Assistance for Action

Aviation and Climate Change Seminar

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Greening the Shipping Sector through the GEF-UNDP-IMO GloBallast Programme – A Model for GHG Reduction in Shipping & Aviation?

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Ten of the Most Unwanted

Marine plants, animals and microbes are being carried around the world attached to the hulls of ships and in ships' ballast water. When discharged into new environments, they may become invaders and seriously disrupt the native ecology and economy. Introduced pathogens may cause diseases and death in humans.

Cholera
Vibrio cholerae (various strains)

Native to: Various strains with broad ranges.

Introduced to: South America, Gulf of Mexico and other areas.

Impacts: Some cholera epidemics appear to be directly associated with ballast water. One example is an epidemic that began simultaneously at three separate ports in Peru in 1991, sweeping across South America, affecting more than a million people and killing more than ten thousand by 1994. This strain had previously been reported only in Bangladesh.

North American Comb Jelly
Mnemiopsis leidyi

Native to: Eastern Seaboard of the Americas

Introduced to: Black, Azov and Caspian Seas

Impacts: Reproduces rapidly (self-fertilising hermaphrodite) under favourable conditions. Feeds excessively on zooplankton. Depletes zooplankton stocks; altering food web and ecosystem function. Contributed significantly to collapse of Black and Azov Sea fisheries in 1990s, with massive economic and social impact. Now threatens similar impact in Caspian Sea.

Cladoceran Water Flea
Cercopagis pengoi

Native to: Black and Caspian Seas

Introduced to: Baltic Sea

Impacts: Reproduces to form very large populations that dominate the zooplankton community and clog fishing nets and trawls, with associated economic impacts.

North Pacific Seastar
Asterias amurensis

Native to: Northern Pacific

Introduced to: Southern Australia

Impacts: Reproduces in large numbers, reaching 'plague' proportions rapidly in invaded environments. Feeds on shellfish, including commercially valuable scallop, oyster and clam species.

Mitten Crab
Eriocheir sinensis

Native to: Northern Asia

Introduced to: Western Europe, Baltic Sea and West Coast North America

Impacts: Undergoes mass migrations for reproductive purposes. Burrows into river banks and dykes causing erosion and siltation. Preys on native fish and invertebrate species, causing local extinctions during population outbreaks. Interferes with fishing activities.

Zebra Mussel
Dreissena polymorpha

Native to: Eastern Europe (Black Sea)

Introduced to: Western and northern Europe, including Ireland and Baltic Sea; eastern half of North America

Impacts: Fouls all available hard surfaces in mass numbers. Displaces native aquatic life. Alters habitat, ecosystem and food web. Causes severe fouling problems on infrastructure and vessels. Blocks water intake pipes, sluices and irrigation ditches. Economic costs to USA alone of around US$750 million to $1 billion between 1989 and 2000.

Toxic Algae (Red/Brown/Green Tides)
Various species

Native to: Various species with broad ranges.

Introduced to: Several species have been transferred to new areas in ships' ballast water.

Impacts: May form Harmful Algae Blooms. Depending on the species, can cause massive kills of marine life through oxygen depletion, release of toxins and/or mucus. Can foul beaches and impact on tourism and recreation. Some species may contaminate filter-feeding shellfish and cause fisheries to be closed. Consumption of contaminated shellfish by humans may cause severe illness and death.

Asian Kelp
Undaria pinnatifida

Native to: Northern Asia

Introduced to: Southern Australia, New Zealand, West Coast of USA, Europe and Argentina

Impacts: Grows and spreads rapidly both vegetatively and through dispersal of spores. Displaces native algae and marine life. Alters habitat, ecosystem and food web. May affect commercial shellfish stocks through space competition and alteration of habitat.

Round Goby
Neogobius melanostomus

Native to: Black, Azov and Caspian Seas

Introduced to: Baltic Sea and North America

Impacts: Highly adaptable and invasive. Increases in numbers and spreads quickly. Competes for food and habitat with native fishes including commercially important species, and preys on their eggs and young. Spawns multiple times per season and survives in poor water quality.

European Green Crab
Carcinus maenas

Native to: European Atlantic Coast

Introduced to: Southern Australia, South Africa, USA and Japan

Impacts: Highly adaptable and invasive. Resistant to predation due to hard shell. Competes with and displaces native crabs and becomes a dominant species in invaded areas. Consumes and depletes wide range of prey species. Alters inter-tidal rocky shore ecosystem.

