

Blue Economy in the IORA

Towards An Accounting Framework

Saroj Kumar Mohanty
Professor, RIS
New Delhi

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Context

- **Global debate** on blue economy – ‘Blue Growth’
- **Growing interest** in the sectoral economy – developed, developing and island economies
- More than two decades of **sustained research** – global, regional and national level research
- Lead players – the **US** and **OECD**
 - Recently Africa, Asia and island countries
- Persistence of **unresolved issues**
- Concern – **Loss of opportunities** from the sector
- **Policy Action** at the regional/national level for mutual gains
- Need to have consensus on the **accounting framework**¹

What is Blue Economy?

- What is the **sectoral coverage** of the blue economy?
- Is it **ocean and ocean related activities**?
 - Is it sectors like **oceanic resources**, deep sea mining, fisheries and aquaculture, shipping, etc.
- It is a **sub-set** of GDP
 - Agriculture – aquaculture and catching, etc
 - Extraction industry
 - Manufacturing
 - Energy
 - Construction
 - Services
- In many countries, agricultural sector **covers 5-7%** of the blue economy

Definition of Blue Economy

- **Evolving** concept- scope and coverage
- **No consensus** on the definition of the blue economy
- **Many terminologies** are used in the literature – ‘Ocean economy’, ‘Coastal Ocean economy’ or ‘Marine economy’ – they are **interchangeably used**
- Concept of **marine economy**: All industrial activities related to the use of ocean and related economic activities
 - **Production and services activities** of marine industries using marine resources and space
- ‘Blue economy’ – much more **wider concept** – Economic value of ocean and ocean related activities including in EEZ.

Definitional Aspects

- **Comparability problem** across countries due to lack of consensus on definition
- USA defines (**NOEP**)
 - '**Coastal Economy**' as all the economic activities that take place in coastal regions or zones
 - '**Ocean Economy**' as the economic activities that are restricted to direct or indirect **use of the ocean** as an **input**
- They are closely related but are different concepts (Juan C. Suri's-Regueiro et al, 2013)

Difference: Marine and Blue Economy

- Marine economy includes
 - Fisheries, hatcheries, aquatic products, aquatic plants, marine transportation and communication, offshore oil and natural gas, coastal tourism, marine insurance, marine shipping, sea salt and marine chemical insurance, industry, desalination and use of sea water
- Blue economy covers
 - above sectors and other broad sectors including marine contractions, marine minerals, manufacturing and services sectors
- 'Marine economy' is a **sub-sector** of the 'blue economy'

Advantage from Blue Economy Ac

- Better understanding in key sectors
- Food security
- Demand for minerals
- R&D in Healthcare
- Demand for alternative sources of energy
- Growth of seaborne trade
- International regulations
- Growth of tourism sector
- Coastal urbanisation
- R&D in ocean technology
- Growth in coastal and conservation activities

Estimation of the size of Blue Economy

- Estimation is the core issue
- No Consensus on definition of 'blue economy'
- Use of appropriate industry classification
 - NACE, SIC, NAICS, ISIC, etc
- Different methodologies for estimation
 - National Accounts Statistics – Valuation of economic activities based on industries
 - Blue economy - Valuation of economic activities based on industries and geographical locations
 - Methods of data collection would be different across countries, Location of certain industry, mines
 - Example: Coal and iron are offshore in Australia and onshore in India
 - Regional accounting of blue economy – problematic

Unresolved Issues in Blue Economy

- Inseparable 'Fresh' vrs 'Marine activities'
 - Travel, tourism, insurance, etc.
- Inclusion of 'Government' sector
 - Navy, coast guards, etc
- 'Government' vrs 'private' sector
 - Jointly operate in certain sectors – ports, marine insurance, etc.
- 'Costal' vrs 'whole economy'
- 'Traditional' vrs 'non-traditional' sectors
 - Growth of modern sectors: RO-RO, LO-LO; Marine-biotech

US and OECD: Blue Economy Accounting

- The US and OECD took the lead – Separate industry classification
- The US started with SIC and then to NAICS
 - Is it sector like oceanic resources, deep sea mining, fisheries and aquaculture, shipping, etc.
- Major studies since 2000
 - Sectors
 - Industry
 - Activities
 - Industry/geographical locations
 - Estimated for broad 21 sectors
- Agri is at the margin – services 83% in the blue economy

