

**Asia-Pacific Water Forum  
Webinar – 26 November 2020**

**Integrated Water Resources Management  
from Source to Sea  
- linking the water SDG 6 and ocean SDG 14**



**Dr. Torkil Jønch Clausen  
Chair**

**Action Platform for Source to Sea Management**

# **THE WATER CHALLENGE**

# World Challenges – a water perspective

Today - the sad 'bottom billion':

- 1 billion poor
- 1 billion hungry
- 1 billion without safe water
- 2-3 billion without sanitation
- 1 billion without electricity



Better off by mid-century?

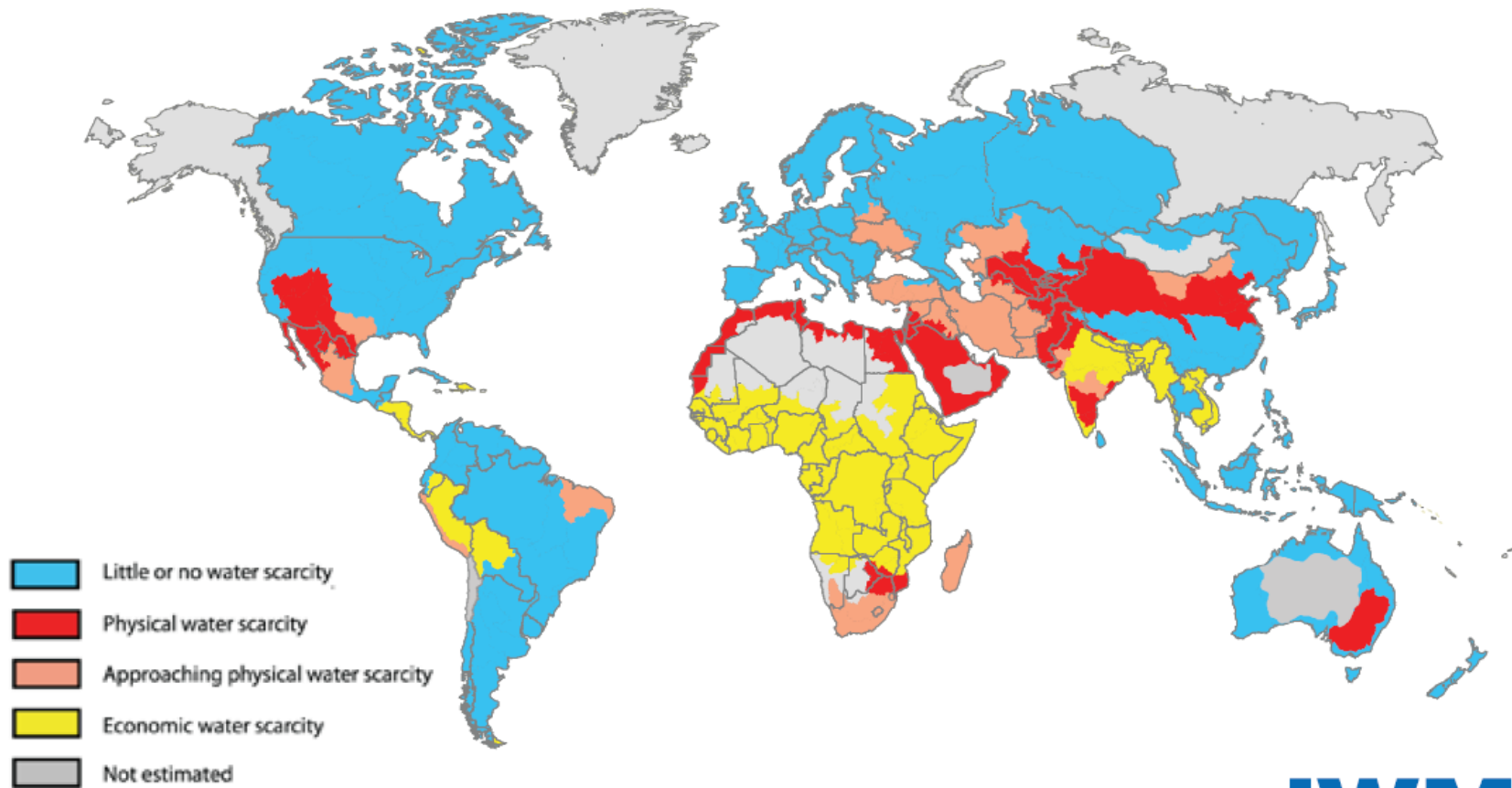
- with expected 50+ % increases in demand:

- food demand
- energy demand
- water demand



- in a climate-changing world
- with more than 60% in Asia-Pacific

# Global water scarcity - physical, economic - not least in Asia-Pacific



# **TOWARDS SOLUTIONS**

## **Making water flow through the SDG's**

# SDG 6 is the connector across SDGs!



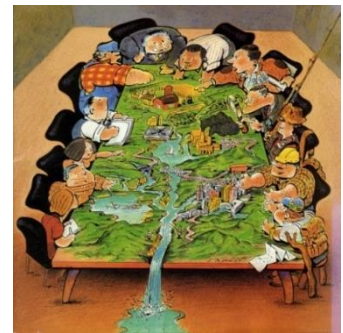
**....not least 6.5. IWRM at all levels!**

**More than half of the 169 SDG targets are “strongly dependent” on water**

**Integrated Water Resources  
Management - IWRM – is the key**

# **IWRM - the universal definition (GWP TAC, 2000)**

**“A process which promotes the co-ordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the vulnerability of vital ecosystems “**





# Increased Competition for Water

Within a country between users

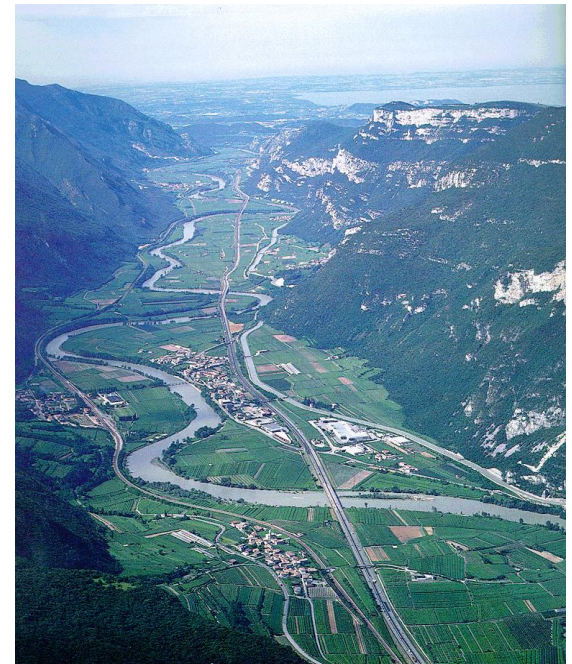
Between countries in  
transboundary basins



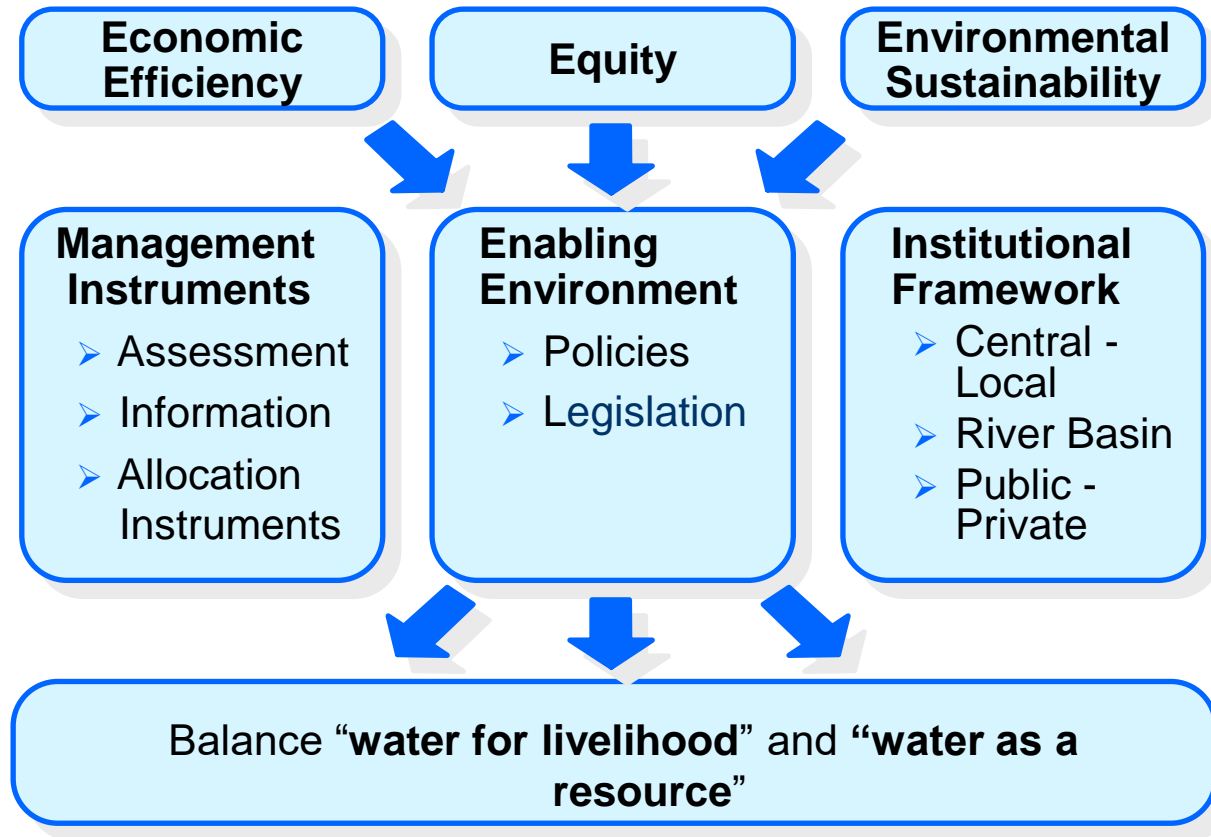
Need for effective water governance



Integrated Water Resources  
Management (IWRM)



