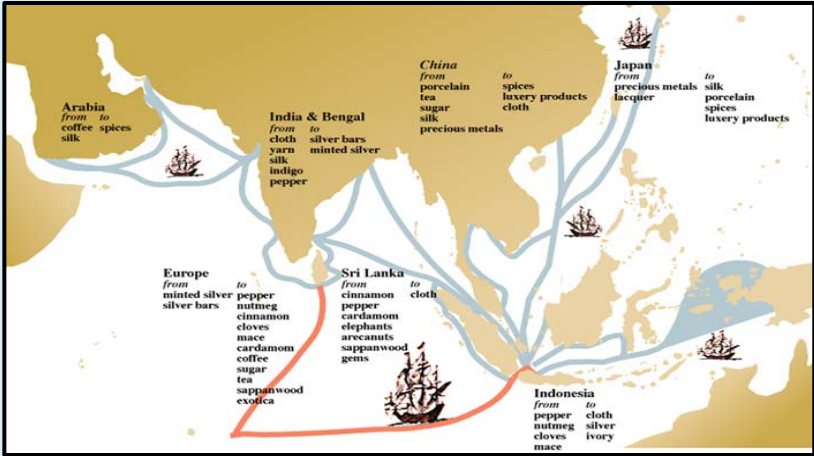
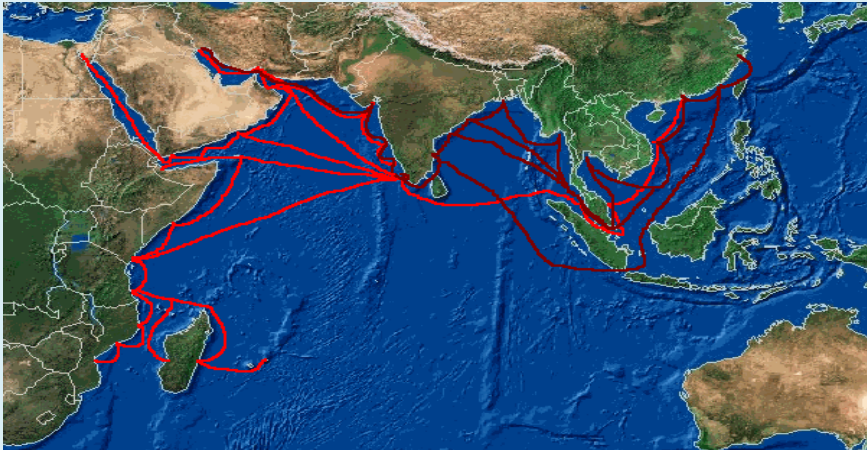
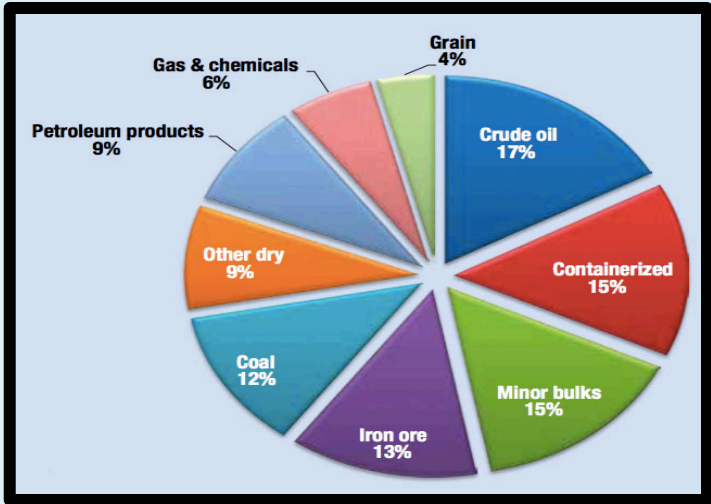