OECD Blue Economy Accounting

- OECD used separate industry classification – NACE
- Key issues: long-term outlook and growth contribution
 - Employment creation
 - Required progress in science and technology- investment
 - Environmental impact and green growth
 - Sectoral interdependency and potential synergies
 - Need for ocean management
- Major studies - OECD
- Used all broad sectors – different from the US
- Restricted industry classification (US & EU)-Alt ISIC Rev4
- Leading countries: Ireland, Scandinavian countries

Carbon capture & storage ; Coastal protection ; Desalination

USA

EU

**Marine related construction ;
Warehousing ;
Boat building and repair ;
Seafood Processing ;
Marine equipment manufacturing**

**Fishing ;
Aquaculture ;
Maritime Transport ;
Shipbuilding and Port ; Offshore oil and gas ; Coastal Tourism**

**Aquatic Products ;
Blue biotechnology ;
Offshore wind ; Ocean renewable energy ;
Marine Insurance**

INDIA

**Aquatic Plants
Other Mining**

Use of Industry Classification

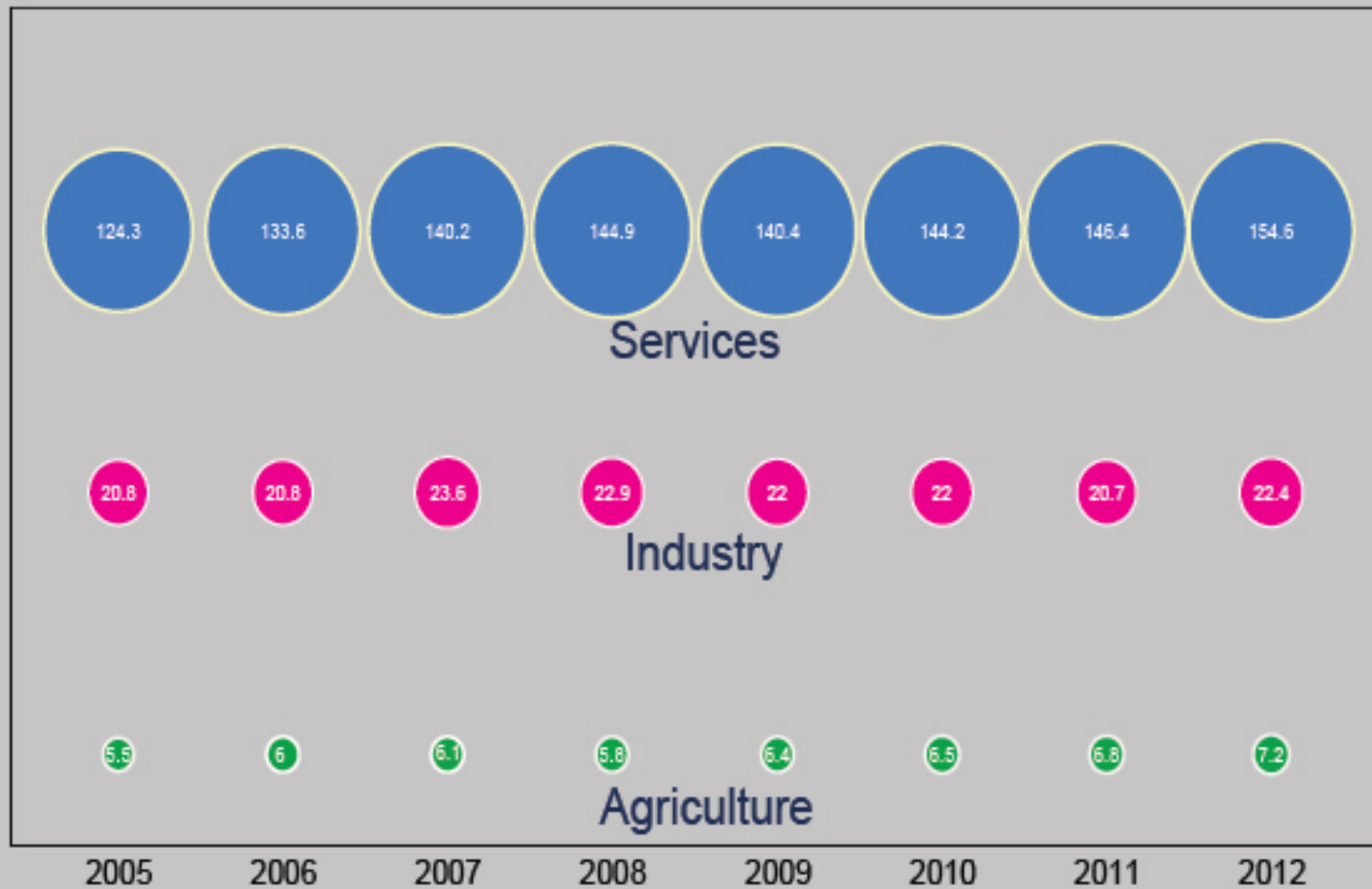
- The US: NAICS
- OECD: NACE
- Need for credible **Industry Classification** - ISIC
- Problem with ISIC Rev4. – **Not equipped** to handle specific needs of Blue Economy (i.e. Finfish, Shellfish, Marine mining, renewable ocean energy, etc.
- Evolve standard classification: **ISIC Rev 5**.