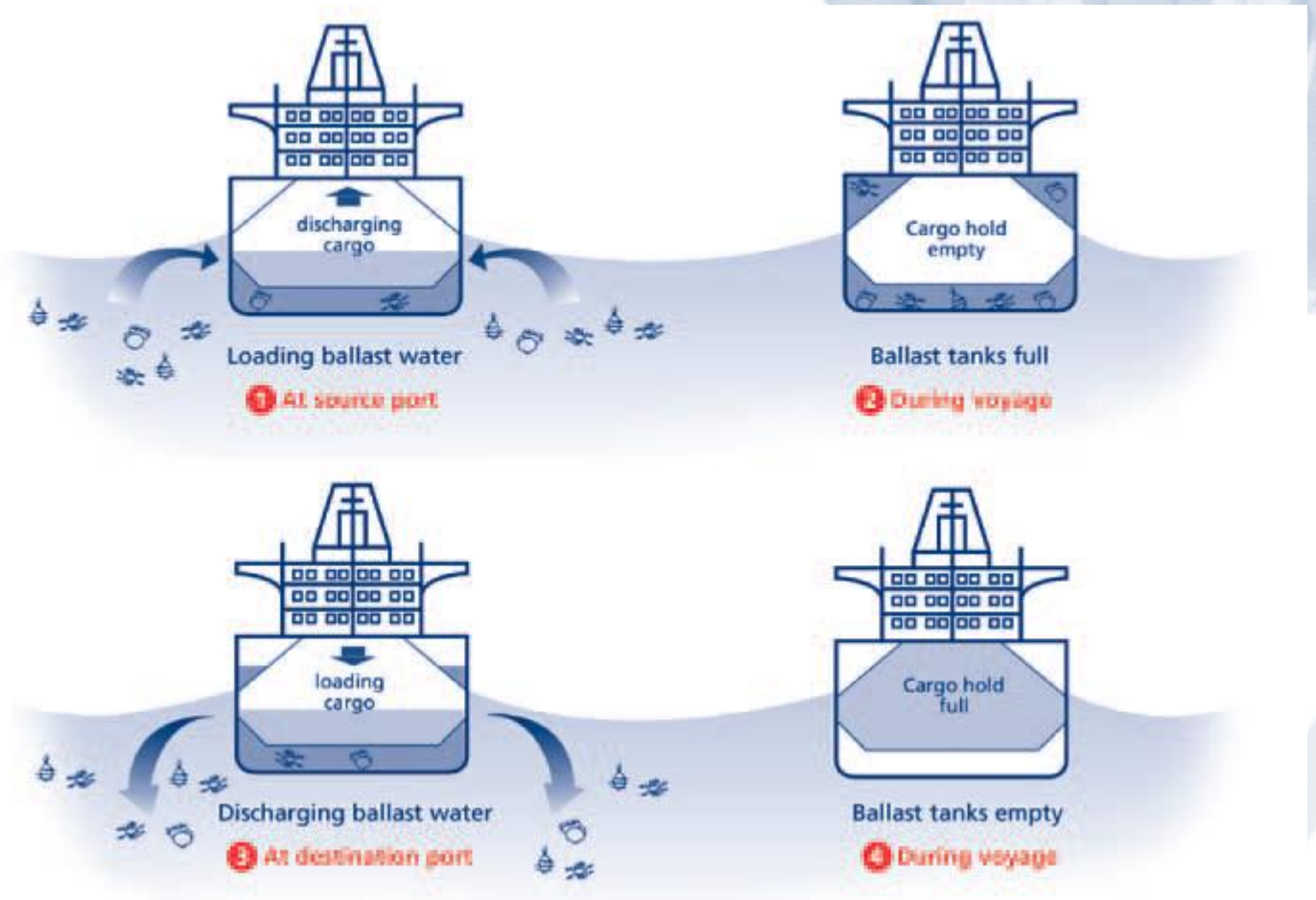
Further Information:

Global Ballast Water Management Programme
International Maritime Organization, London, UK
Fax: +44 (0)20 7587 3261
Web: http://globallast.imo.org

The species presented here are for illustrative purposes only. Their introduced ranges may be greater than depicted. There are numerous other examples of serious marine bio-invasions around the world.

