

Implication on Climate Change and MPAs Management

20th July, 2022

NEAMPAN Webinar on Climate Change and MPAs

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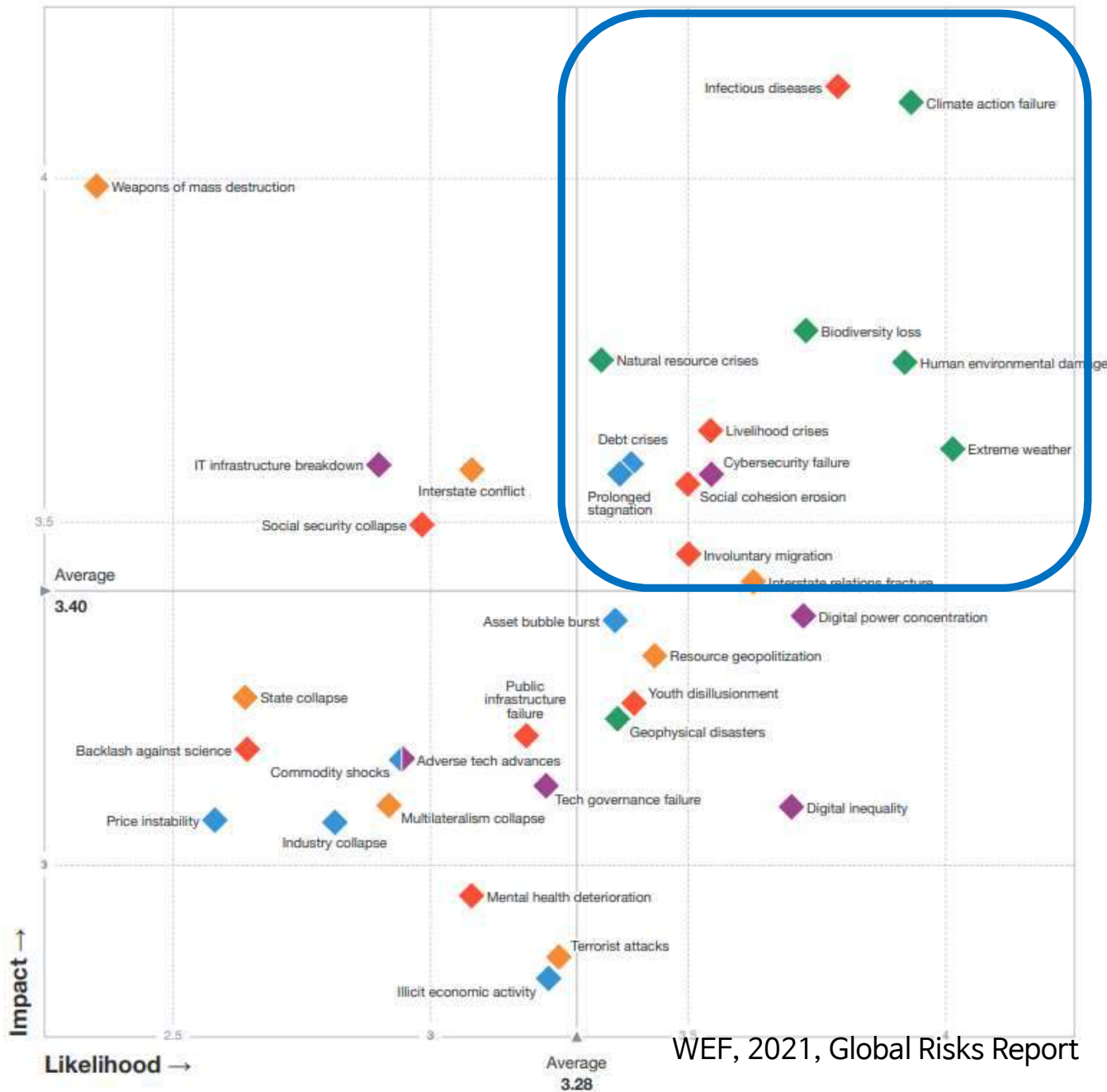
Presentation Outline