Share of Different Sectors of US's Blue Economy

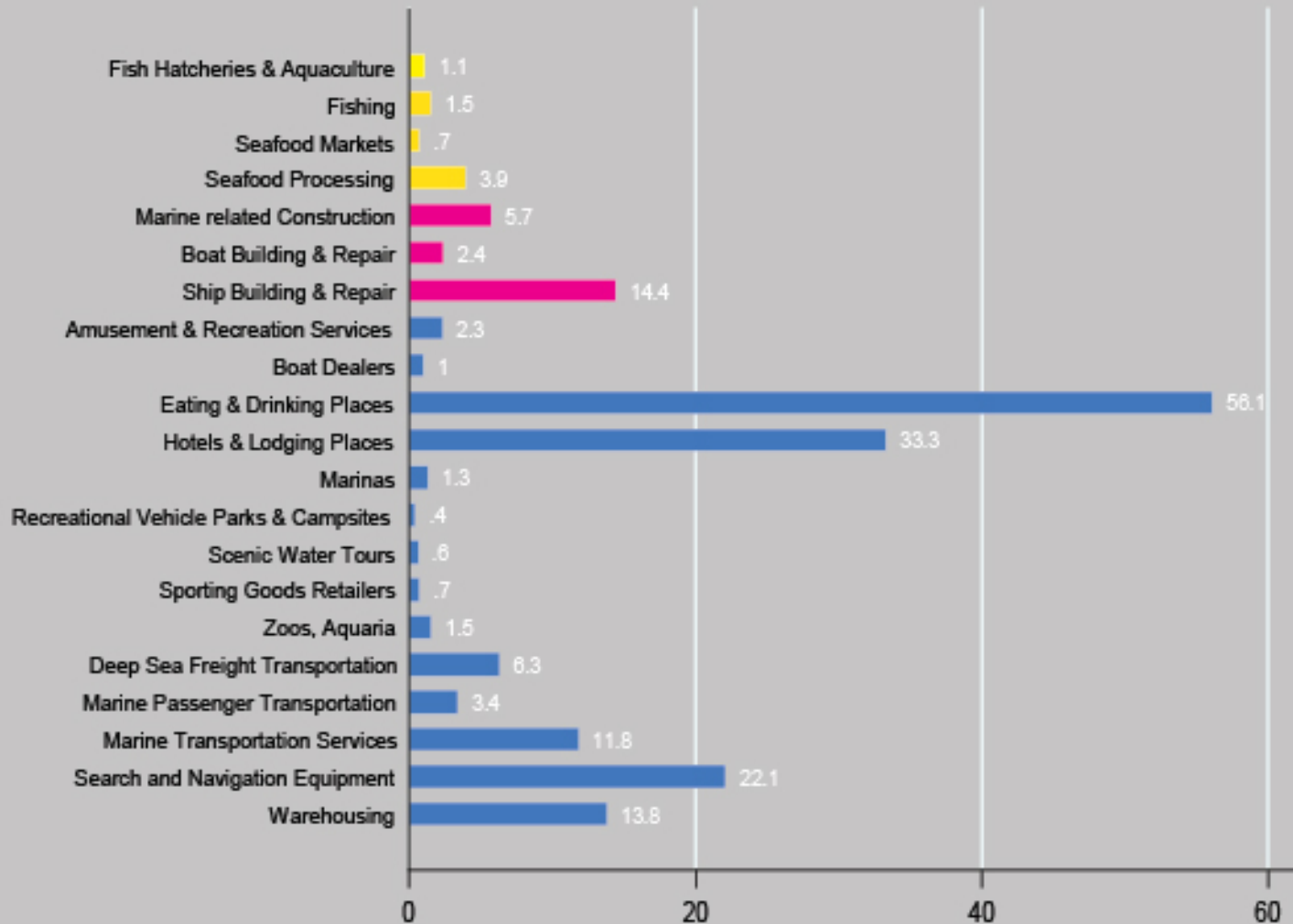
	2005	2006	2007	2008	2009	2010	2011	2012
Agriculture (%)	3.6	3.7	3.6	3.3	3.8	3.7	3.9	3.9
Manufacture (%)	13.8	13.0	13.9	13.2	13.0	12.8	11.9	12.2
Service (%)	82.6	83.3	82.5	83.5	83.1	83.5	84.2	83.9
Total (Bn\$)	150.5	160.4	169.8	173.6	168.9	172.6	173.9	184.2