# **The Changing Nature of Maritime Security**

# World Seaborne Trade: Routes and Commodities

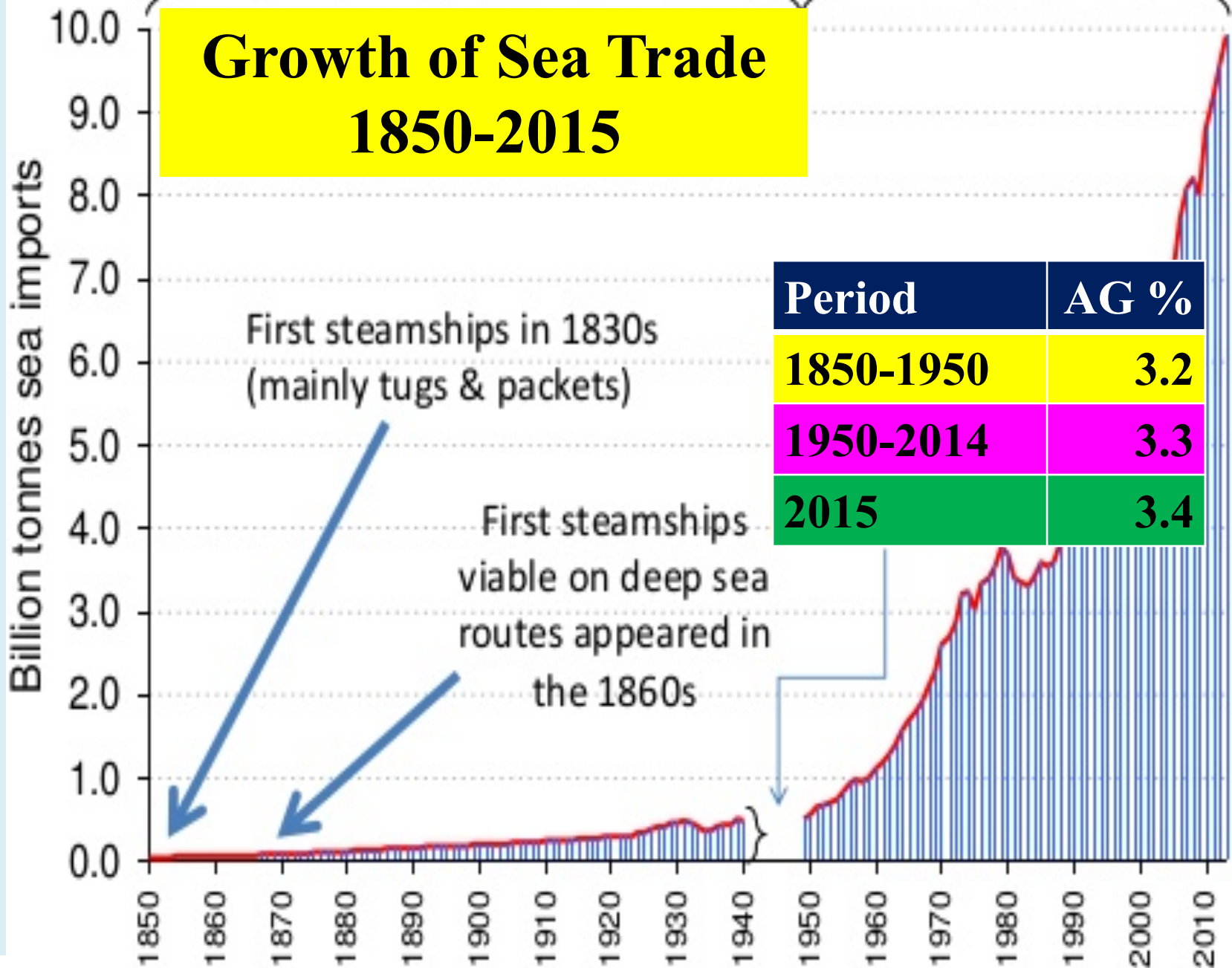


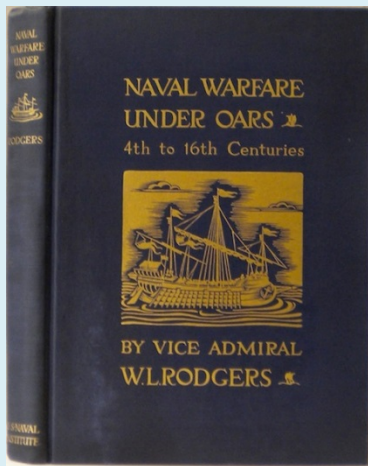
## Low Volume High Value



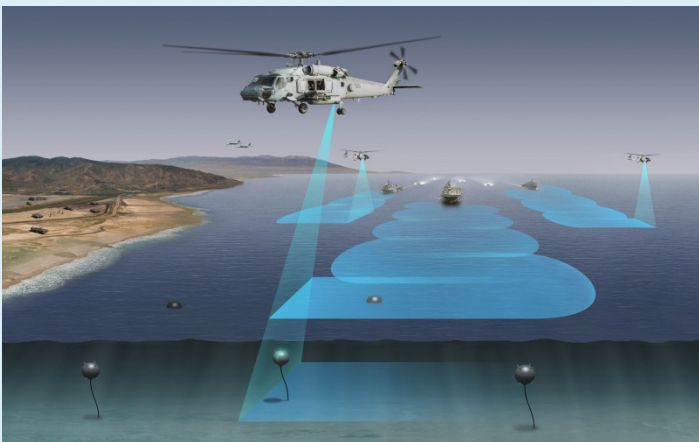
## High Volume, Low Value

# Growth of Sea Trade 1850-2015





# Warfare: Continuity & Change



## THE CYBER THREAT IS REAL

**■ VIRUSES & WORMS**  
Code that infects computers through security failures and replicates itself to spread to other computers.

**■ CYBER ESPIONAGE**  
A stealth attack to gain access to a network and exfiltrate sensitive information and data.

**■ MALWARE**  
Malicious software is code designed to damage, disrupt, inflict or control networks, controllers, computers, or data.

**■ ACCESS-BASED ATTACKS**  
Exploiting compromised digital certificates and passwords to access networks. In 2023, the software to steal certificates increased 20x.

**■ HACKING ATTACKS**  
Hackers can infiltrate networks and computers, and compromise sensitive information more easily as data becomes more interconnected.

**TYPES OF ATTACKS**

**■ LEAD**  
The Navy Cybersecurity Division leads by ensuring a comprehensive approach to cybersecurity is taken across all Navy missions.

