"Sustainable transport: innovation challenges for the maritime supply chain"

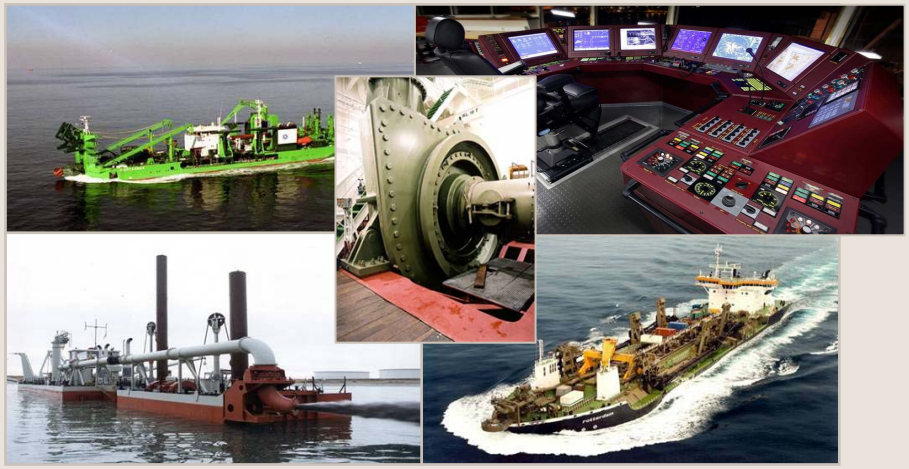
More than just CO2 !!

Brussels, may 11th and 12th, 2010

G.L.M. Hamers – IHC Merwede

The technology innovator.