Source: NOEP Database based on Colgan's Study

Value of Blue Economy: USA (US \$ Billion)

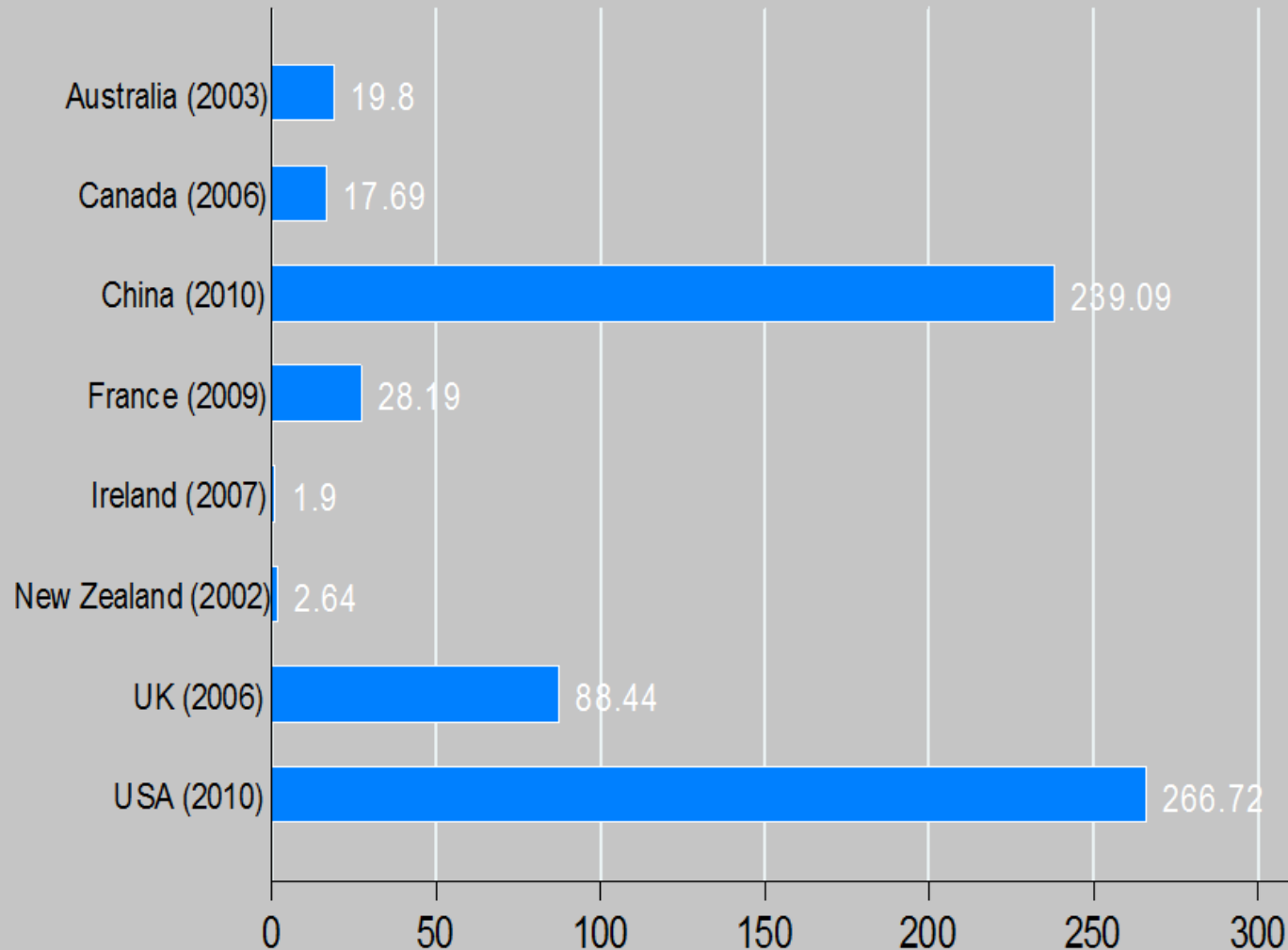