**■ ACQUIRE**  
Focus is on strengthening cybersecurity throughout the product lifecycle. SPAWAR is the Navy's Technical Authority for Cyber and provides the architecture and technical standards required to harden the Navy's networks and equipment.

**■ EQUIP**  
Information Dominance Forces Command (NAVIDFOR) organizes, man's, trains, and equips the cybersecurity workforce.

**■ FIGHT**  
U.S. Fleet Cyber Command /10th Fleet commands a full spectrum of cyber warfare capabilities across all warfighting domains.

## Security at Sea : Conceptual Issues

<b>Typology</b>	<b>Understanding</b>	<b>Proponents</b>	<b>Space</b>	<b>Actors</b>
<b>Naval Security</b>	<b>Sea power : naval power projection; combat platforms; Challenge aggressor</b>	<b>Mahan, Corbett, Luttwak</b>	<b>Open Ocean warfare</b>	<b>State</b>
<b>Maritime Security</b>	<b>Maritime Power - politics, diplomacy, economics, technology and new legal regimes</b>	<b>Gorshkov</b>	<b>Multiple approaches to warfare</b>	<b>State</b>
<b>Littoral Security</b>	<b>New type of Combatants</b>	<b>US MC</b>	<b>Littorals</b>	<b>State and Non-state</b>

# PRIVATE MARITIME SECURITY (In numbers)



Annual Cost of Avoiding Gulf of Aden Transit Route for Liner trade  
**\$ 75 million**