- ✓ Global Trends Sketch
- ✓ Quick-look of Korea's CMPAs
- ✓ Motions for more Adaptive CMPAs

Global Trends Sketch

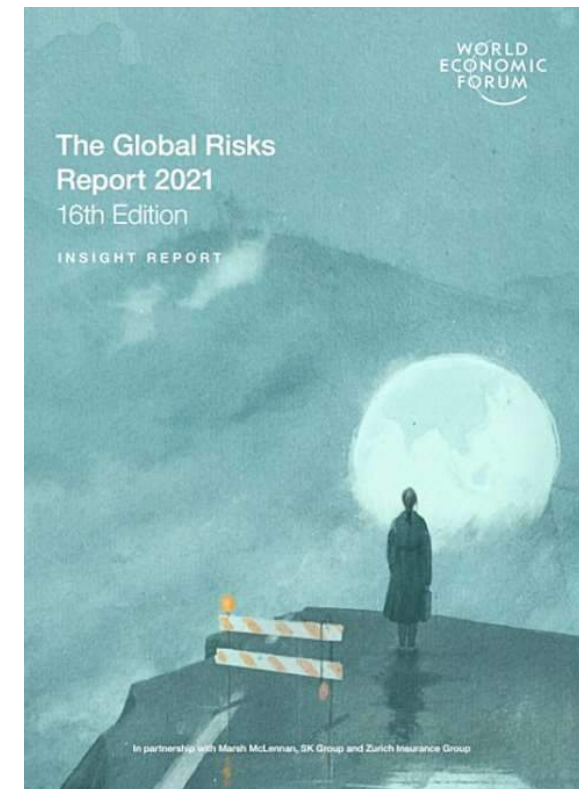
Climate Change and Biodiversity, Core Agenda for SD

4



WEF, 2021, Global Risks Report

- Climate action failure
- Infectious diseases
- Biodiversity loss
- Human environment damage
- Natural resource crises
- Extreme weather