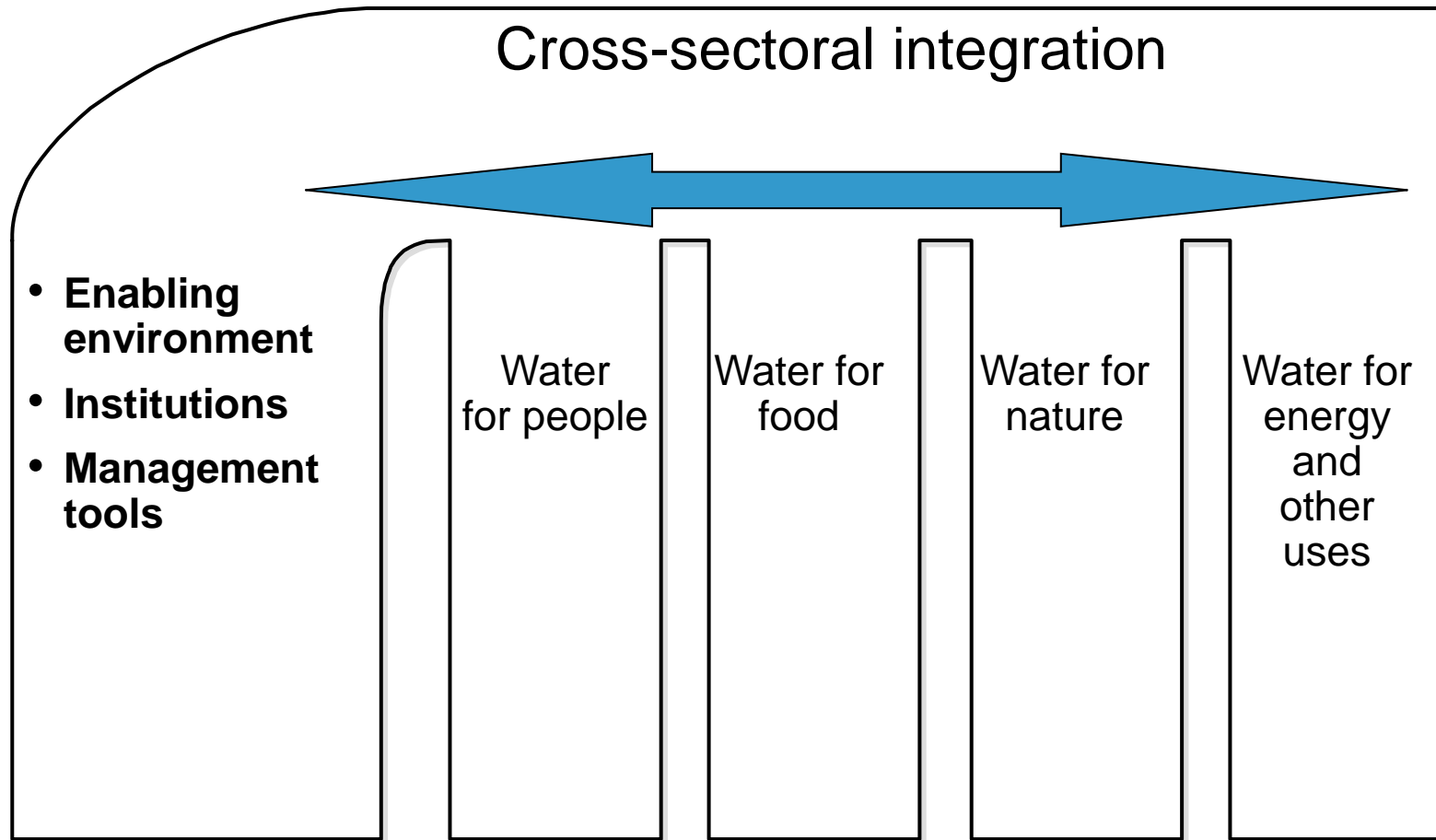
# IWRM Components



**The three “E”s**  
**The three “pillars” of IWRM**

# Managing competing uses:

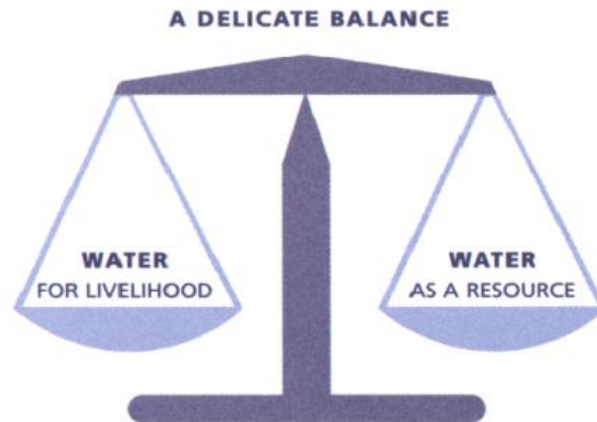
- cross-sectoral integration



# The IWRM target – SDG target 6.5

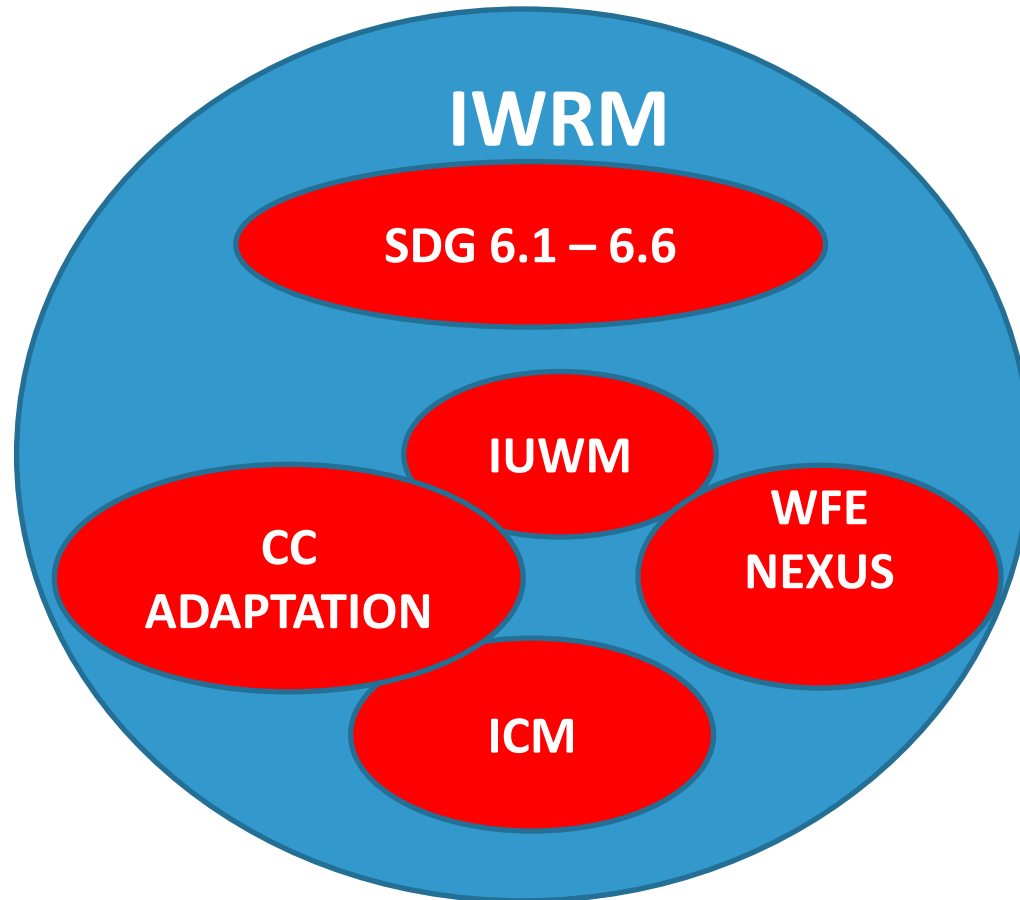
By 2030, implement integrated water resources management (IWRM) at all levels, including through transboundary cooperation as appropriate

=> two indicators: **6.5.1** (all levels) + **6.5.2** (transboundary)