Global Ballast Water Management Programme · GEF · undp · IMO

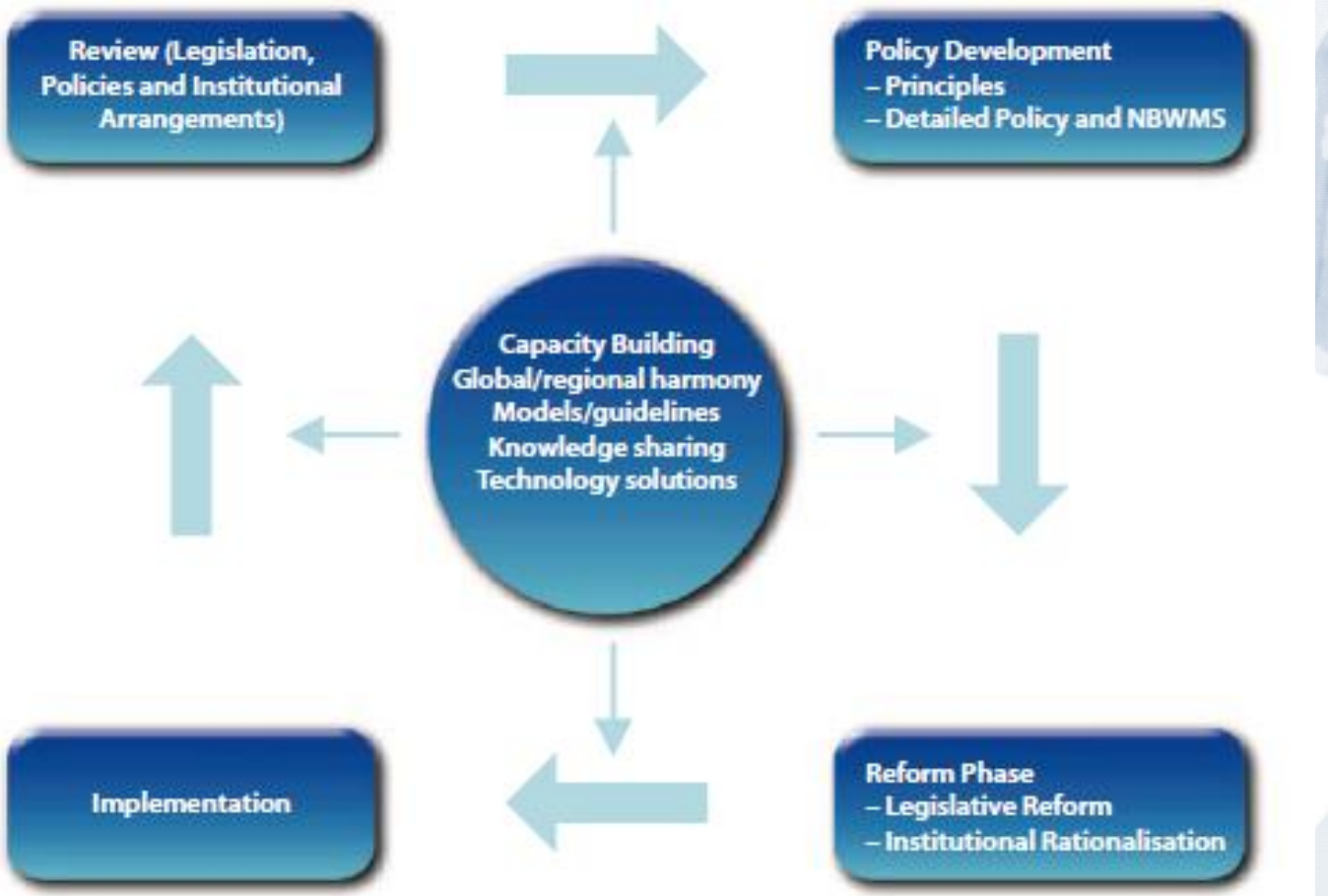
How it works


discharging cargo
Loading ballast water
1 At source port
Cargo hold empty
Ballast tanks full
2 During voyage
loading cargo
Discharging ballast water
3 At destination port
Cargo hold full
Ballast tanks empty
4 During voyage