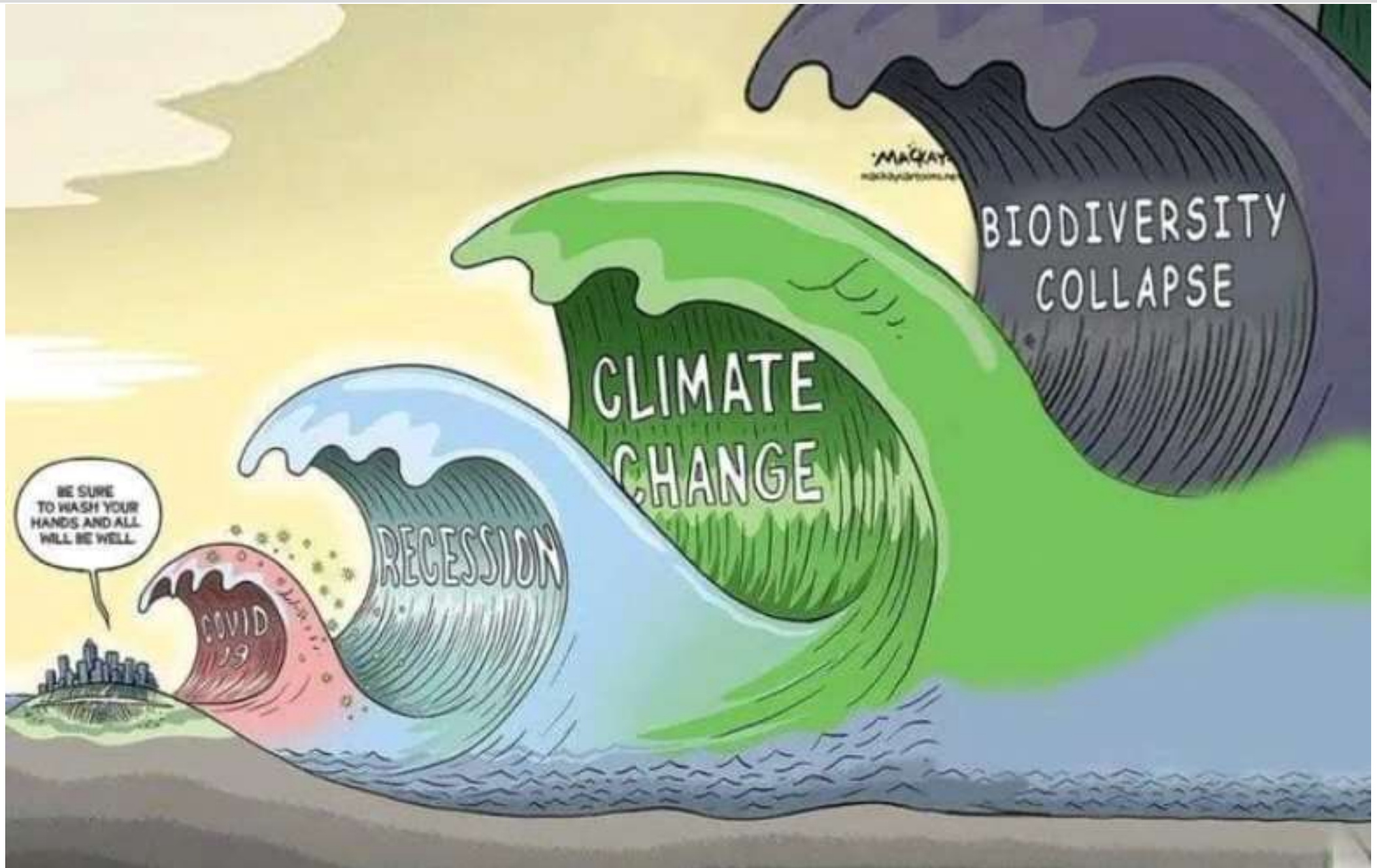


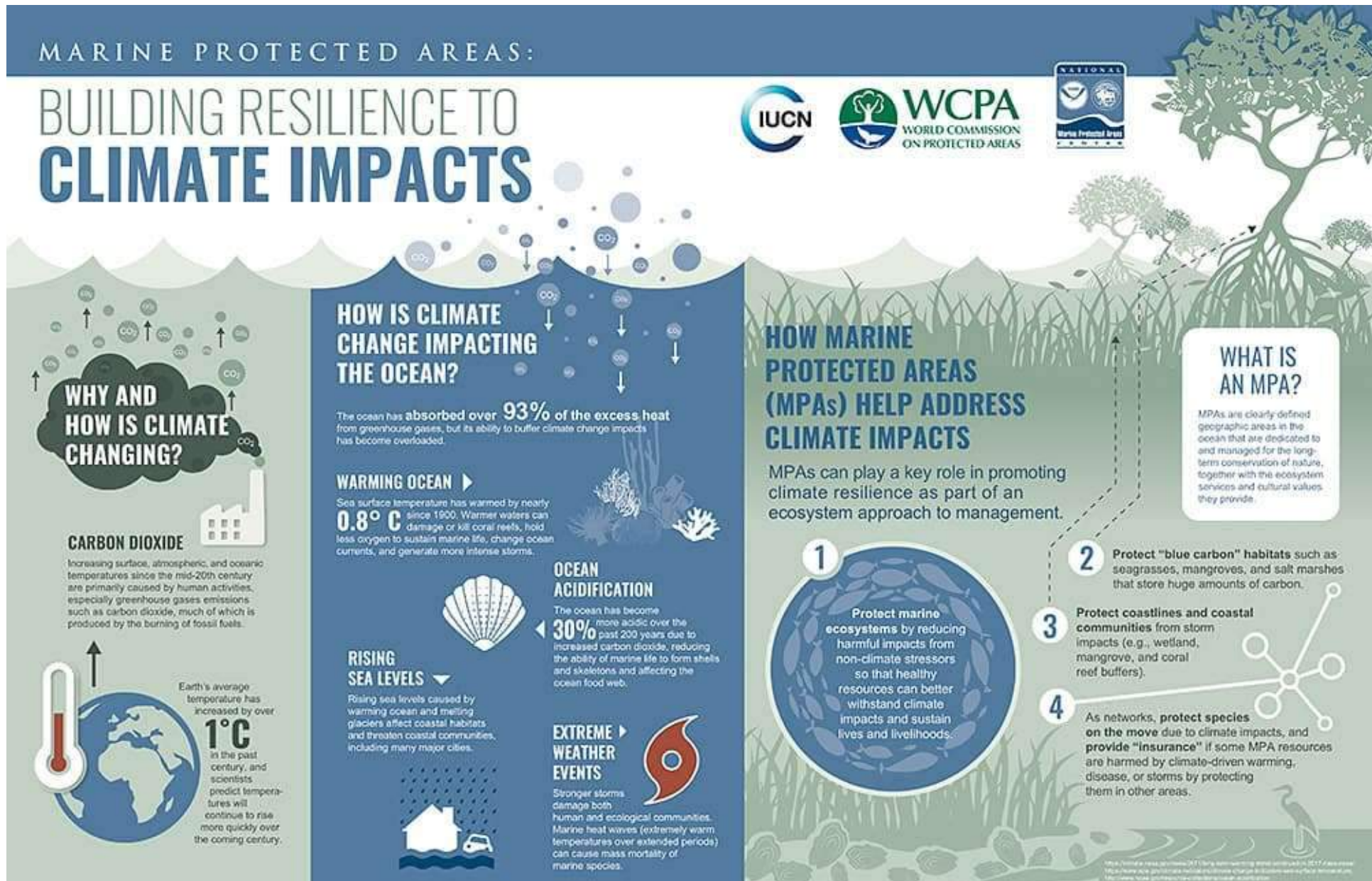
“Identify the most severe risks on a global scale over the next 10 years”