IHC Merwede: representative of the maritime industry



Dredging & Mining Equipment

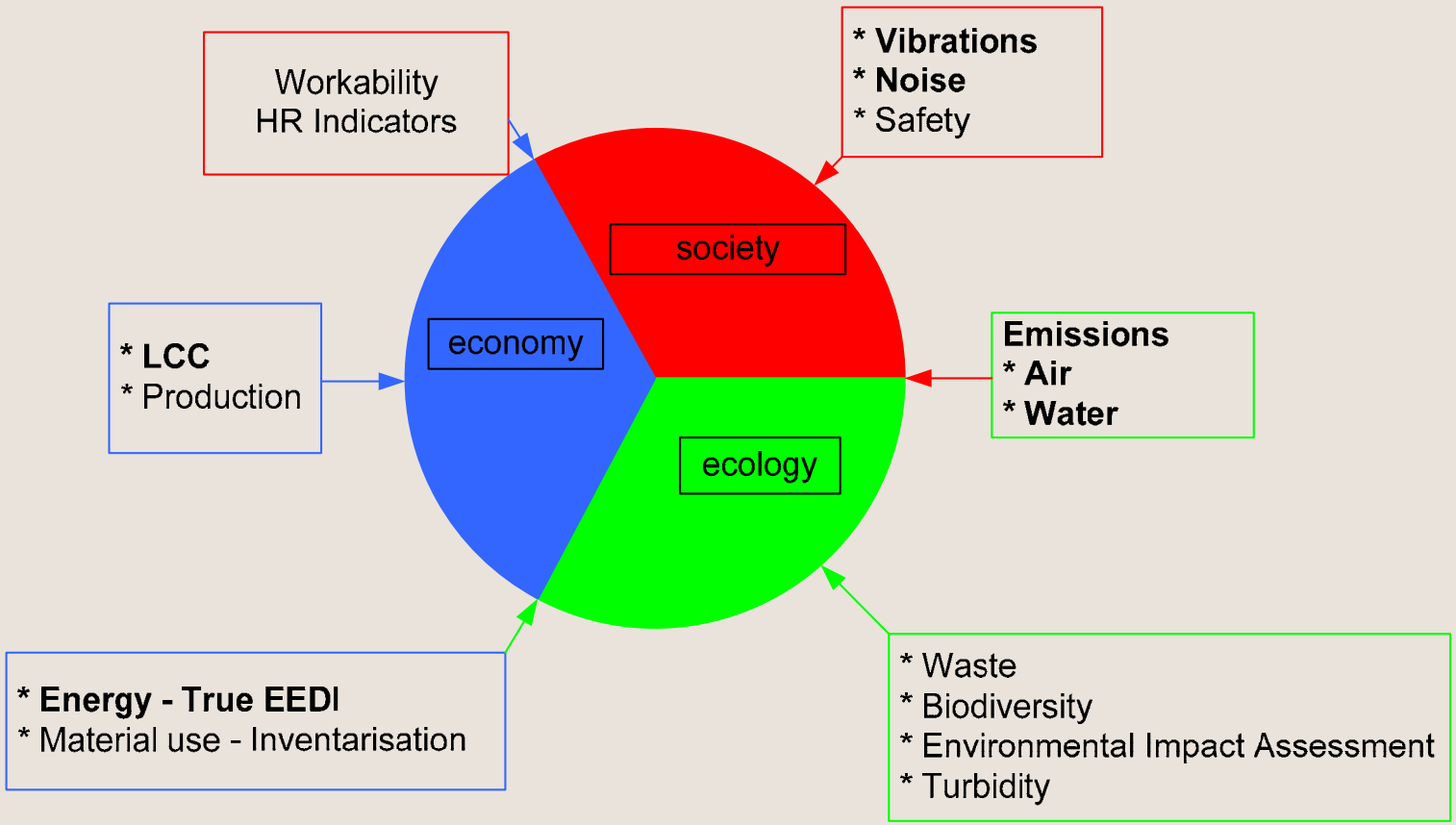
Offshore Systems

Offshore Workvessels

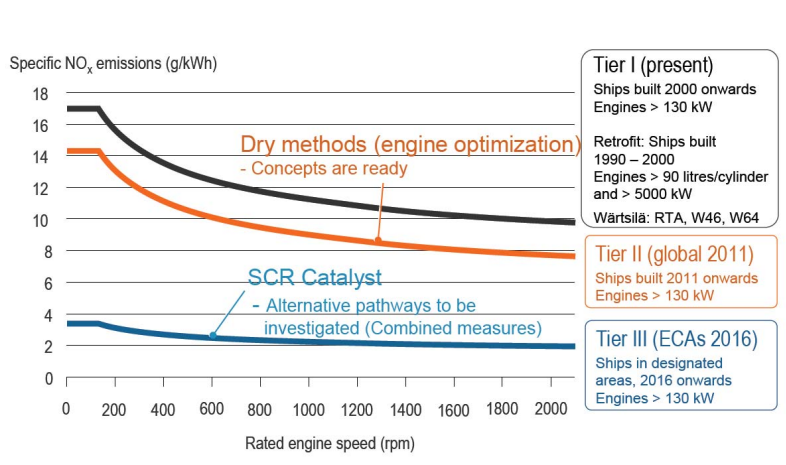
Worldwide CO2 emissions: 2007

	Metric tons	%
Worldwide energy related CO2 emissions	30 000 000 000	100 %
Entire maritime sector	1 046 000 000	3.5 %
EUDA members dredging fleet	7 700 000	0.03 %

