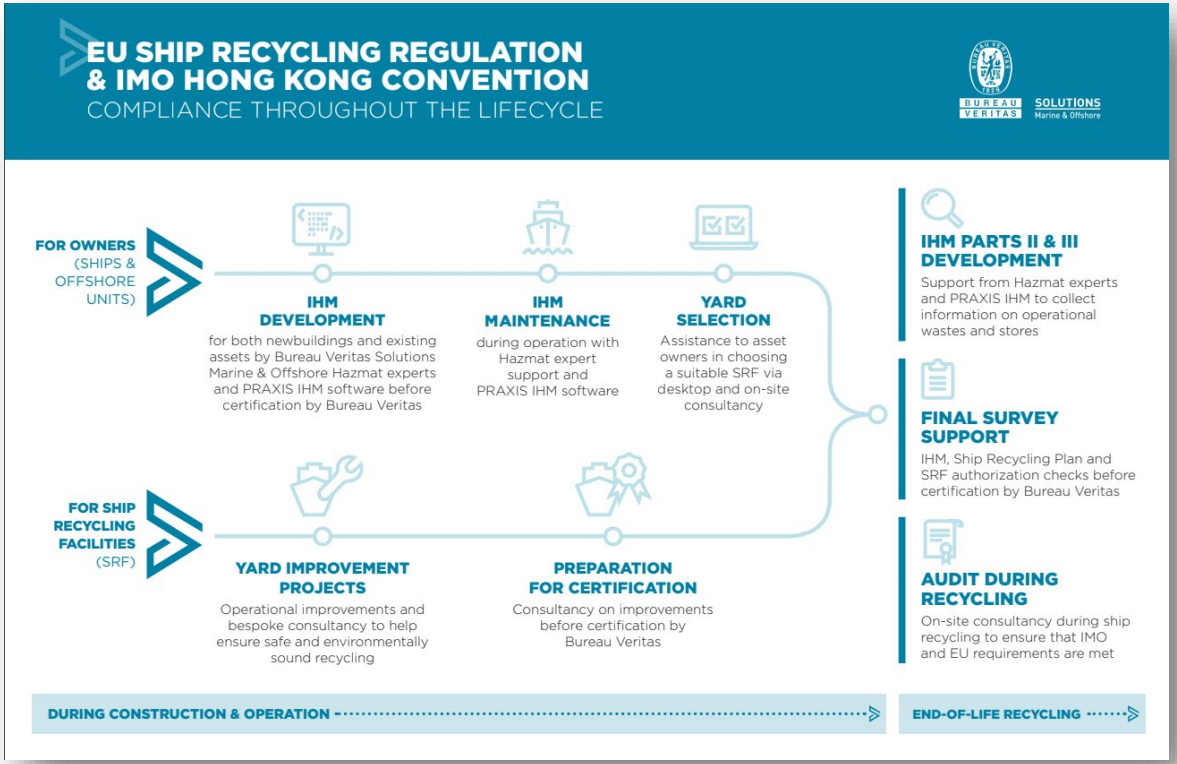
CAPACITY AND CAPABILITY

CAPACITY AND CAPABILITY

‘Circular recycling’ in the UK

- Turkey and Norway are excellent examples of targeting the final 3%
- Why not Scotland?
- Over 2,000 oil and gas wells over the next decade
- Opportunity for Scotland and rest of UK to corner the final £1.17bn stages of decommissioning

BEST PRACTICE EXAMPLES



What can you do now?

- Consider applying the marine model
- Plan ahead
- Select the right yard
- Control of materials during design, operation and end-of-life stages

What needs to be done?