■ Economic ■ Environmental ■ Geopolitical ■ Societal ■ Technological



Source: World Economic Forum Global Risks Perception Survey 2021-2022





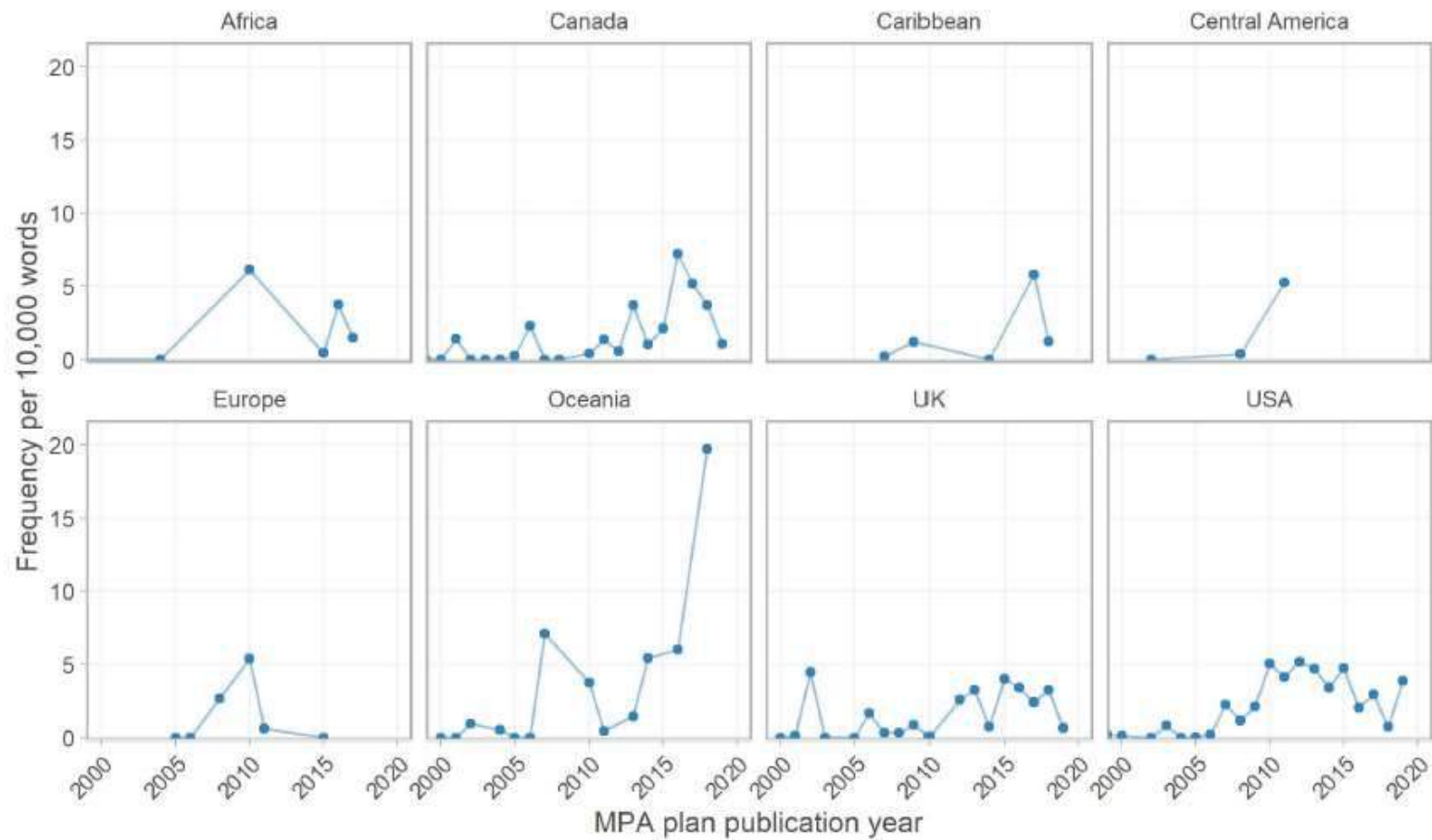
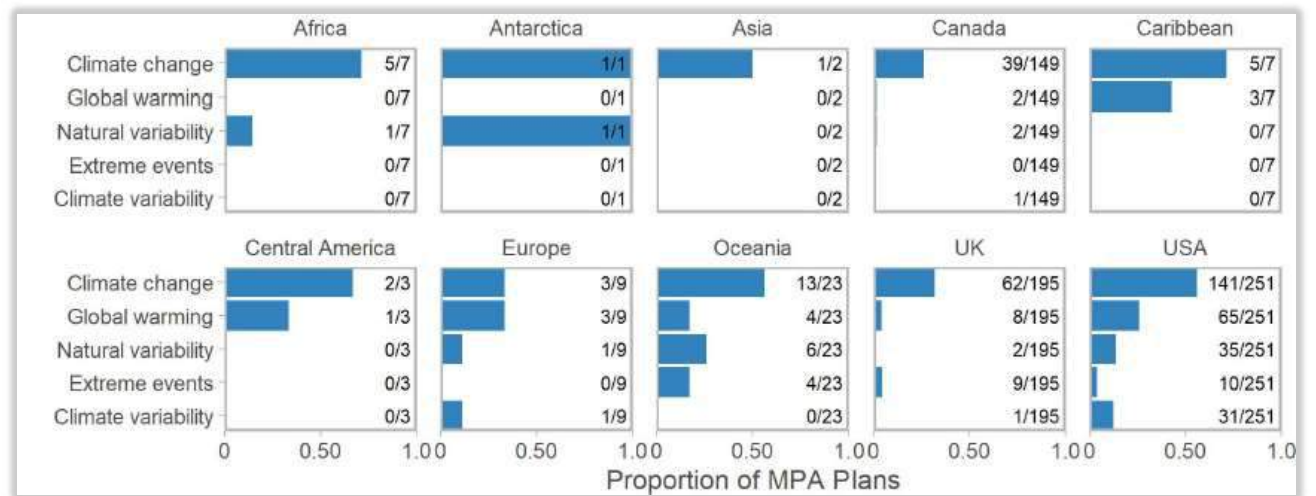