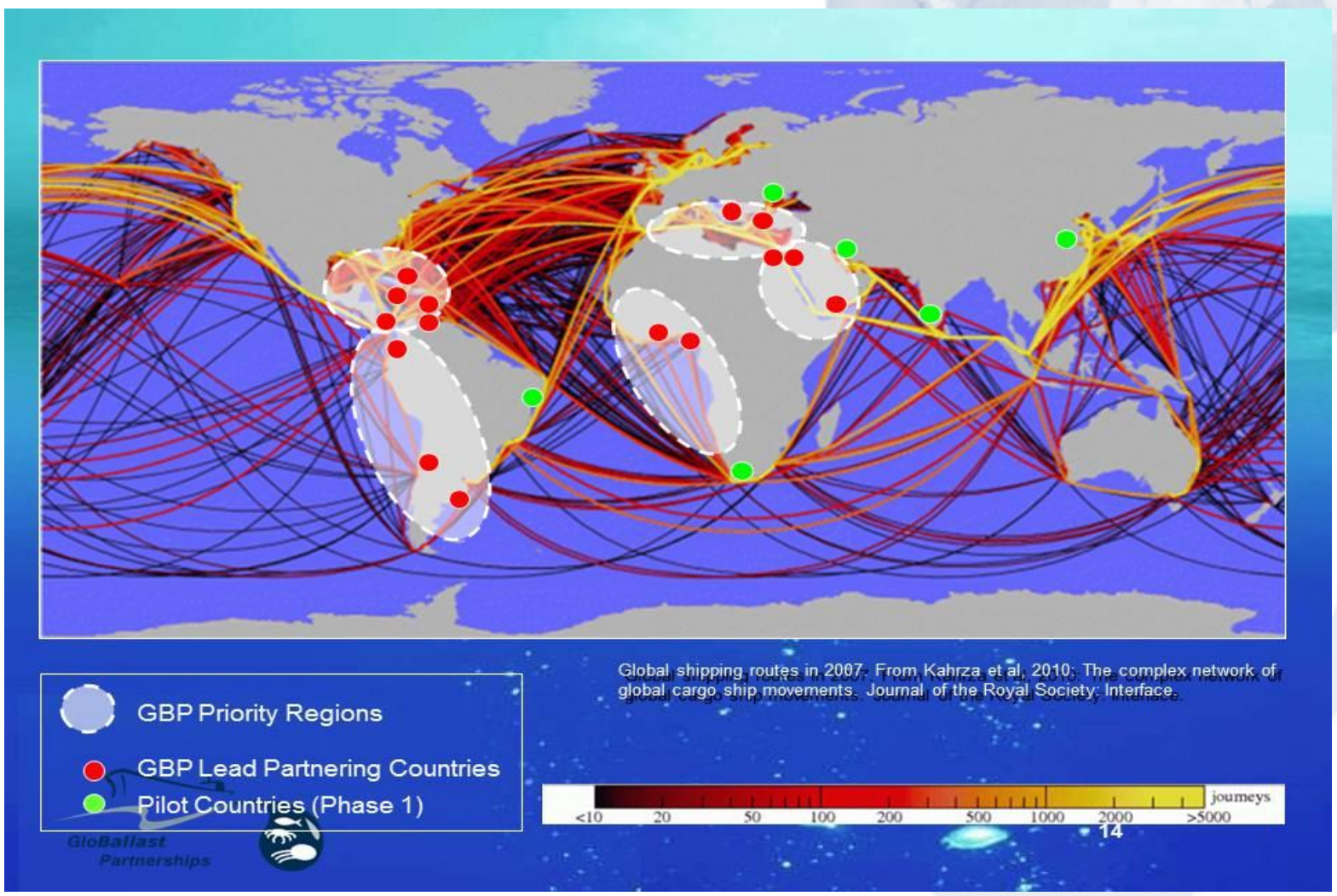
Barriers to effective ballast water management