# IWRM/SDG 6.5 facilitating water as a connector

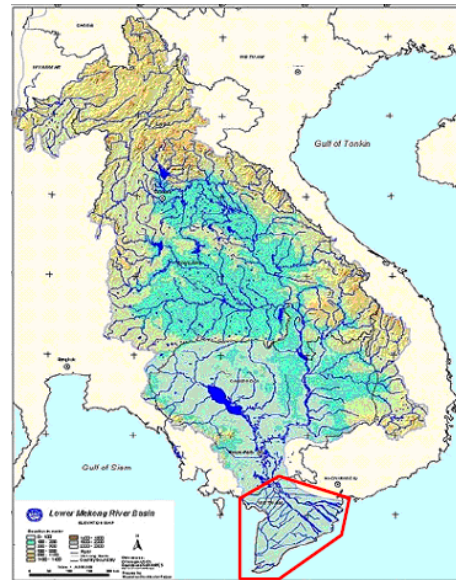
- within SDG 6 and across the SDG's



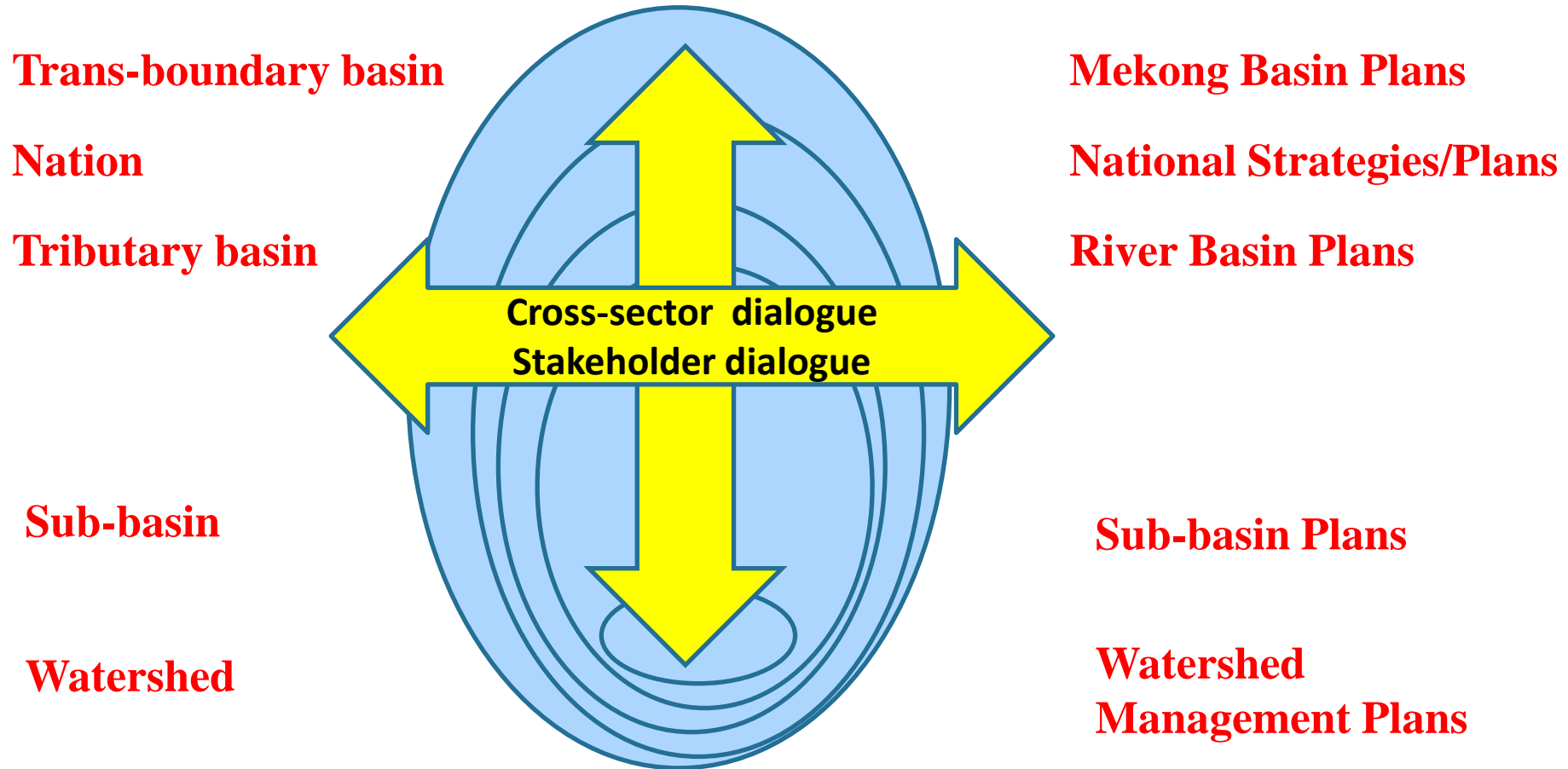
**A broad framework for water management across sectors  
and stakeholder groups**

# **“IWRM AT ALL LEVELS”**

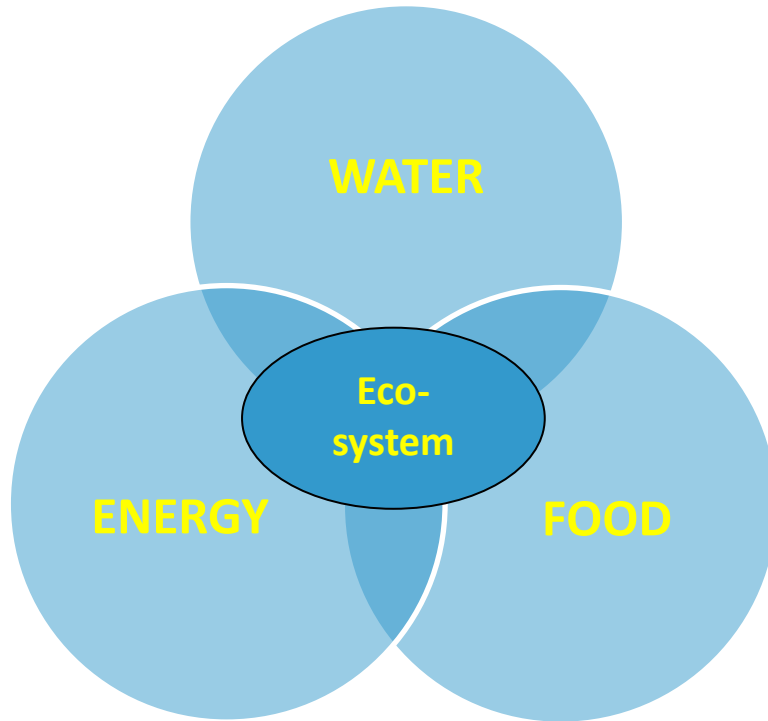
## **The Mekong case**



# Horizontal and vertical integration - across sectors/stakeholders and levels



# IWRM in the Mekong Basin: The Water, Energy and Food Security Nexus



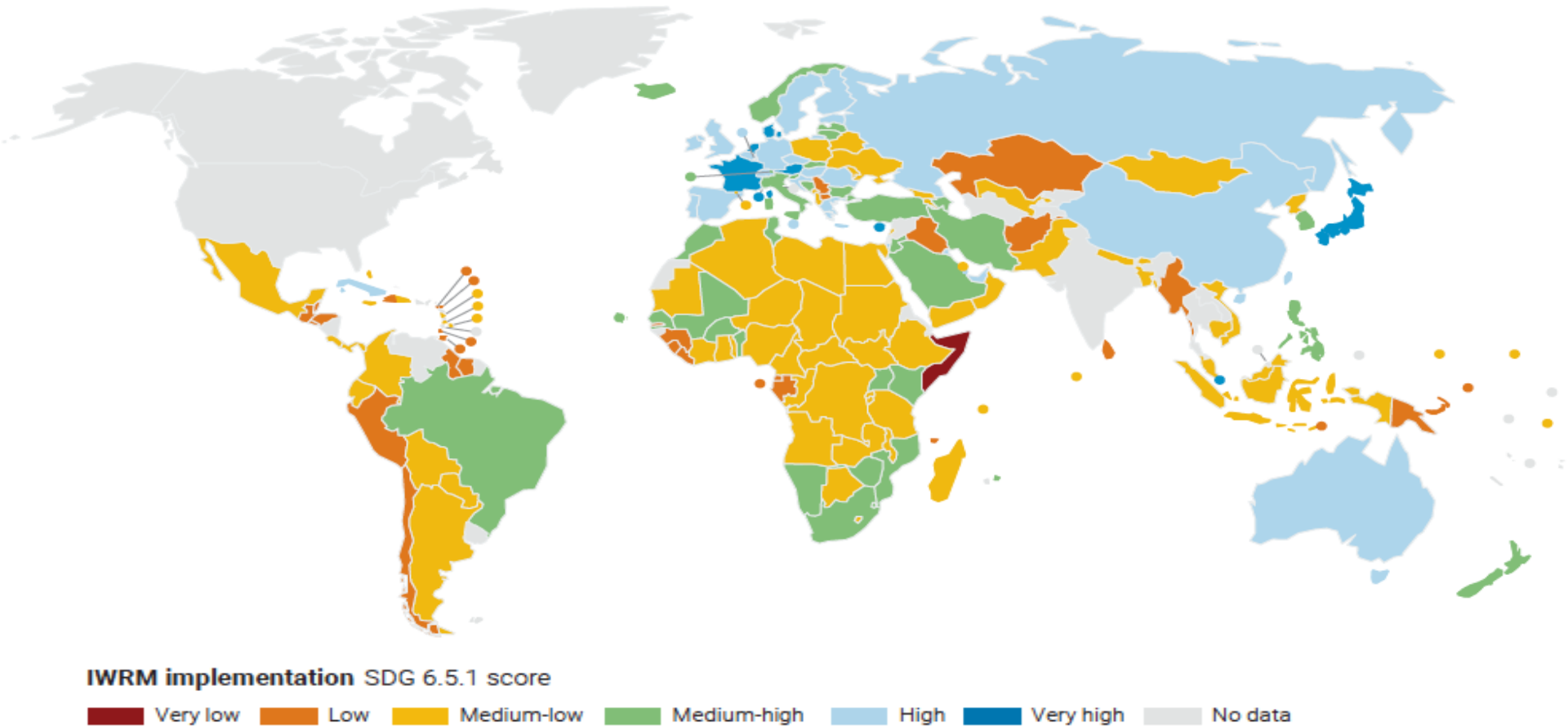
**Linking SDG 2 (food), SDG 6 (water) and SDG 7 (energy)**