FIGURE 2 | The frequency per 10,000 words of the term "climate change" in all MPA management plans published between 2000 and 2020.

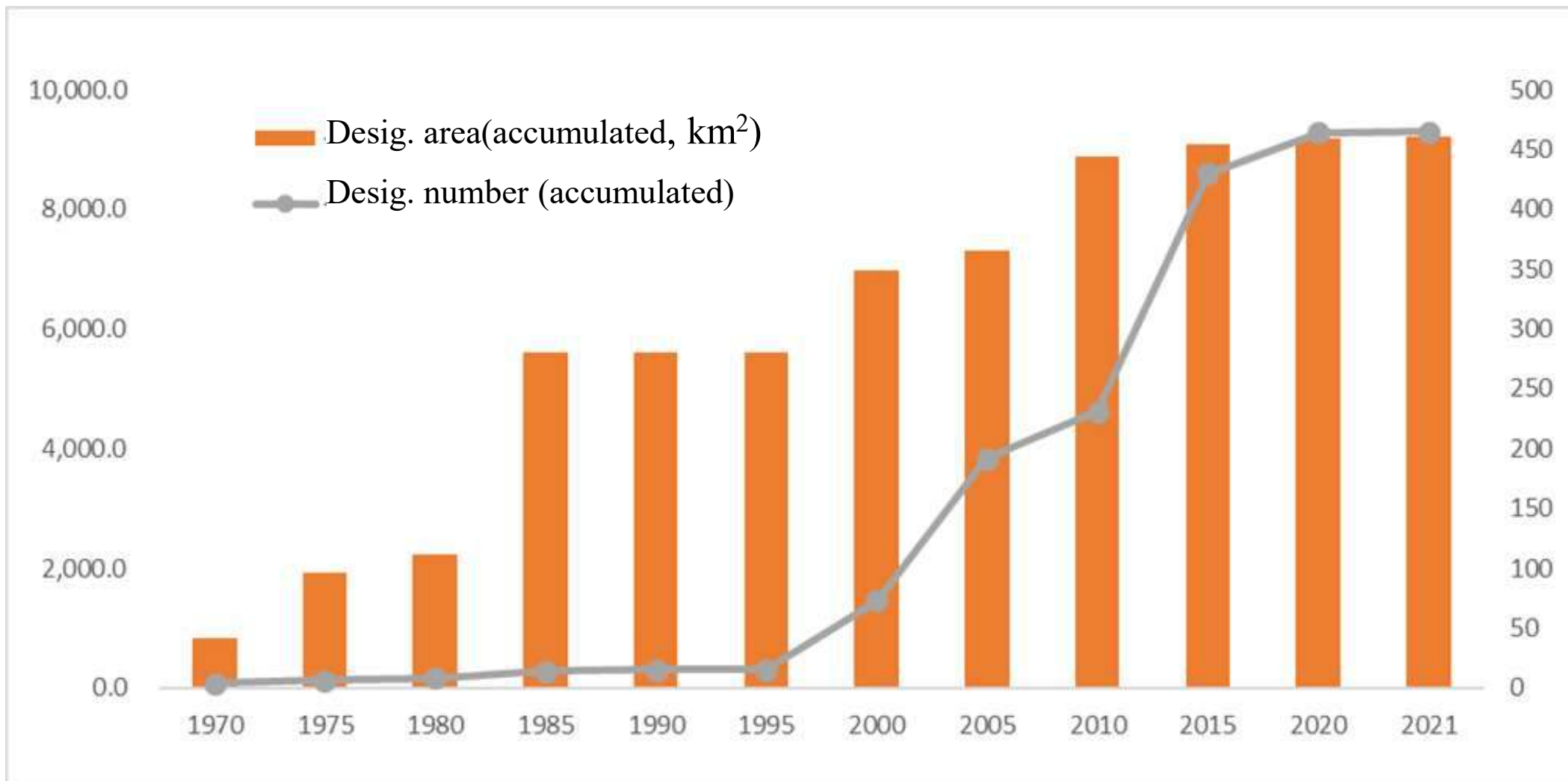


Quick Look of Korea' CMPAs

Korea's Coastal and Marine Protected Areas

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- CMPAs, 2.3% of National Jurisdiction; rapid increase since mid 2000s
- Managed mainly by Min. of Oceans and Fisheries in cooperation with other ministries



Choi, 2021 (personal communication)

- **Mainstreaming Climate Issue into generic marine ecosystem management**
- **But, less into MPAs-related legal and institutional mechanisms yet**

- ✓ Wetlands Conservation Act
- ✓ Marine Ecosystem Conservation and Management Act
- ✓ Natural Park Act
- ✓ Cultural Heritage Protection Act
- ✓ Act on the Sustainable Management and Restoration of Tidal Flats (Geatbeol) and Adjacent Areas Thereof

Green New Deal 2.0 of Korea



- Blue Carbon, adopted in “2050 Carbon Neutrality Scenarios”
- Framework Act on Carbon Neutrality and Green Growth (2021) ← Framework Act on Low Carbon and Green Growth (2011)

(Unofficial Translation)

2050 Carbon Neutrality Scenarios

October 18, 2021

Jointly with relevant Ministries

< Summary Table of the 2050 Carbon Neutrality Scenarios (Final Version)>

(Unit : million tons CO₂eq)