Type of Barrier	Barriers	Stakeholders			
		Consumers/ Users	Policy Makers	Local & Multi-lateral Financiers	Supply Chains
Regulatory	No uniform global regulations in place. Local/national regulations creating impediments for a shipping as an international, cross-boundary activity	✓	✓		✓
Institutional	Insufficient public sector capacity to address the ballast water problem	✓	✓		✓
Financial	Limited financial resources allocated to address the ballast water issue		✓	✓	✓
Informational	Lack of awareness marine invasive species and, their impacts, and the role of shipping as a vector	✓	✓	✓	✓
Technological	Lack of readily available, cost effective and viable treatment technologies to prevent the introduction of unwanted organisms in ships' ballast water		✓	✓	✓
Political	Lack of cooperation between governmental departments (e.g. maritime administrations, environmental agencies, etc.) on cross-sectoral regulatory issues		✓		
	Poor and inconsistent regional cooperation		✓		

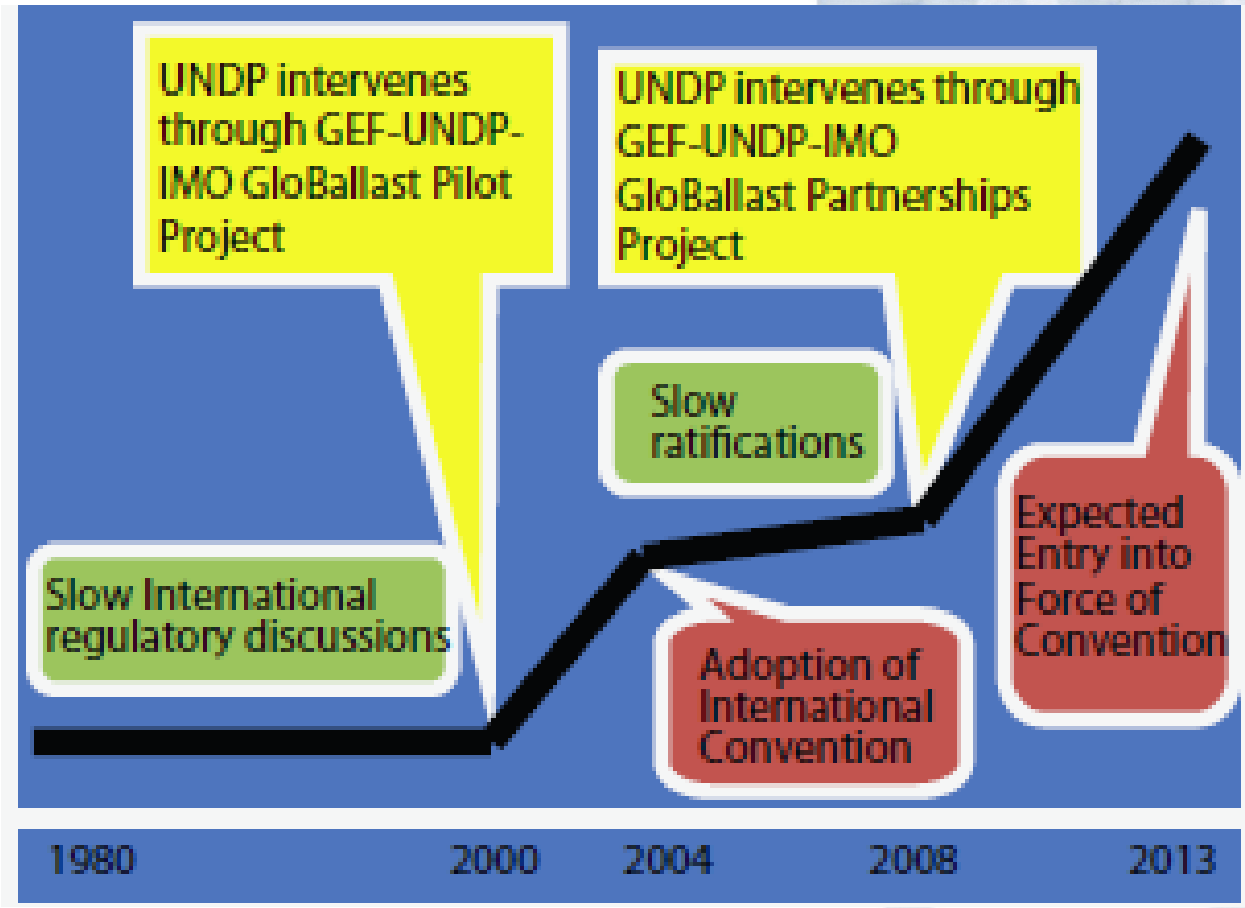
GloBallast Project Strategy



GloBallast countries & regions & international shipping traffic

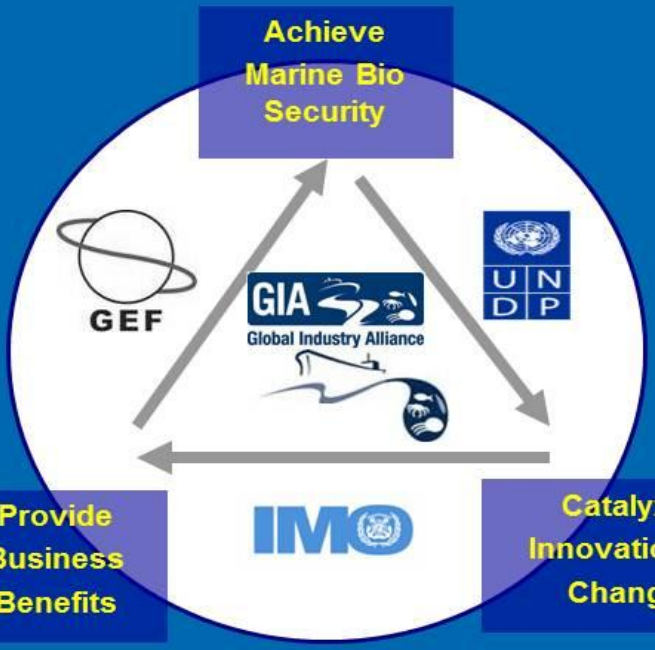


GloBallast – Catalysing progress on new international instrument



Public-Private Partnerships

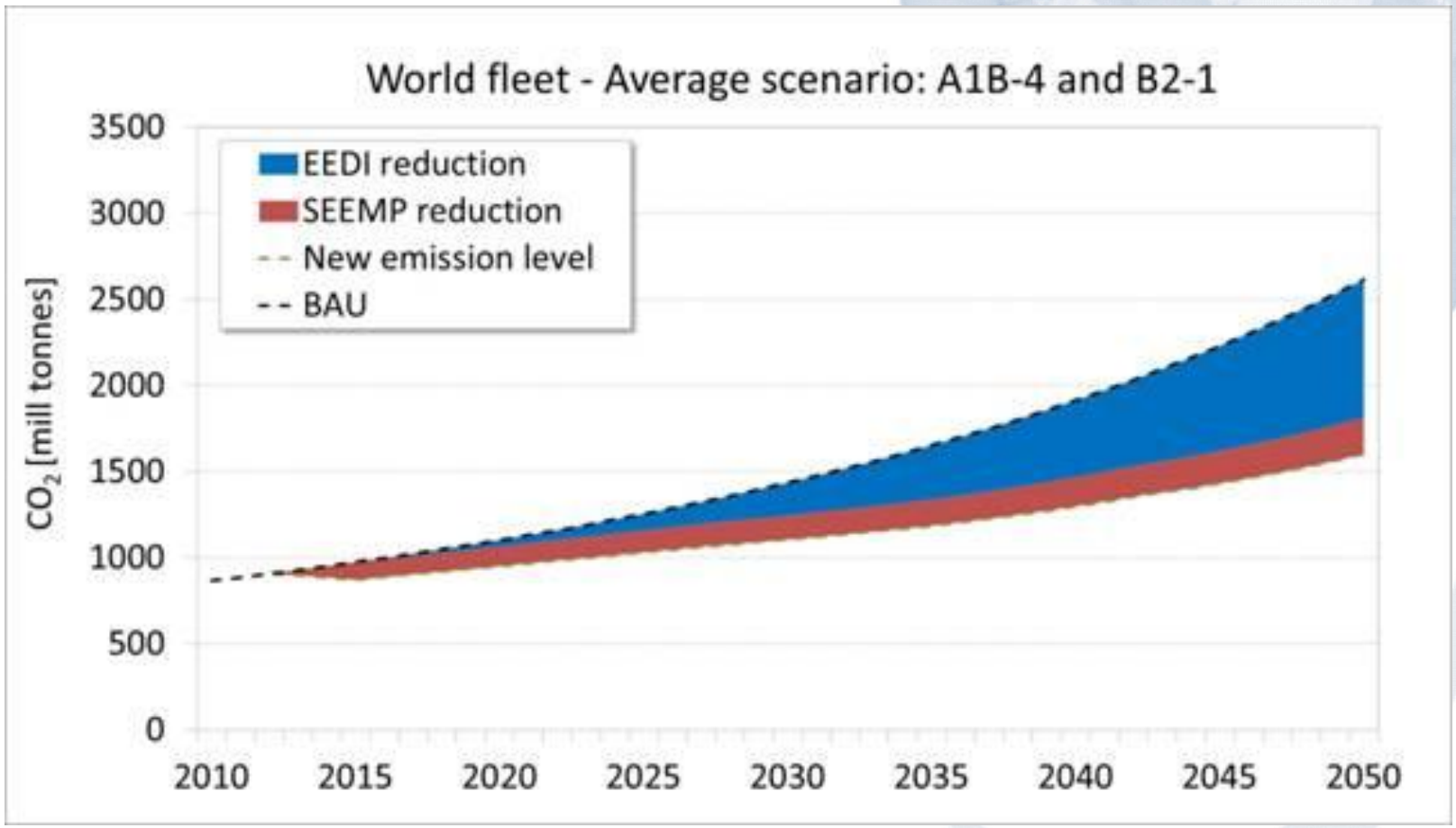
Lloyd's List, March 2009