**ASIA-PACIFIC IS MAKING  
PROGRESS ON IWRM**

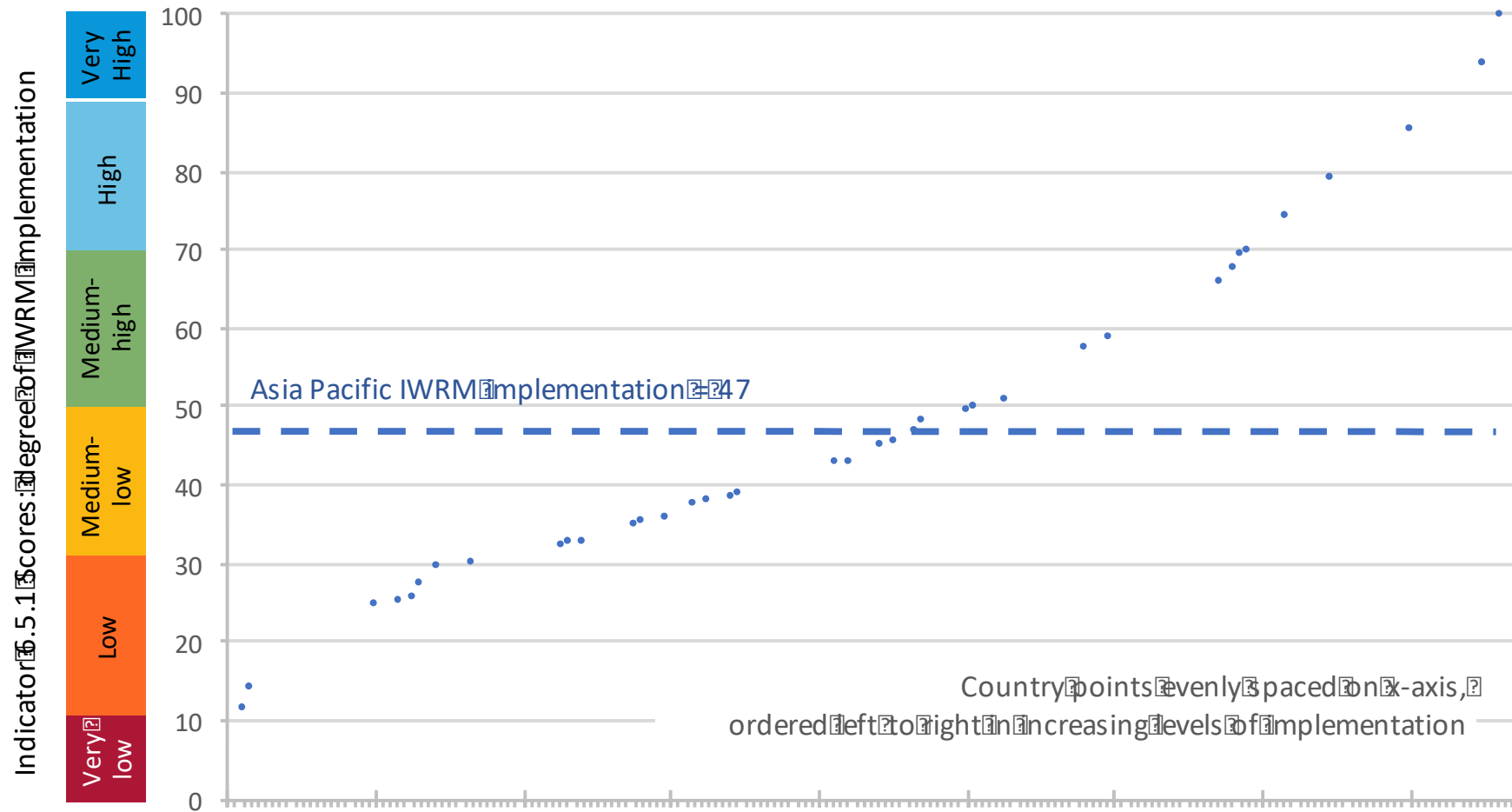
# IWRM baseline 2017

172 countries reported on the baseline in 2017  
(38/49 Asia Pacific)



**80% of countries in AP have laid the foundations for IWRM**

# Asia-Pacific countries: Scores from 12 (Low) to 100 (Very high)



# Asia-Pacific countries are being helped - pilot programs for SDG 6.5

## SDG 6 IWRM Support Programme

Assists governments and other stakeholders in

### STAGE 1 Identifying Challenges



Bring together stakeholders  
to understand the status of water resources  
management in the country

### STAGE 2 Developing Action Plans



Define areas of opportunity  
to turn them into country-led investment projects  
that improve water resources management

### STAGE 3 Implementing Solutions



Carry out the Action Plan  
to ensure measurable progress on SDG 6.5.1 and  
other SDG targets, feeding back into the  
reporting process (stage 1)