IHC Merwede's Sustainability wheel
CO2 improves several aspects

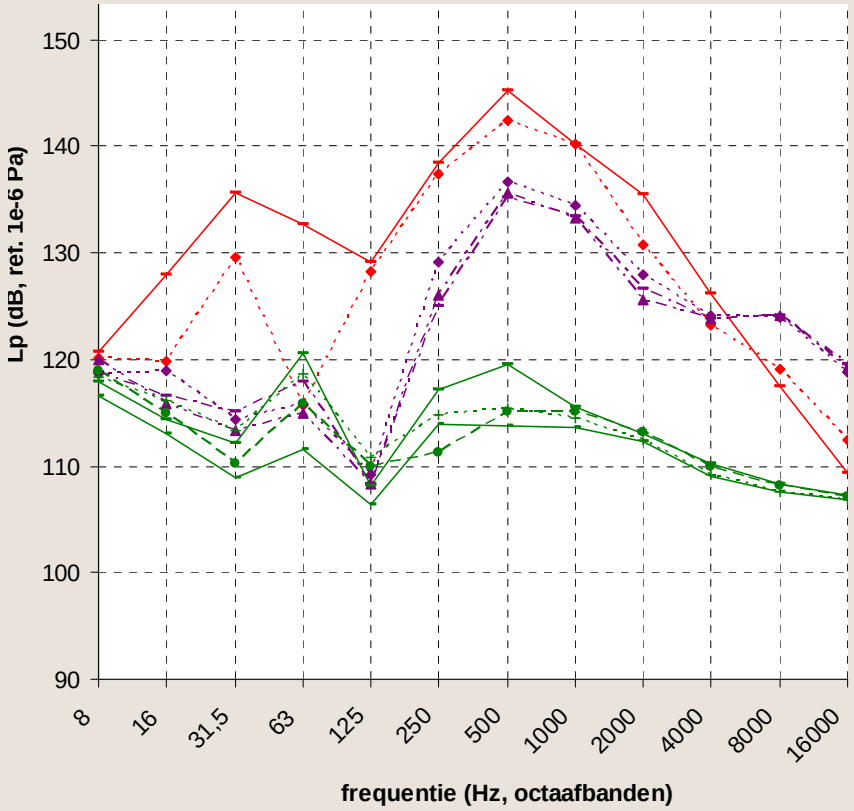


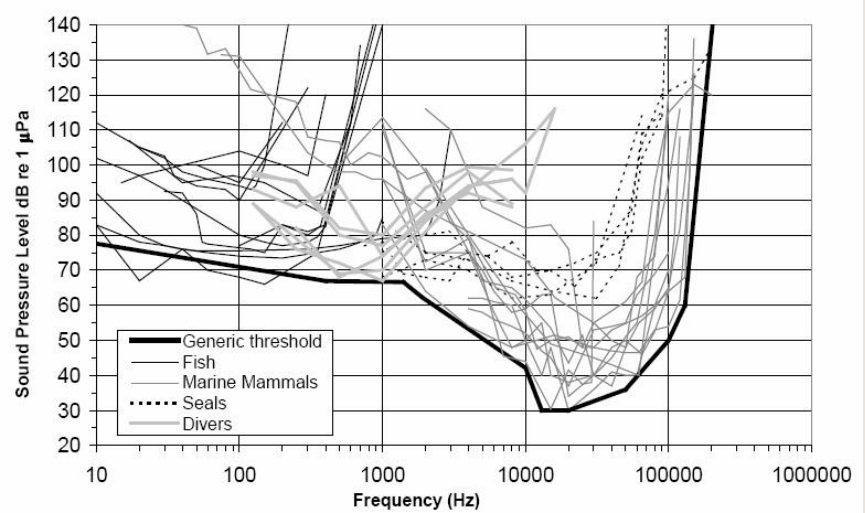
Ecological improvement – emission reduction



Well balanced approach is required

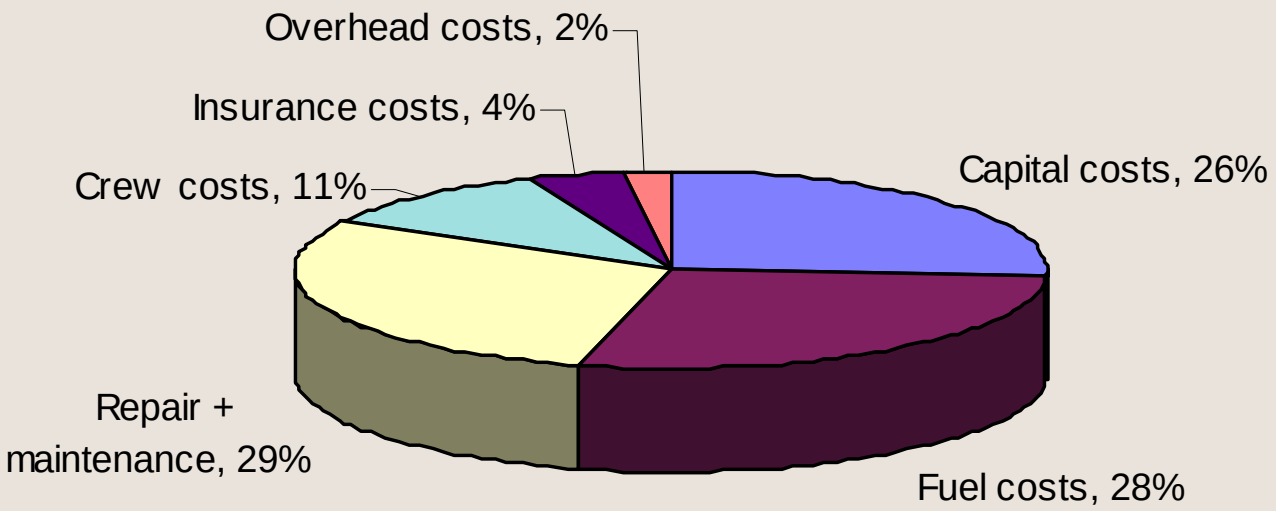
Vibrations & noise reduction
Targeted positive side effect!!