GloBallast – Catalysing sectoral transformation

Global level – Establishment of a global regulatory framework	Regional level – Harmonisation of implementation and enforcement	National level – Enforcement and compliance monitoring
■ Shipping moves around 90% of the world's trade and is an international and cross-boundary activity that needs global, uniform regulations. ■ The Ballast Water Management Convention, adopted in 2004, regulates how ships should perform their ballast water operations ballast water operations in order to reduce/eliminate the risk of transferring invasive species by ships. ■ Under the Convention, all ships in international traffic must manage their ballast water according to specific standards. ■ Interim measure: ballast water exchange in the open ocean (>200 nm from the coast) to avoid transfer of organisms from one port to another. ■ Long-term: on-board ballast water treatment using physical or chemical processes. Convention specifies treatment standards, as well as testing and approval procedures for systems. ■ Treatment technology market has developed, estimated to more than $35 billion over the next decade.	■ Regional strategies and action plans for harmonised implementation of the Convention have been developed in many regions, including: , – Mediterranean – Red Sea and Gulf of Aden – West and Central Africa – South-East Pacific – Wider Caribbean – Caspian Sea ■ Interim (voluntary) arrangements for ballast water exchange are in place in several regions, including the Gulf (ROPME Sea Area), the North East Atlantic, the Baltic Sea, and in the Mediterranean.	■ Based on the provisions of the Convention, countries are developing their national policies and legislation, ensuring that ships under their flag meet the requirements. Countries will also inspect ships arriving at their ports for compliance. ■ 35 signatories to the Convention to date; Albania, Antigua and Barbuda, Barbados, Brazil, Canada, Cook Islands, Croatia, Egypt, France, I.R. Iran, Kenya, Kiribati, Lebanon, Liberia, Malaysia, Maldives, Marshall Islands, Mexico, Mongolia, Montenegro, Netherlands, Nigeria, Niue, Norway, Palau, Republic of Korea, Russian Federation, Saint Kitts and Nevis, Sierra Leone, South Africa, Spain, Sweden, Syrian Arab Republic, Trinidad and Tobago and Tuvalu. ■ National or local ballast water regulations already established in Argentina, Australia, Chile, Georgia, Israel, Lithuania, New Zealand, Panama (through the Panama Canal Authority), Peru, Ukraine, United Kingdom, United States (both national and state level), etc.

Shipping & GHG emissions



Objectives of proposed GEF-UNDP-IMO Shipping/Energy Efficiency Climate Change Mitigation project