**The global freshwater  
challenges affect our coasts  
and oceans**

# **Water resources challenges – from source to sea**

**Globally some 80 % of sewage water is untreated**

**Plastics production increased twenty-fold over the last 50 years**

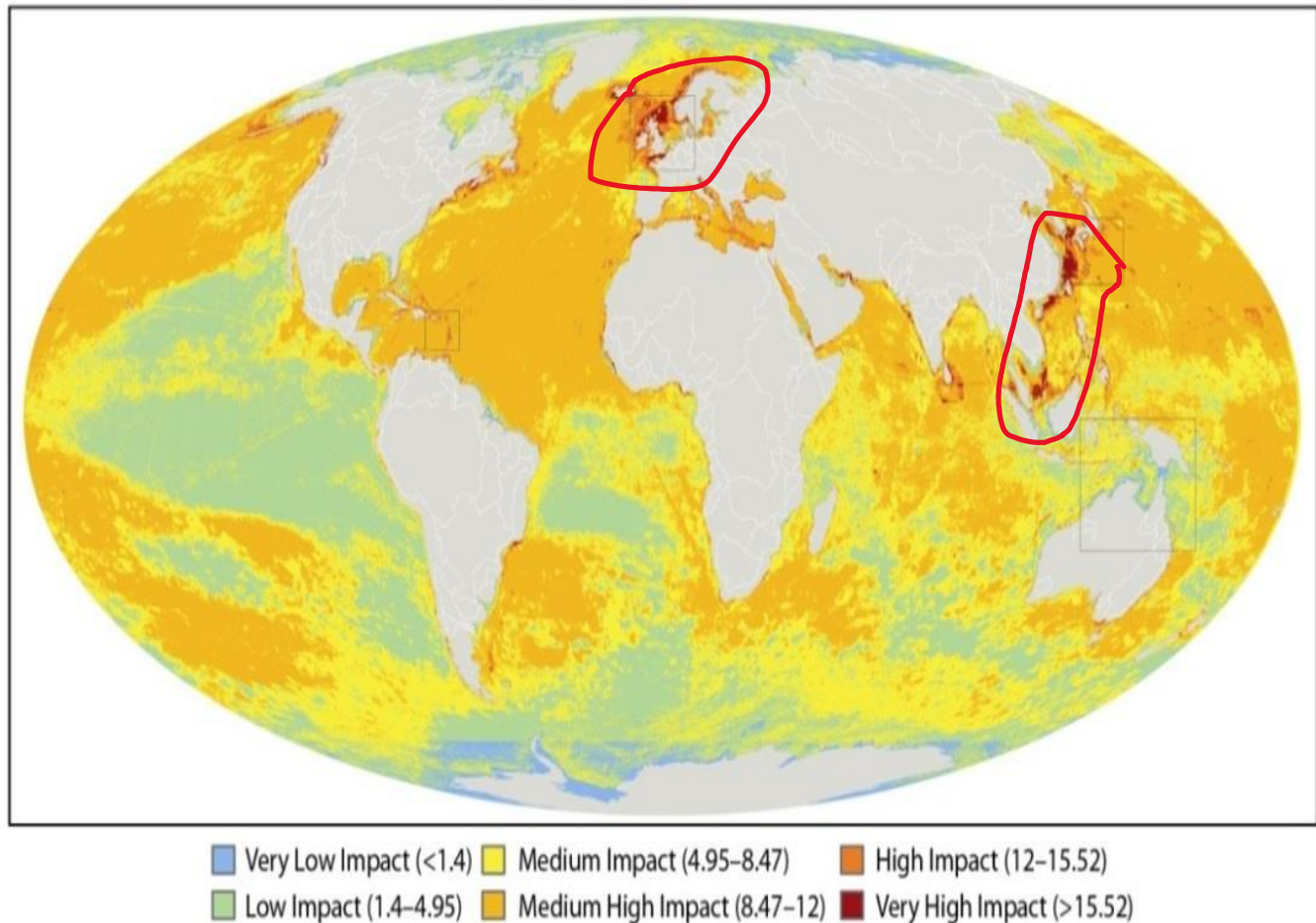


**Virtually no marine area is unaffected by human activities**

**Dead zones in coastal areas have spread exponentially**



# The vast majority of all pollution to the sea from land-based sources

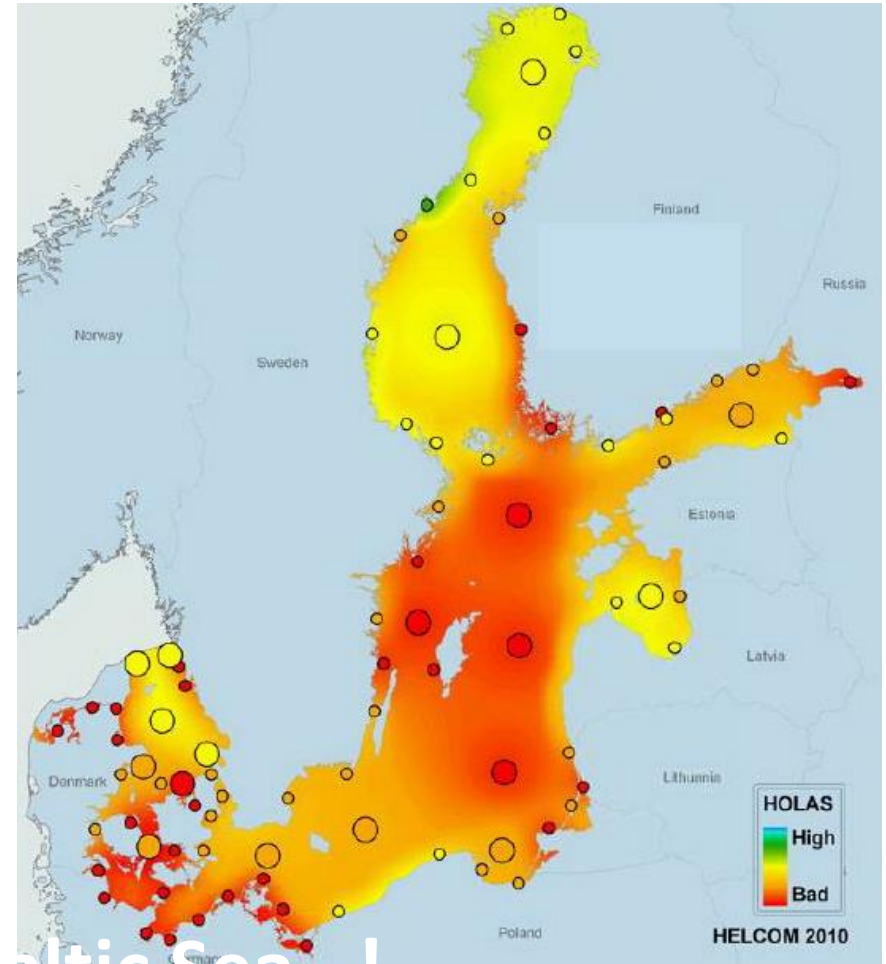


# A telling example from Scandinavia

## - the colors tell a story!

**“None of the open basins of the Baltic Sea have an acceptable ecosystem health status”**

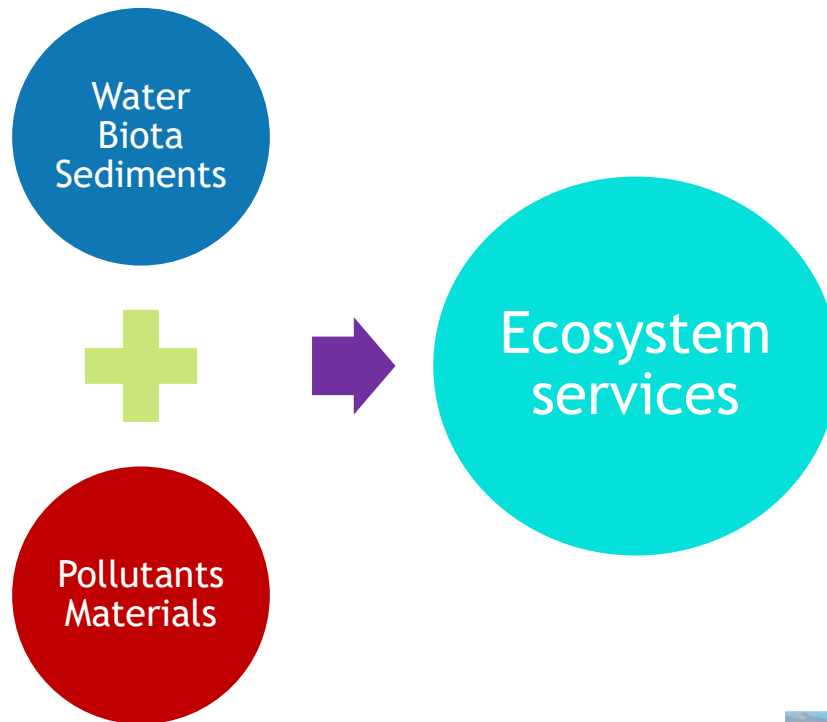
- Biodiversity
- Hazardous substances
- Eutrophication





# **TOWARDS A SOURCE TO SEA APPROACH**

# Addressing the main flows



# Biota flows



**Exploitation of rivers**



**High fishing pressure**



**Lower fish survival (ex. salmon)**

# Pollution and material flows

**80-90% of the *marine debris* land-based**

**4-13 million ton *plastics* enter the oceans every year**

**Diffuse sources of pollution/runoff still a major challenge in most countries, notably *agrochemicals* (ex. nutrients and pesticides)**



# Water and sediment flows

## Too much:

Flood risk, smothering of coastal habitats, land slides,...

## Too little:

Delta starvation, erosion,...

(Ex: Yellow River, Red River, Mekong River)



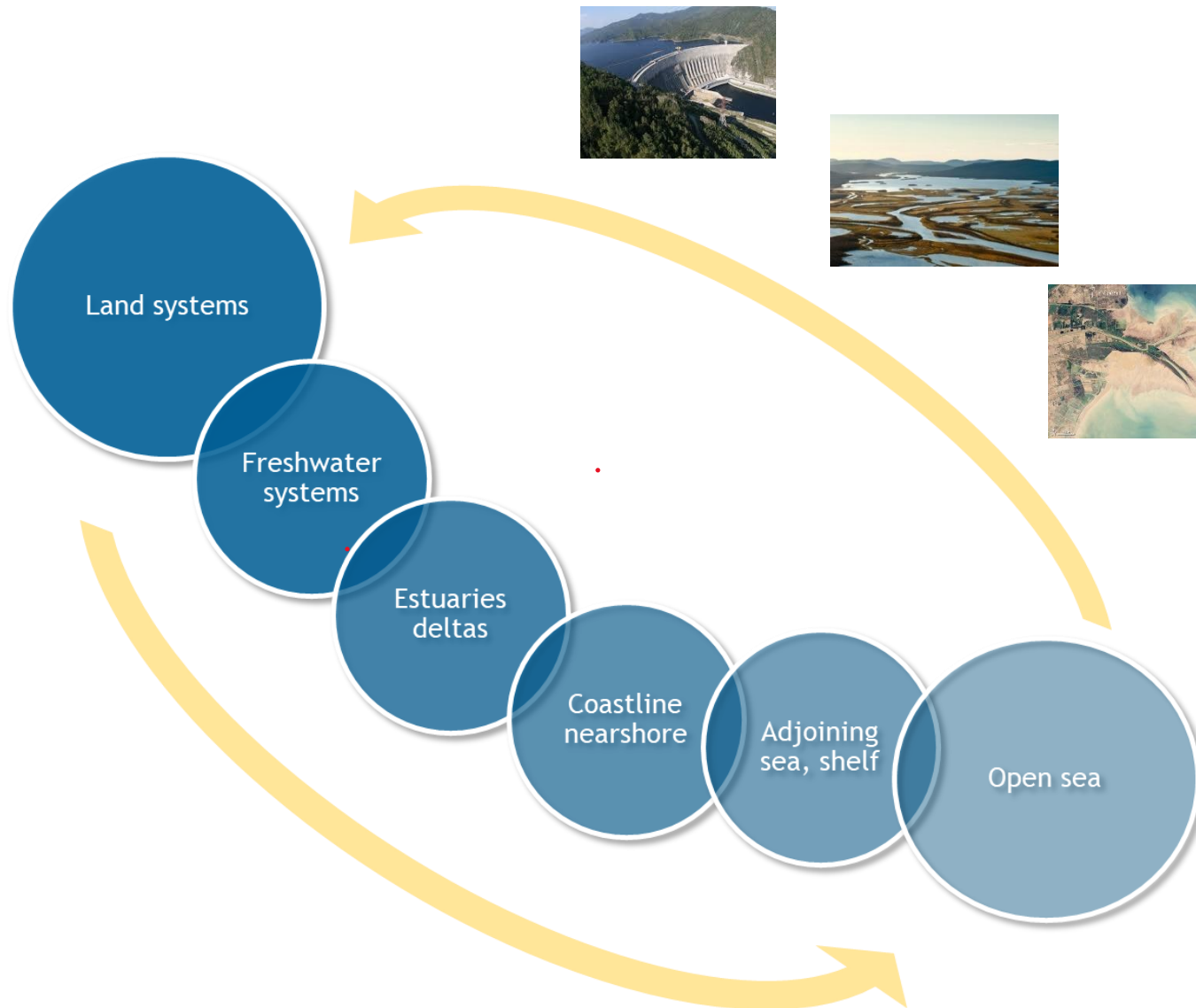
*Yellow river delta 1989 (NASA, Landsat)*



*Yellow river delta 2009 (NASA, Landsat)*

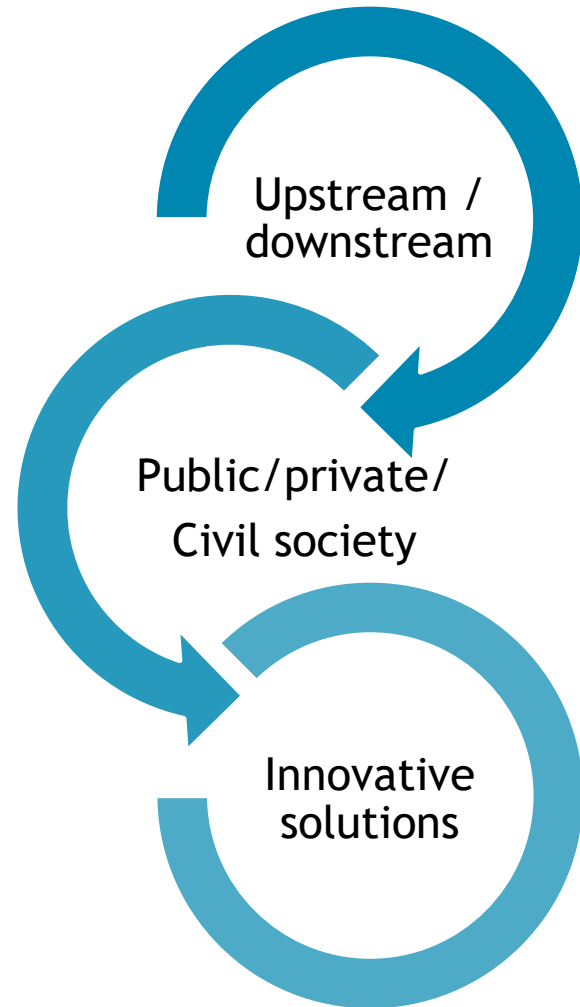


# Understanding the source to sea cycle



# Thinking inclusive and integrated

- Taking a **holistic view** from “source-to-sea”
- Engaging with upstream and downstream **stakeholders**
- **Innovating** new solutions