Blue Economy Industries' Value: USA (US \$ Billion)



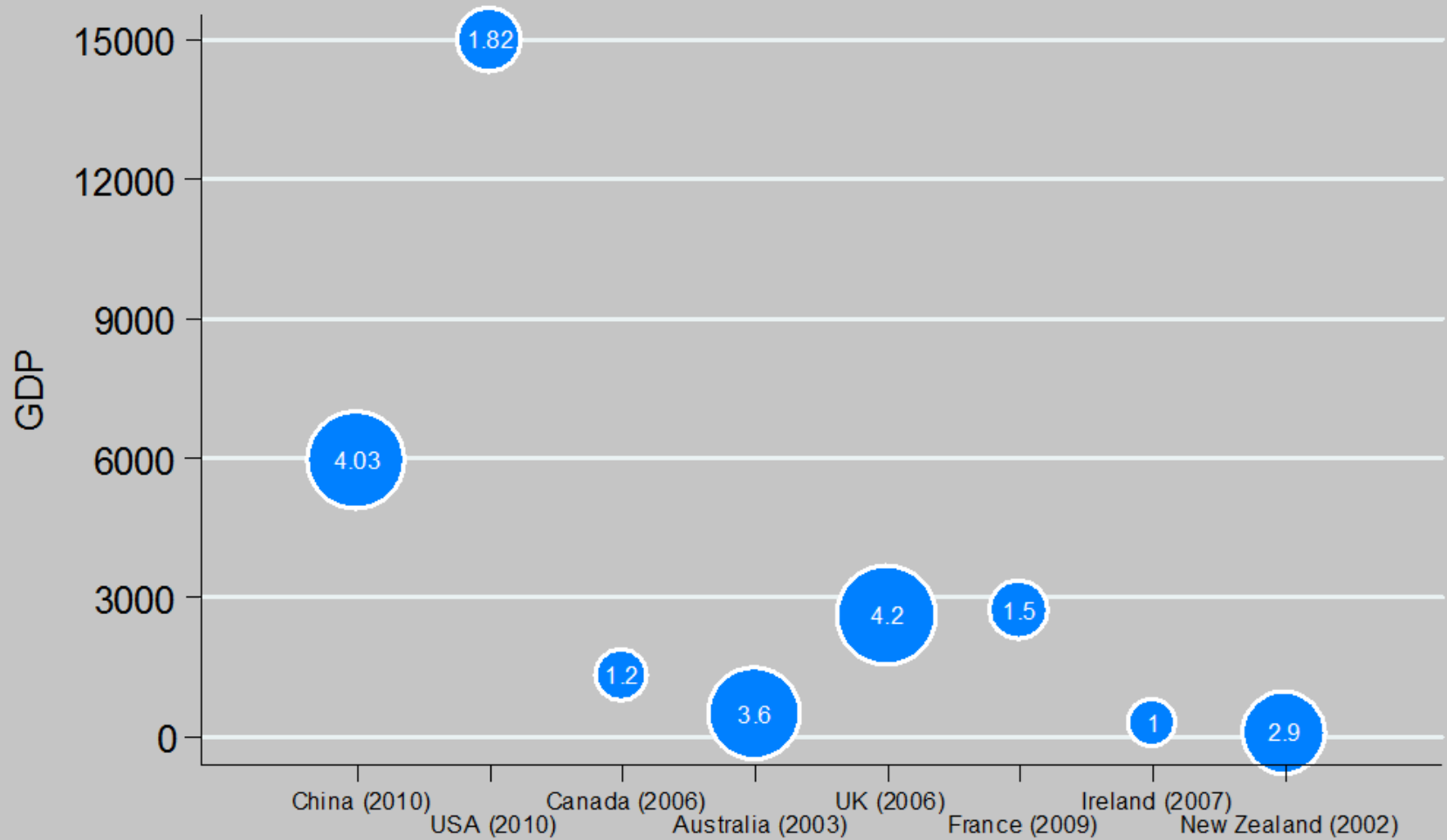
International Comparisons : Marine Economy