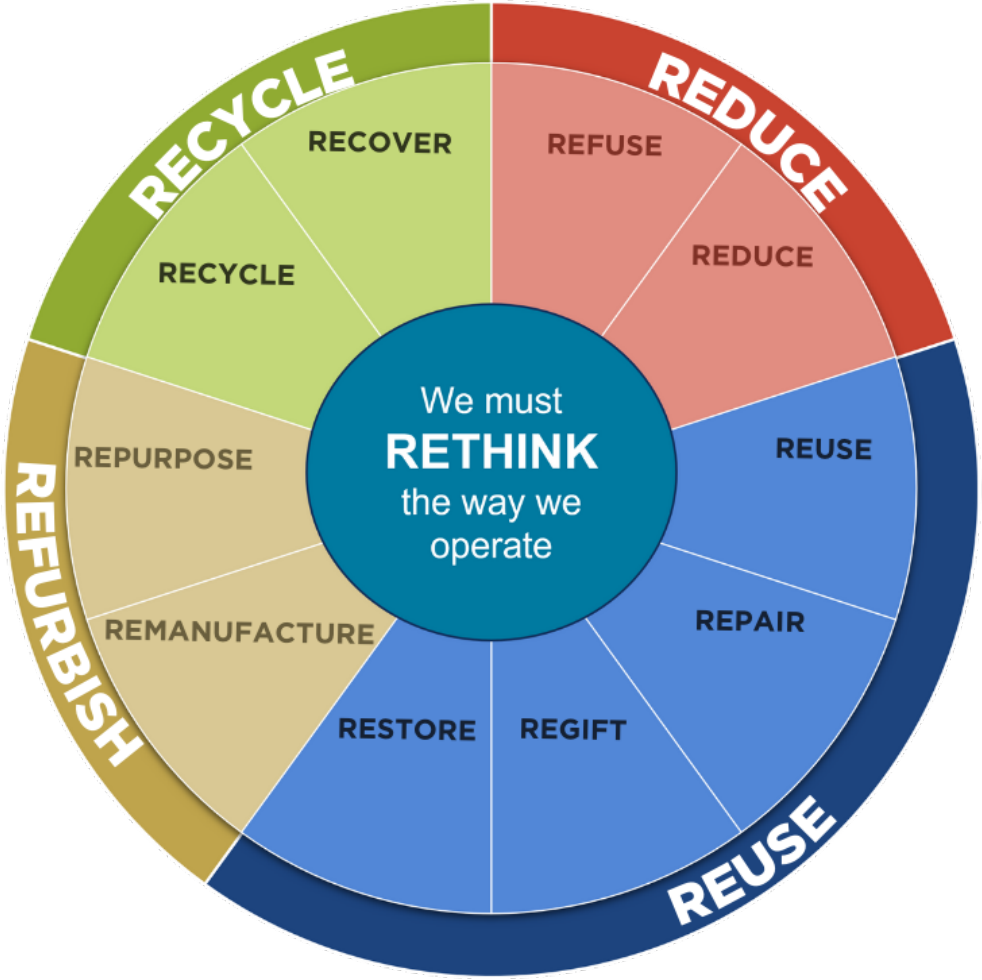
- Circularity benefits from holistic design

WHAT IS NEEDED…?

Collaboration and development

Might v Must:

- Concentrate on circular economy options that *must* work
- Invest in those options
- Investment and the path to success



IN SUMMARY: WE MUST RETHINK THE WAY WE OPERATE

- Net Zero is the global goal
- Very difficult, uncertain and expensive to achieve
- Circular Economy Principles are certain elements of future economy
- Benefits are already available
- Improve efficiency, capacity and capability
- Win-win for Decommissioning

RETHINK
THE 10 Rs OF THE CIRCULAR ECONOMY

Refuse	Do you really need it? Is the existing situation fit for purpose? Stop justifying creating new things.
Reduce	If you must have an item, can you reduce its impact? Can you reduce virgin material use?
Reuse	Don't automatically think something is disposable; stop thinking of closed-life assets; does it still work?
Repair	Offset maintenance costs against newbuilds, or increase your repair budget; extend life.
Regift	Who else could benefit from this item? Don't dispose of it; could you sell or gift it to someone?
Restore	Take an existing asset or old product and bring it up to a modern specification.
Remanufacture	Build from reused, restored or repaired items. Can discarded items serve the same function elsewhere?
Repurpose	Convert an existing asset into something else with a different function; for example, a Tanker to an FPSO.
Recycle	Convert perceived waste into products; process materials to low or high grade quality.
Recover	Put existing materials back into the supply chain; could you recover energy from incineration?

THANK YOU

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