# Bridging two worlds – two silos



## Fresh

- Rivers, lakes and aquifers
- **Hydrologists**
- Water supply engineers
- Freshwater as resource
- Drinking water quality
- **IWRM**
- **Water allocation**
- Floods and droughts
- SDG goal 6
- UN Watercourses and transboundary rivers conventions
- **GWP, WWC, UN-Water**

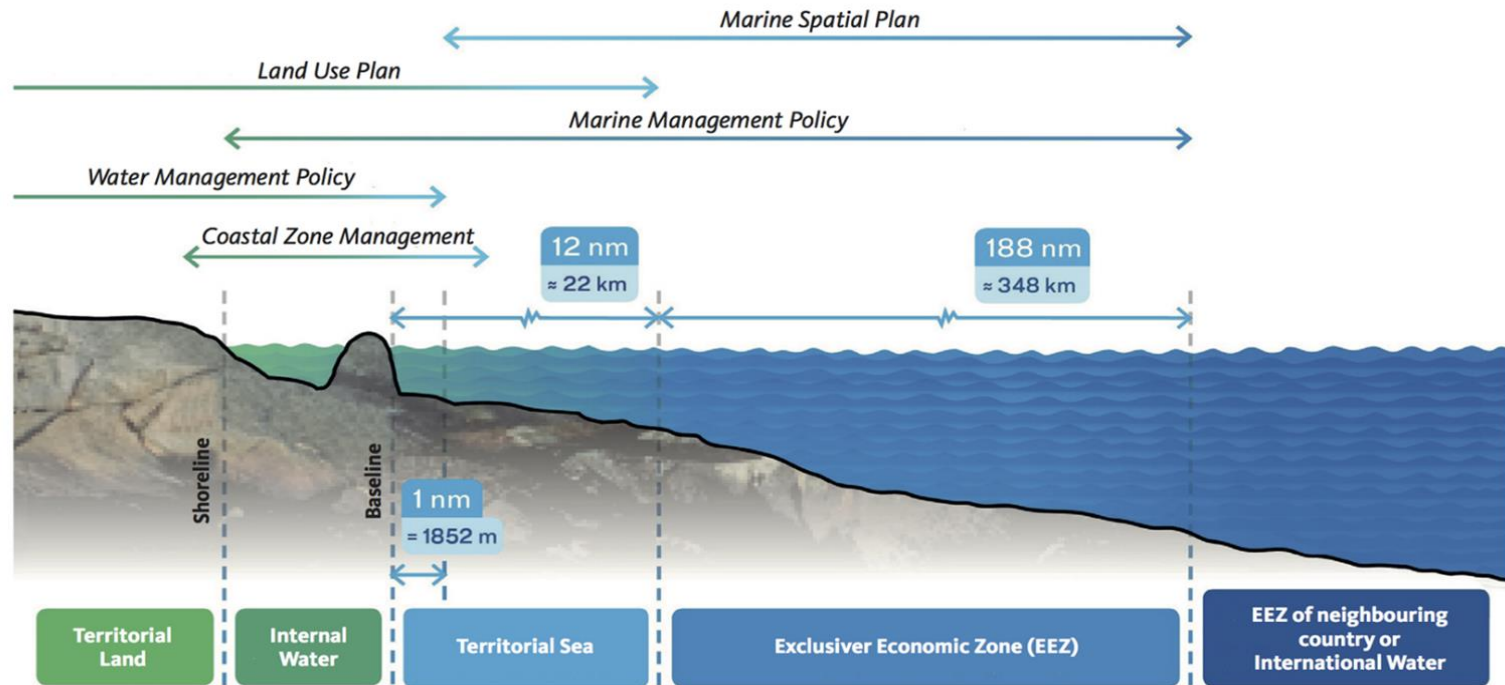


## Salty

- Coastal and marine waters
- **Marine scientists**
- Coastal and port engineers
- Fish – and land - as resource
- Eutrophication, acidification, litter
- **ICM**
- **Marine spatial planning**
- Shore protection
- SDG goal 14
- UNCLOS, MARPOL, London and Regional Seas Conventions,..
- **IOC, NOAA, UN-Oceans**



# Integrated governance from land to sea



*Overlapping spatial plans over land and sea in Sweden from Swedish Agency for Marine and Water Management.*