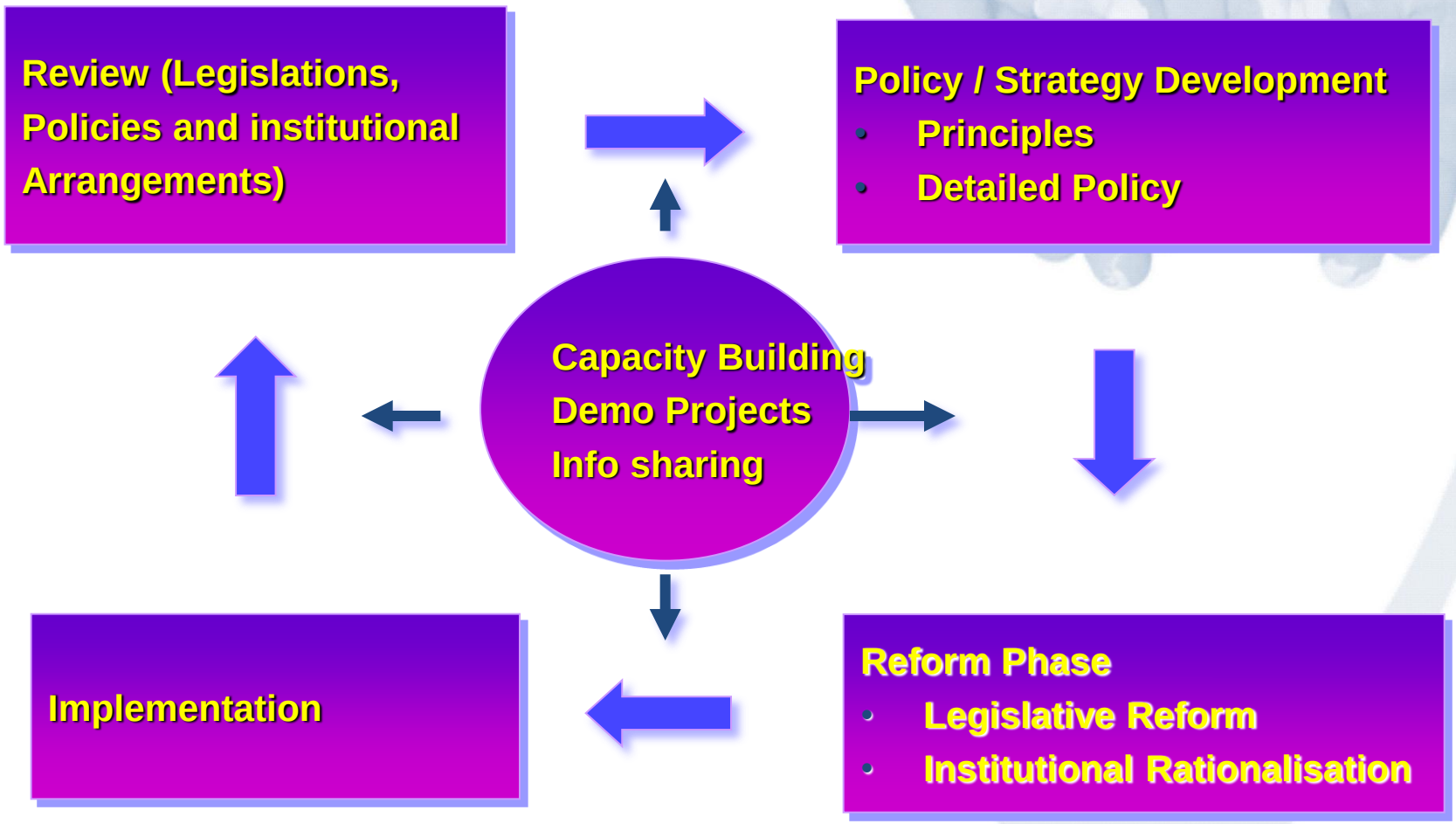
- Enable developing countries to develop and implement, at the national level, appropriate action on CO_2 emissions from shipping, whilst at the same time promote sustainable development.

- The ultimate objective is to establish permanent self-sustaining legal/regulatory, policy and institutional arrangements in participating developing countries to **ensure uniform application of IMO's policies for the reduction of GHG emissions from ships**

Notional project outputs

- Capacity enhanced enabling beneficiary States to implement (and enforce) IMO GHG regulations primarily through Flag State implementation;
- Port State control capacity enhanced for enforcing IMO GHG regulations;
- Awareness raised in the industry through seminars and workshops based on communication material and training packages developed;
- Workshops on fuel efficient ship design developed in consultation with ship building experts;
- Building national capacity on fuel efficient ship operation based on training packages developed

Possible project structure – familiar?



Take home message

- GEF can play an important catalytic role in transforming key sectors like shipping and aviation towards sustainability including through significant reduction of their carbon footprint