Value Added (US \$ billion)



Source: Zhao, R., Hynes, S. & Shun He, G. (2013)

Share of Marine Economy : International Comparison (%)



Source: Zhao, R., Hynes, S. & Shun He, G. (2013)

Blue Economy Accounting India

- Evolving **comprehensive work in India**
- **Key issues:** long-term outlook and growth contribution
 - GDP value added, exports, imports, employment, GFCF, etc
- Considered **all industries** used by the US, OECD and oth
- Used **different Industry Classification – ISIC4 / NIC2008**
- Constraints: **Industry vrs geographical location**
 - Inputs from **several ministries**
 - Ministries – **Data collection** not suitable for Blue Economy
 - **Coastal** – Data collection
- Identified several industries at 5-digit NIC2008 + energy
- Ministerial **taskforce** may be formed
- Structure: **Sector** ➡ **industry** ➡ **activity**

Marine Renewable Energy

- Sources of MRE:
 - Offshore Wind
 - Wave Energy
 - Tidal Energy
 - Salinity Gradient
 - Marine Under water current
 - Marine Deep Sea Current
 - Ocean Thermal Gradient
 - Marine Biomass
- Potential and Cost of MRE

- 250 Billion barrels of oil worth of energy coming into ocean every day
- 80 million barrels of oil per day produced

Source of Energy	Global Potential (TWh)	Cost (Euro cent per kW-hr)	India's Potential (GW)
Offshore Wind	20,500	3.5	1
Thermal Gradient	10,000	0.14	180
Salinity Gradient	2,000	0.16	54.8
Wave	500	6	40
Tidal	300	11	12.4

Ministries associated with Blue Economy

S.No	Names
1	Ministry of Statistics and Programme Implementation
2	Ministry of Agriculture
3	Ministry of Coal
4	Ministry of Defence
5	Ministry of Food Processing Industries
6	Ministry of Mines
7	Ministry of New and Renewable Energy
8	Ministry of Petroleum and Natural Gas
9	Ministry of Science and Technology
10	Ministry of Shipping
11	Ministry of Tourism
12	Ministry of Urban Development
13	Ministry of Labour and Employment
14	Ministry of Heavy Industries and Public Enterprises
15	Ministry of Commerce and Industry
16	Ministry of Finance (Insurance)
17	Ministry of Human Resource Development

Marine Sectors

Living Resource

Construction

Minerals

Ship and boat building

Tourism and Recreation

Transportation

Renewable Energy

Research and Development

Education

Public Sectors

Insurance

Marine Industries

Fishing	Aquaculture	Seafood Processing & Markets
Oil & Gas exploration & production	Mining of metal ores	Extraction of gravel & sand
Extraction of salt	Renewable energy	Water collection
Waste & decontamination	Ship building	Boat building
Repair & maintenance of ships and boats	Manufactures to shipbuilding	Marine construction
Marine passenger transportation	Marine freight transportation	Services activities to transportation
Accommodation	State administration	Defence activities
Education	Research & Development	Office Support Activities

Challenges to the Region

- Focus on consensus on Industry- level activity **classification**
- Adoption of common **definition** of blue economy at the regional level
- **National Ocean Policy**
- Institutional framework for the region
 - Setting up of regional **taskforce** to measure the size of blue economy

Way Forward

- FTA in IORA: A distant possibility
- Strength in sectoral cooperation
- Blue economy is picking up without a framework
- Regional experts should take lead in 'Blue Economy Accounting Framework' for IORA
- Effectively manage with industry classification (ISIC Rev.4 and Rev.5)
- National Ocean Policy, separate ministry and Federal Budgetary support for Ocean-related activities
- Formation of a Regional Taskforce to focus on definition and estimate regional BE GDP value added

Thank you