**2019 IPCC Special Report on the Ocean and Cryosphere:  
Address fragmented governance!**

**“WATER” AND “OCEAN”:  
Linking SDG 6 and SDG 14**

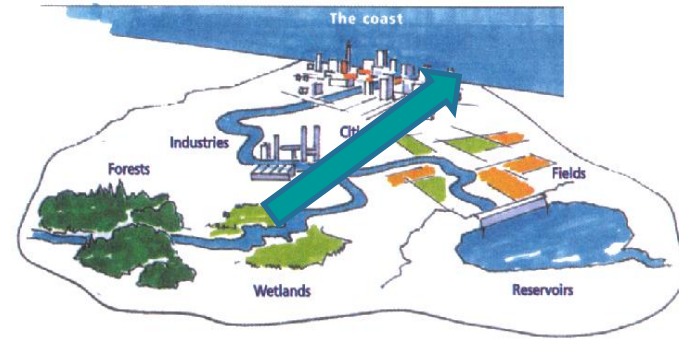
# The key ocean targets

## SDG 14.1

- ✓ Reduce pollution from land-based activities – including debris/plastic

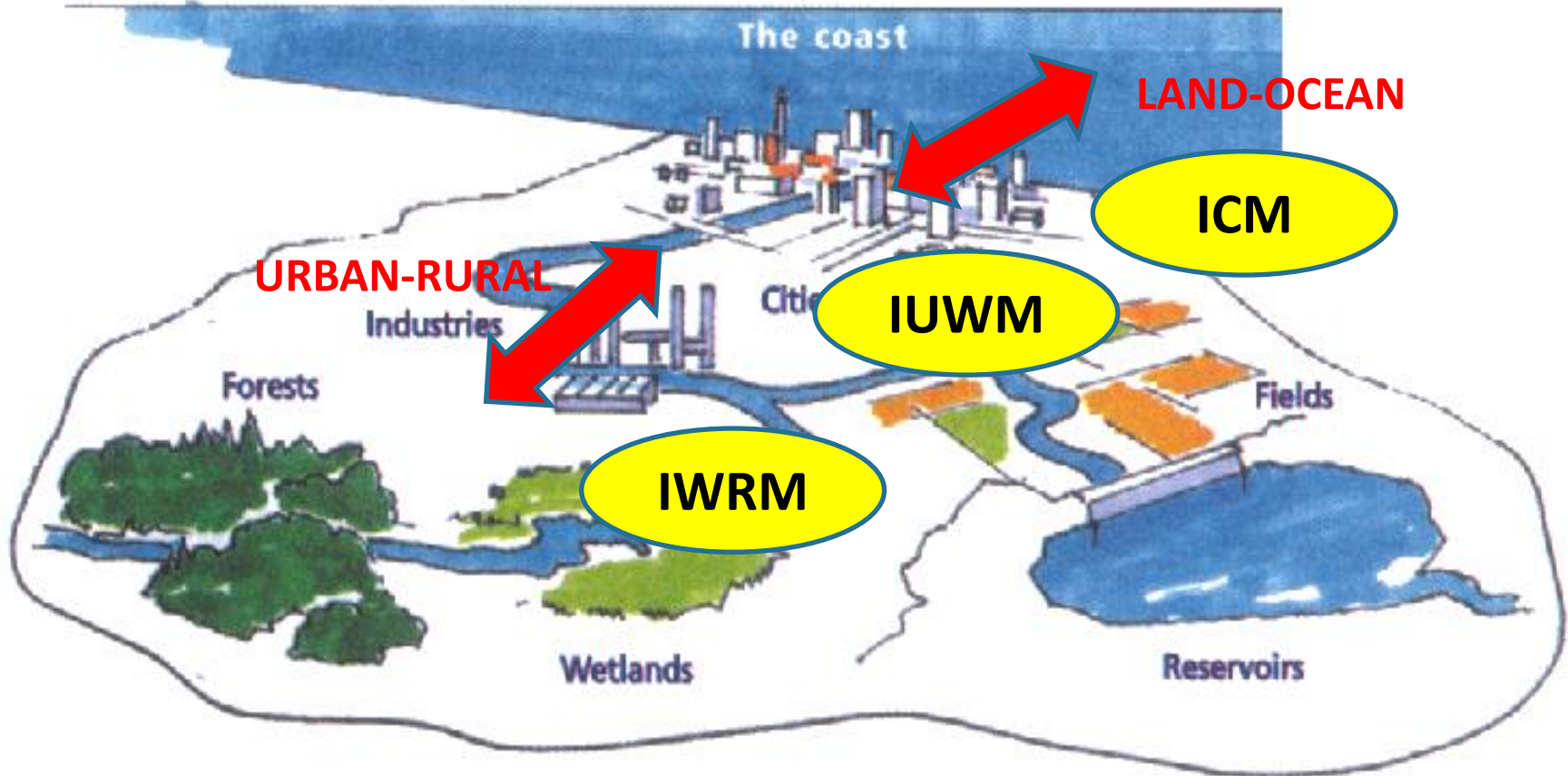
## SDG 14.2

- ✓ Sustainably manage and protect marine and coastal ecosystems



**The solution to SDG 14 is implementation of SDG 6  
- yet SDG 6 and SDG 14 are two silos with little connection!**

# Urban-rural, land-ocean - coordinating integrated approaches

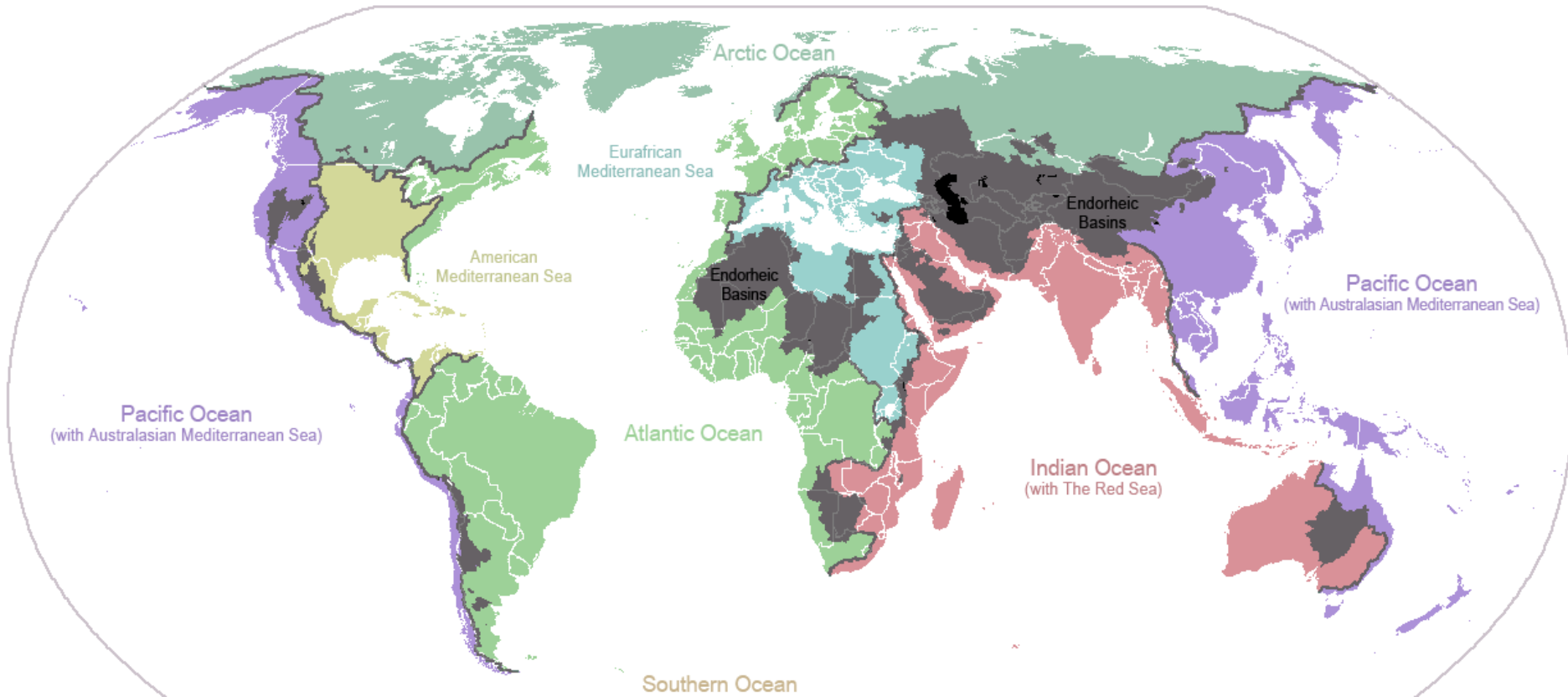


# Mapping links between SDG 6 and SDG 14 indicators

## SDG 6.3, 6.5, 6.6 ↔ SDG 14.1, 14.2

Indicator	14.1.1	14.2.1	14.3.1	14.4.1	14.5.1	14.6.1	14.7.1	14.a.1	14.b.1	14.c.1
6.1.1										
6.2.1	0,5	0,125								
6.3.1	2	2								
6.3.2	2	2					0,25			
6.4.1	0,5	1								
6.4.2	0,5	1								
6.5.1	2	2								
6.5.2	1	0,5								
6.6.1	2	2		0,5	0,5		0,5			
6.a.1	0,5									
6.b.1										
Legend	Weaker							Stronger		

# Transboundary cooperation from source-to-sea



**Linking SDG 14 and SDG 6.5.2 (IWRM-transboundary)**

# **ASIA-PACIFIC:**

## **A global hot spot for Source-to-Sea**

# 3<sup>rd</sup> Asia-Pacific Water Summit, Myanmar, Dec 2017

## Some figures:

- Total value of AP fisheries some 2 billion US\$
- Total value of AP tourism some 3 % of GDP

## Threats facing AP:

- Marine hotspots  
(Ex: S China Sea, Coral Triangle, Bohai Sea, Bay of Bengal)
- 5-13 billion tons of plastic every year  
(Mostly China, Phil, Indonesia, Thailand, Vietnam)
- World's most vulnerable deltas - sinking, flooded, affected by sea-level rise  
(Ex: Mekong, Irrawaddy, Ganges-Brahmaputra)





# 3<sup>rd</sup> Asia-Pacific Water Summit, Myanmar, Dec 2017

## **SDG 6-SDG 14 opportunities in Asia-Pacific:**

- **Quicker return on river basin management if coastal benefits are counted**  
*(Ex: PEMSEA reporting 7-1 return!)*
- **UNEP/GPA/PEMSEA programs on marine litter and nutrients in many AP countries**
- **Connecting planning of land, rivers, coasts and sea by linking IWRM, IRBM and ICM**  
*(Ex: FAO land/forest program in Bay of Bengal)*
- **Addressing institutional fragmentation**  
*(Ex. Myanmar HL Platform linking forestry and fishery)*



**Need for mechanism in AP, such as S2S Platform**

# A source-to-sea case from Vietnam

## Piloting the source-to-sea approach in the Vu Gia-Thu Bon River Basin, Viet Nam

**The Vu Gia-Thu Bon River Basin is in central Viet Nam and covers an area of 10,350 km<sup>2</sup>. Da Nang City is known as the “worth living city”. Hoi An, an ancient town and UNESCO World Heritage site, and the Cu Lao Cham islands are just offshore.**



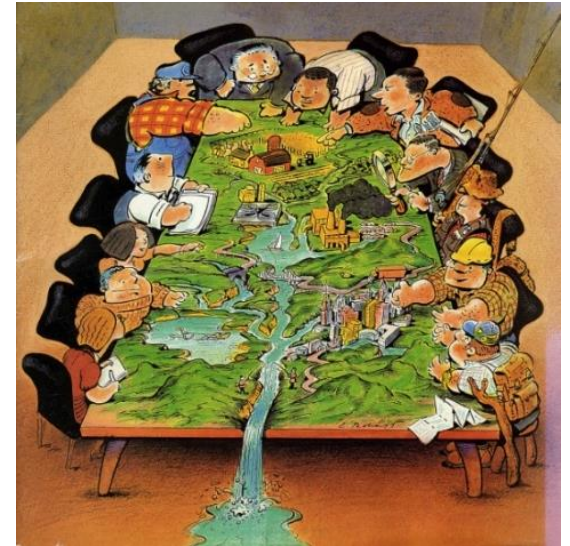
# Establishing the foundations for source-to-sea management

**Increasing knowledge**

**Strengthening awareness**

**Building local capacity**

**Highlighting opportunities**



# Plastic leakage in the Vu Gia-Thu Bon River Basin

**38 tons/day of plastics are not collected**

## **Urban centres (9 t/d):**

**Highest waste generation, but highest collection rates**

## **Low density settlements, rural areas (22 t/d):**

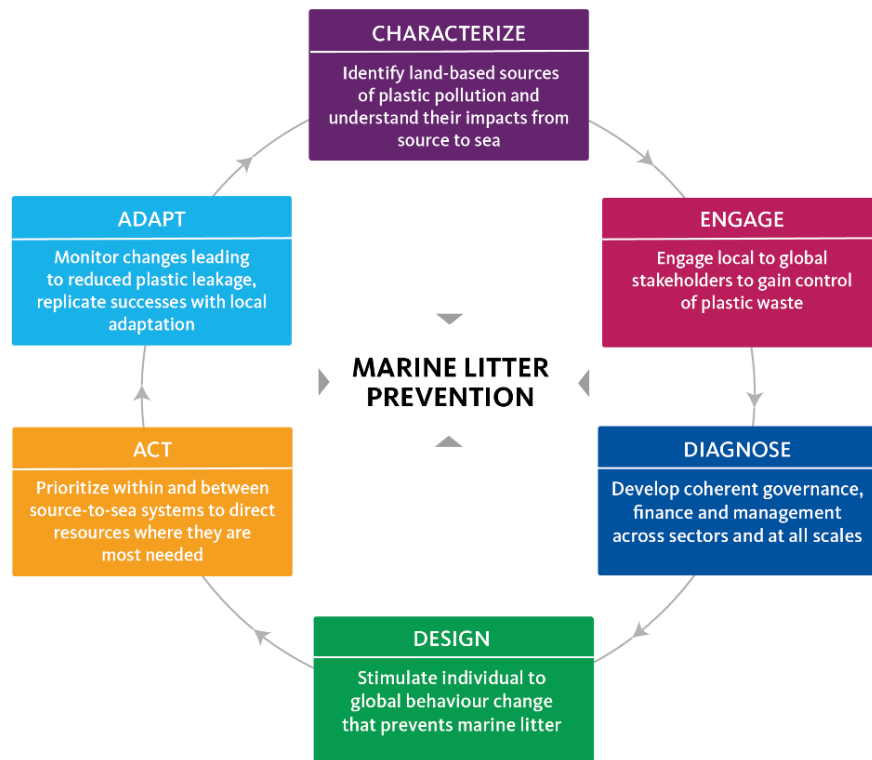
**Lower waste generation, but lower collection rates**