Annual Cost of Multinational Naval Presence  
**\$ 400 million**

Piracy Insurance Premium Per Ship Per Voyage  
**\$25,000**

Number of Ships Hijacked with Private Security Onboard  
**0**

Average Ransom Paid to Pirates in 2011  
**\$ 5.5 million**

Number of Private Security Firms Operational  
**140+**

Cost of 4 Security Guards Crossing Piracy Prone Area  
**\$ 60,000**

Cargo ships Cross High Risk Zone of Gulf of Aden Annually  
**35,000+**

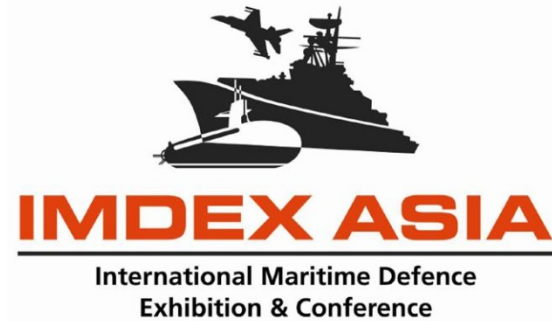
**40+**  
Private Armed Patrol Boats

**3000+**  
Private Armed Guards

**30%**  
Min. reduction in insurance premium

\*Sources: ICC, SAMI, BIMCO

# Corporatization of Maritime Security



ایڈکس  
2017

# Typologies of Maritime Cooperation

**Cooperative**

**Web of relationships among actors who conduct operations to deliver ‘order at sea’**

**Against VNSA**

**Piracy , Terrorism, drug gunrunning, human smuggling**

**Competitive**

**Allies & partners with common political interests come together & bear naval power**

**Contain rising challenger/ sustain balance of power**

**State vs State NATO; Malabar Joint Sea Exercises**

**Convergent**

**Selective elements of convergence as enablers to develop capacity**

**Deliver ‘public goods’**

**Nav and Met Svc; SAR; HADR; Resource Development**



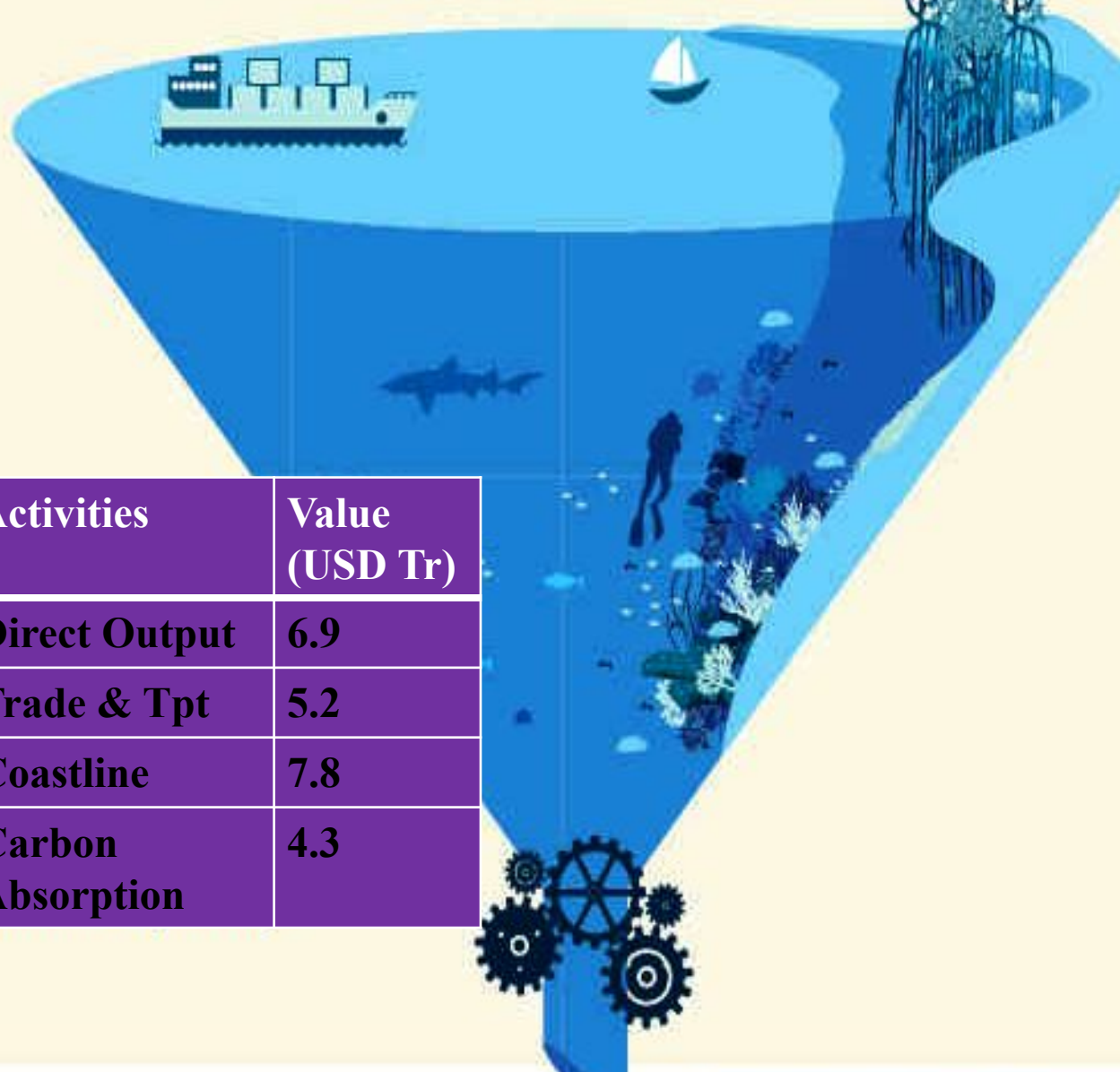
# Definition Blue Economy

Jobs	Energy	Sustainability	Financial	R&D	Knowledge
Wealth	Food	Security	Legal	Innovation	Wellbeing

## Blue Economy

is the integration of Water based Economy including Inland Water Body & Ocean Economy development with the principles of social inclusion, environmental sustainability and innovative, dynamic business models.