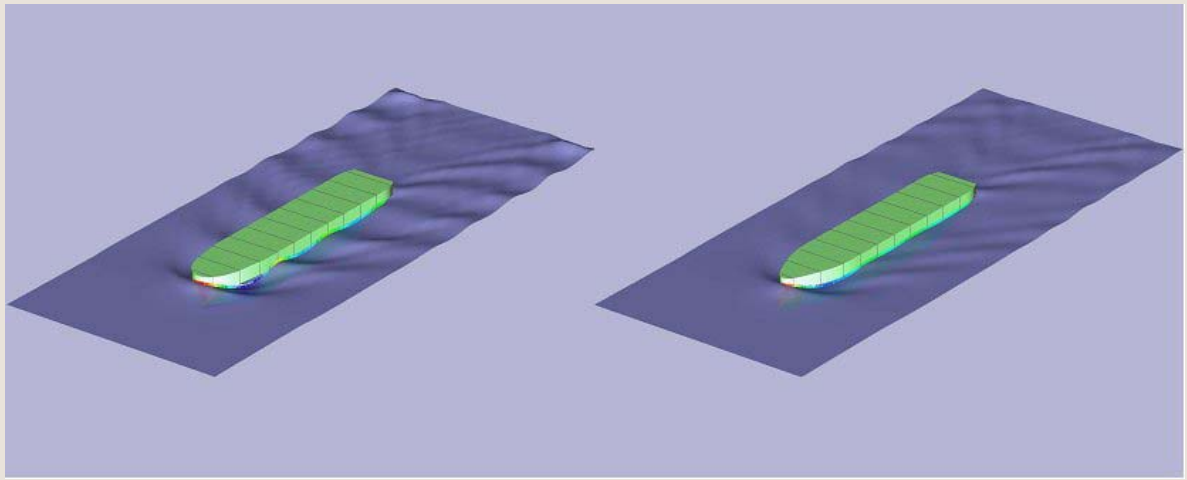


Threshold of hearing [Heathershaw, 2001]

Life cycle cost reduction



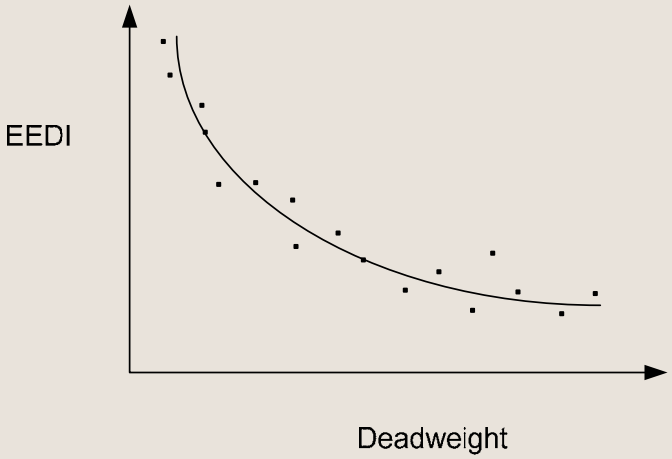
Success from the past

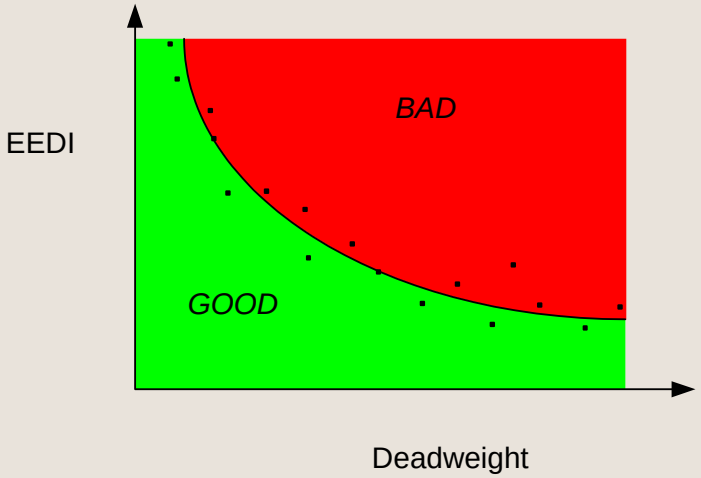


Innovation over a decade resulted in a 25% energy consumption reduction

Monitoring energy efficiency

- IMO : Energy Efficiency Design Index (EEDI)
  - often called: CO_2 index
    1. Take a formula
    2. Calculate EEDI
    3. Trendline: EEDI vs Deadweight