## **Coastal and/or touristic areas (7 t/d):**

**Higher risk of direct leakage and higher sensitivity to impacts**



# Source-to-sea approach to plastic waste management in Vu Gia-Thu Bon Basin



**First 3 steps:**

**Identify plastic sources and impacts**

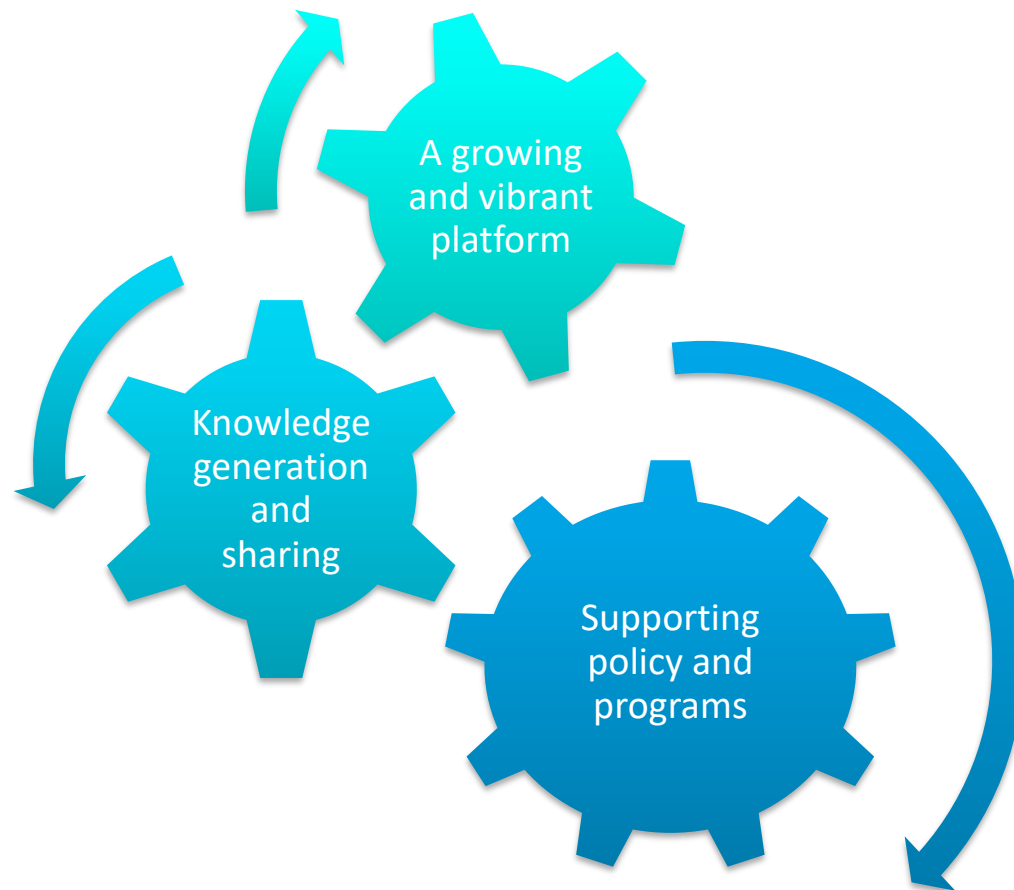
**Engage stakeholders in the basin**

**Promote coherent governance and management**

# Action Platform for Source to Sea Management

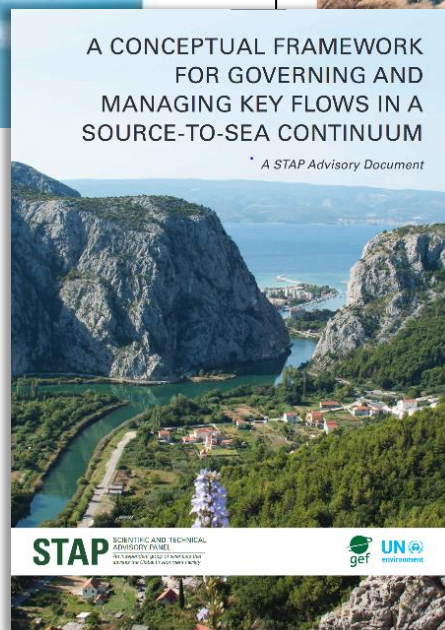
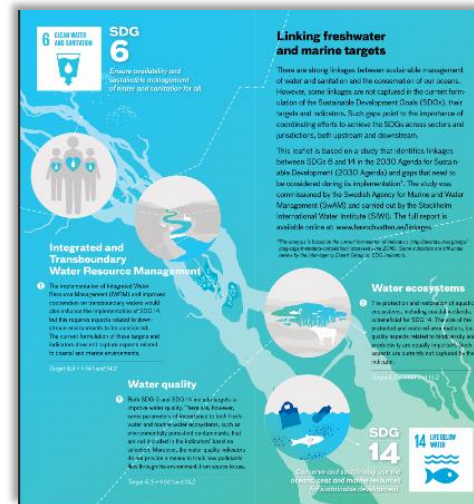
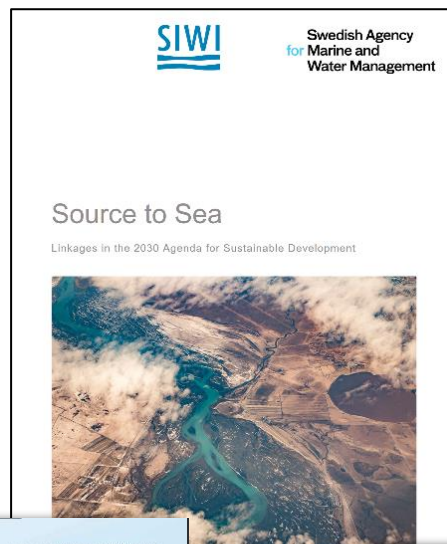


# Action Platform for Source to Sea Management – stimulating partnership and catalyzing action





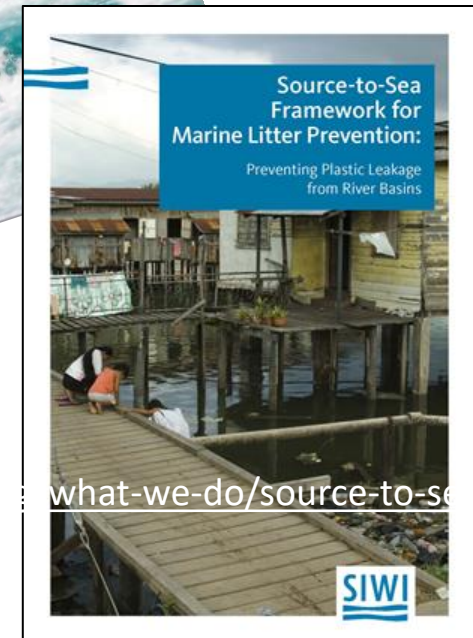
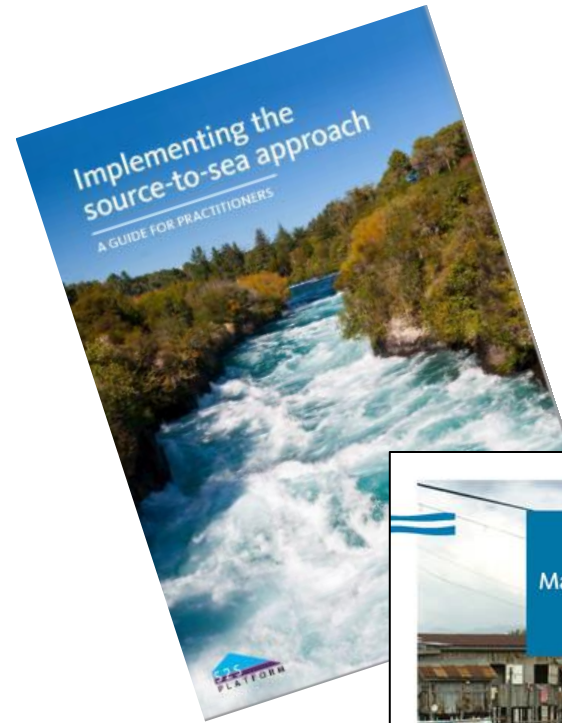
# Knowledge generation and sharing





# Supporting policy and programs

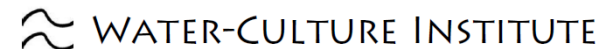
- Implementing the source-to-sea approach: **A guide for practitioners**
  - *How to implement the source-to-sea approach in projects and programmes*
- Source-to-sea **framework for marine litter prevention**: Preventing plastic leakage in river basins
  - *Applying the source-to-sea approach to marine litter prevention*



# A growing and vibrant platform

## Ready to help ... and being helped:

## Welcoming more Asia-Pacific partners!



# Concluding remarks

**The SDG agenda tells us:**

**Think and act holistic and integrated on water  
from source to sea**



**Understand the cycle and flows, address the  
fragmentation, and link the implementation of  
the water SDG 6 and ocean SDG 14**

**Let's act together!**





**Thank you!**

**torkil.jc@mail.dk**