# US\$ 24tn



**Actual value may be higher because many of the ecosystem services are difficult to quantify.**

**Oceans asset would dwarf the largest sovereign wealth funds**

**Norway : USD 893 bn**

**Abu Dhabi : USD 773 bn**

**Saudi Arabia : USD 757 bn**

**China : USD 653 bn**

Activities	Value (USD Tr)
Direct Output	6.9
Trade & Tpt	5.2
Coastline	7.8
Carbon Absorption	4.3

	Ocean Service	Estb. Industries	Emerging Industries	New Industries	Future Growth
Living Resources	Seafood Marine Biotech	<b>Fisheries Aquaculture</b>	<b>Sust. Fisheries Pharma, Chemicals Blue biotech</b>	Multi-Species Aquaculture	Food Security Protein supplement R&D in health care & Industry
Non-living Resources	Minerals Energy Fresh Water	<b>Offshore Oil &amp; Gas</b>	<b>Deep-seabed Mining</b>	<b>Renewable Energy Desalination</b>	Alternative Energy Freshwater
Commerce and Trade	<b>Shipping Port Svc. Ship building /Recycling Tourism</b>	<b>Tourism Coastal development</b>	<b>Eco Tourism</b>		Green Shipping Eco Tourism
Ocean health	Monitoring & Surveillance Waste Disposal		<b>Blue Tech &amp; R&amp;D Blue carbon sequestration Protect Habitat</b>	Assimilation of Nutrients, Solid Waste	<b>Remediation Restoration</b>