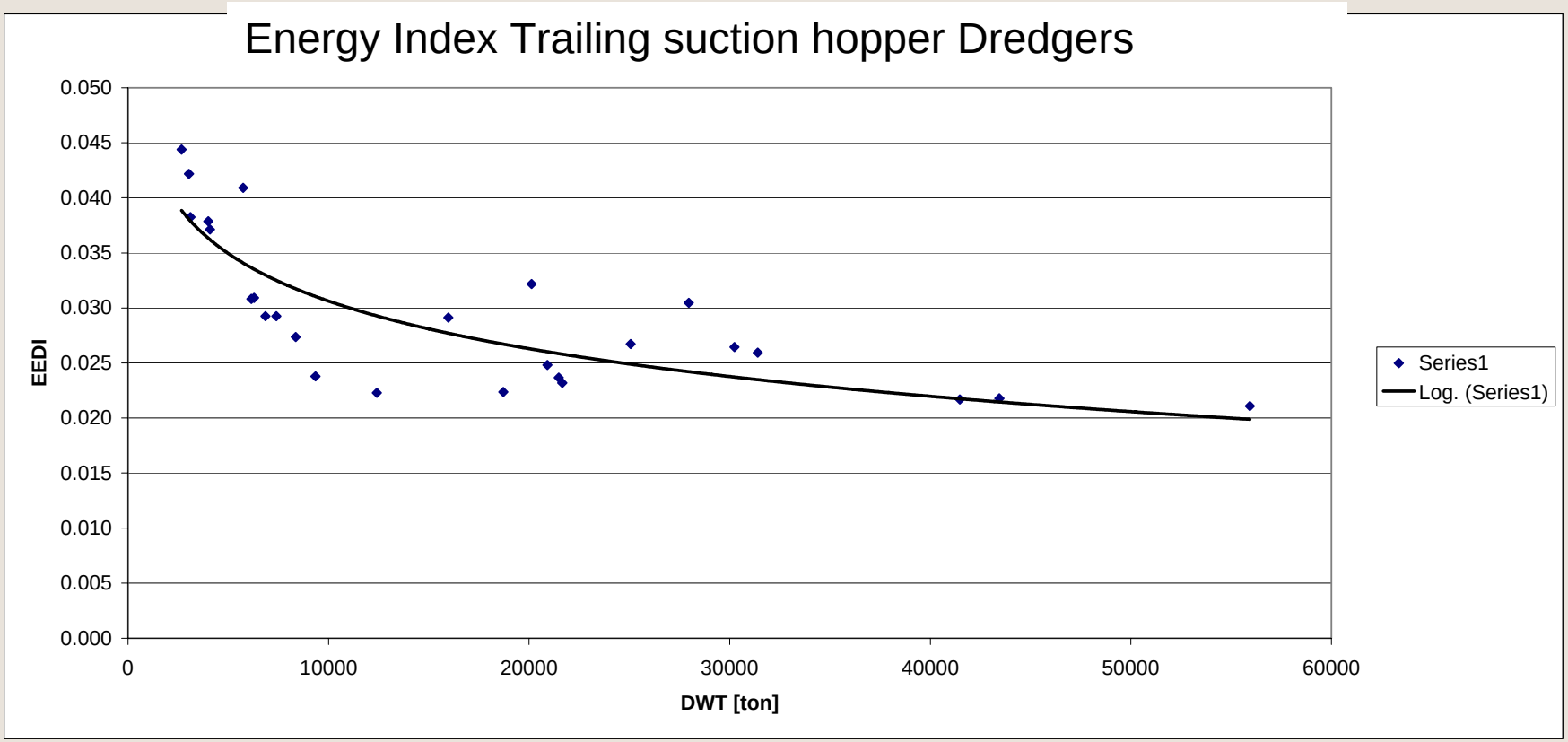




Objections to an EEDI as proposed by IMO

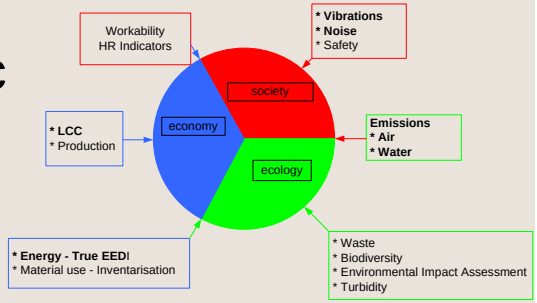
- ***A*** formula does not cover the complex reality of many ship types, including *all* dredgers
- ***IMO*** formula aims at reduction of installed power instead of reduction energy consumption
- ***IMO*** formula is not correct for non standard ship types !

Does an EEDI work for dredgers



Conclusions

- Balanced approach in CO2 reduction is required
- Multiple target: reduce CO2, NOx, SOx, noise, etc
- Generic and specific regulations by EU
- Aim at absolute reduction of emissions
- Improvement of energy efficiency most promising
  - ship hull design for purpose
  - use of post treatment technology
  - shift from power management to energy management
- New roads for energy conversion
  - short/mid term: gas engines
  - long term: fuel cells



Whole EU maritime community + balanced CO2 reduction approach

Thank you for your attention

Brussels, may 11th and 12th, 2010

G.L.M. Hamers – IHC Merwede

The technology innovator.