# **Blue Economy Industry**

**Manufacturers  
of sensors,  
instruments,  
and platforms**

**Robotics  
AI  
Big Data  
VR/AR**

**Environmental safety  
and  
compliance  
technology  
companies**

**Data  
management  
systems,  
software tools  
and models**

**Building,  
deploying,  
and operating  
observing  
systems**

**Data  
infrastructure  
that manages  
and  
communicates  
ocean data**

**OTEC &  
Desalination**

**SOURCES**

**ELEMENTS**

MARITIME COMMUNITY

RESOURCES

STYLE OF GOVERNMENT

GEOGRAPHY

MERCHANT SHIPPING

BASES

FIGHTING INSTRUMENT

S

E

A

P

O

W

E

R

## **INPUT / OUTPUT MODEL OF MARITIME POWER**

**Coastline**

**Coast/Land  
Ratio**

**Size of EEZ**

**Size of Seabed**

**Harbours**

**Choke Points**

**Size of Navy**

**Army &  
Airforce  
in Support  
of Navy**

**Nuclear  
Capability**

**Strategy**

**Marine Tech**

**IT Base**

**Naval Tech**

**Automation**

**Type of  
Government**

**Purpose of  
Navy**

**Maritime  
Tradition**

**National Will**

**Shipbuilding**

**Ports**

**Merchant Ships**

**Seaborne Trade**

**Fishing Industry**

**MNC/FDI**

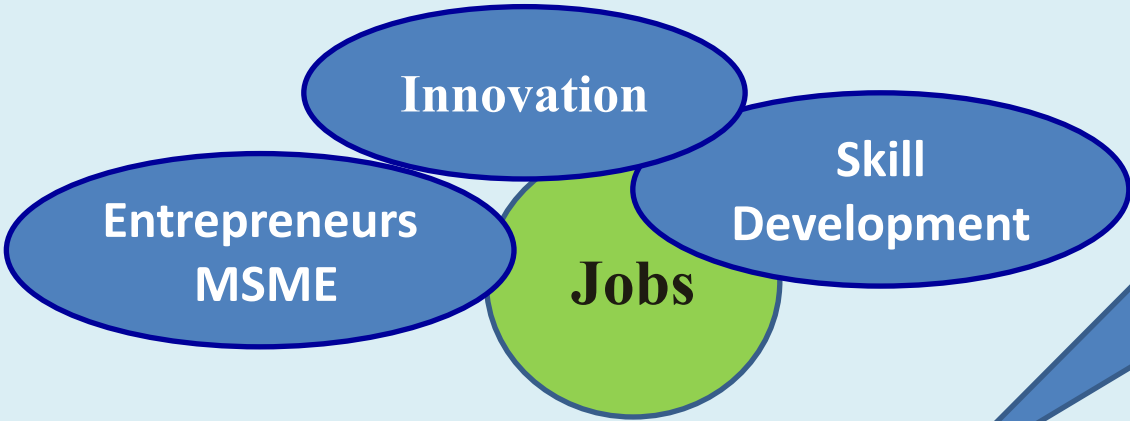
**Offshore  
Resources**

**Population**

**Geography Military Technology Political Economic**

# **MARITIME POWER**

**Gender**



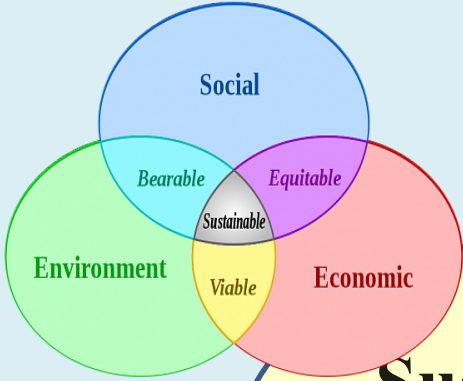
**Finance**

**Business Model**

**Legal Issues**

**Blue Power**

Maritime Power  
Sea Power



**Sustainable Development Goals**

**Environment**

**Ecology**

**Marine Sociology**



# Concluding Thoughts

**Blue Power is the keel of economic globalisation as it facilitates economic growth through sustainable development**

**States will become increasingly dependent on the sea for economic growth and prosperity**

**Significant investments expected in the development of Blue Power infrastructure**

**Economics and Security : Two sides of the same coin**

**Insecurities in the Blue Power are its Achilles heel**



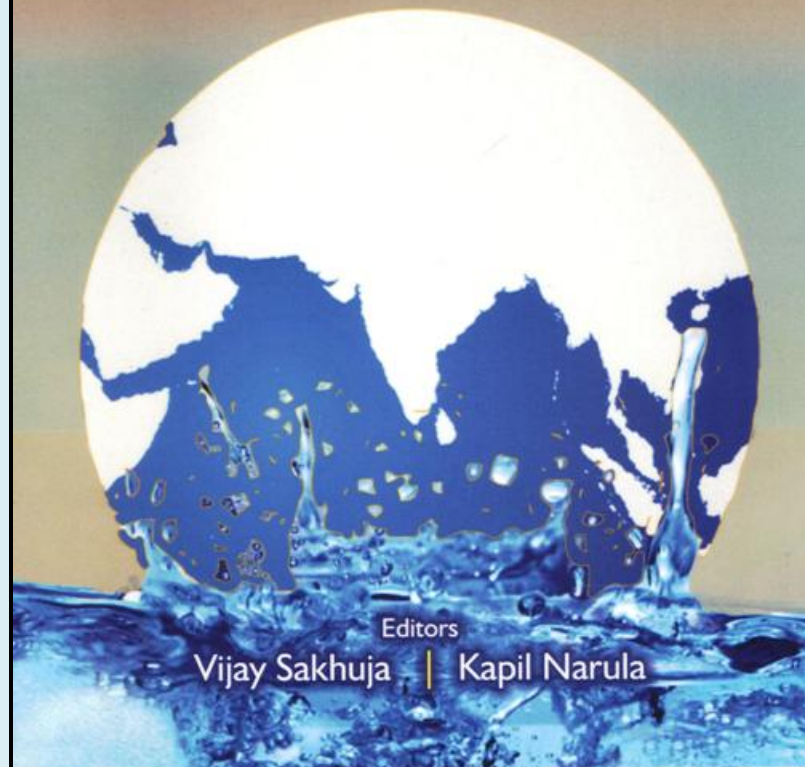


# Perspectives on BLUE ECONOMY

**Vijay Sakhuja and Kapil Narula**

# The Blue Economy

**Concept, Constituents and Development**



Editors

**Vijay Sakhuja | Kapil Narula**