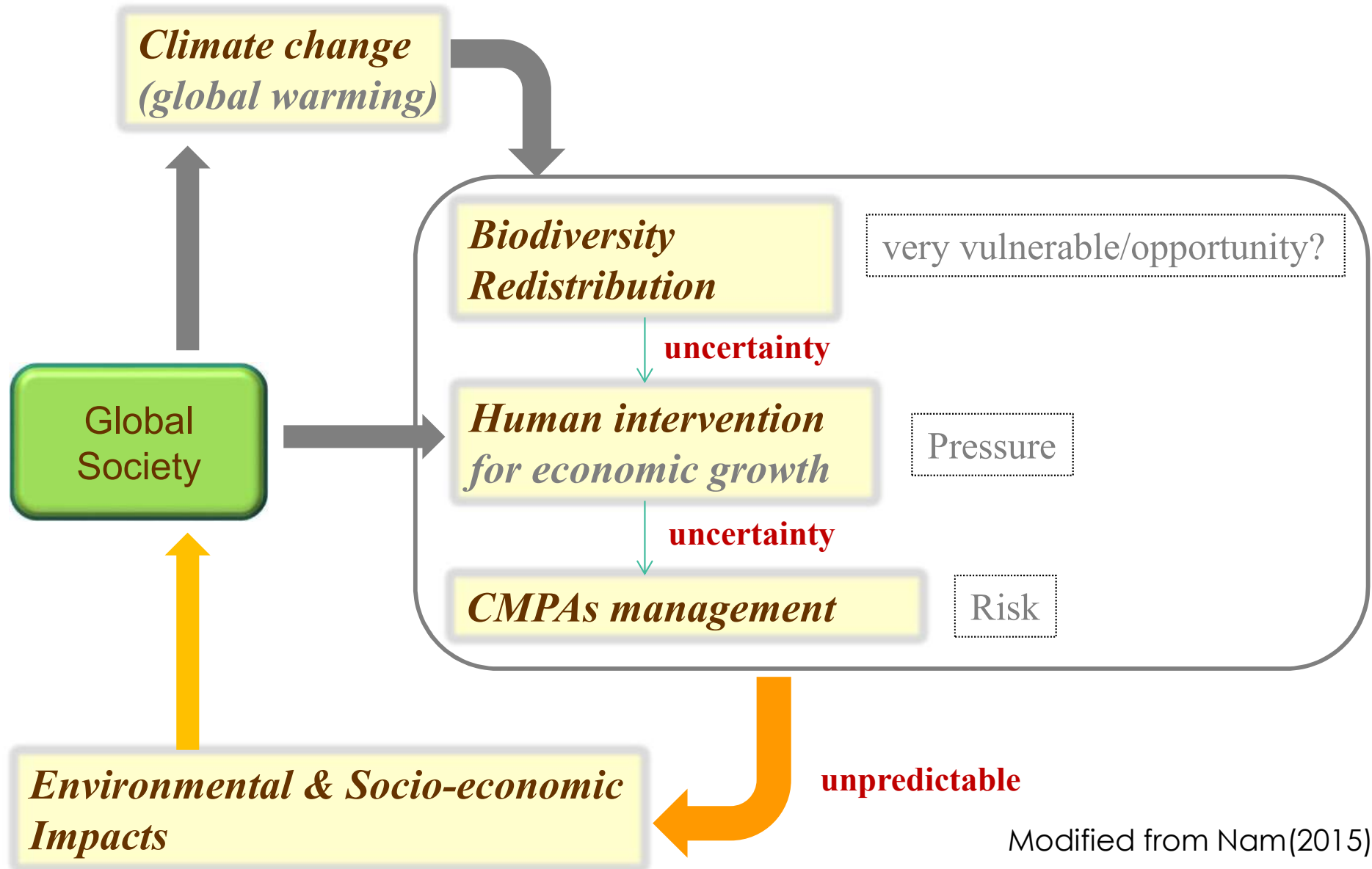
Category	Sector	2018	Draft			Final version		Note	
			Scenario 1	Scenario 2	Scenario 3	Scenario A	Scenario B		
Amount of Emissions		686.3	25.4	18.7	0	0	0	2030 NDC(2030 Nationally Determined Contribution) for the realization of carbon neutrality by 2050, determined by the participating nations themselves, based on the Paris Agreement. The Republic of Korea plans to reduce its GHG emissions by 40%, by 2030, compared to the levels in 2018.	
Emissions	Conversion	269.6	46.2	31.2	0	0	20.7		
	Industry	260.5	53.1	53.1	53.1	51.1	51.1		
	Building	52.1	7.1	7.1	6.2	6.2	6.2		
	Transportation	98.1	11.2 (-9.4)	11.2 (-9.4)	2.8	2.8	9.2		• (Scenario A) Complete conversion to electric and hydrogen vehicles for the road sector • (Scenario B) Assuming the use of alternative fuels (e-fuel, etc.) for internal combustion engines for the road sector
	Livestock and fisheries	24.7	17.1	15.4	15.4	15.4	15.4		
	Waste	17.1	4.4	4.4	4.4	4.4	4.4		
	Hydrogen	-	13.6	13.6	0	0	9		• (Scenario A) All domestically produced hydrogen is supplied as water electrolyte hydrogen (green hydrogen) • (Scenario B) Partial supply of domestically produced hydrogen as by-product/extract hydrogen
	Fugitive emission	5.6	1.2	1.2	0.7	0.5	1.3		
Sinks and removal	Carbon sinks	-41.3	-24.1	-24.1	-24.1	-25.3	-25.3	• The captured carbon is assumed to be used as an alternative fuel for vehicles	
	CCUS(Carbon Capture, Utilization, and Storage)	-	-95	-85	-57.9	-55.1	-84.6		
	DAC(Direct Air Capture)	-	-	-	-	-	-7.4		

* Different data between the Scenarios are marked in blue.

→ - 25.3 million

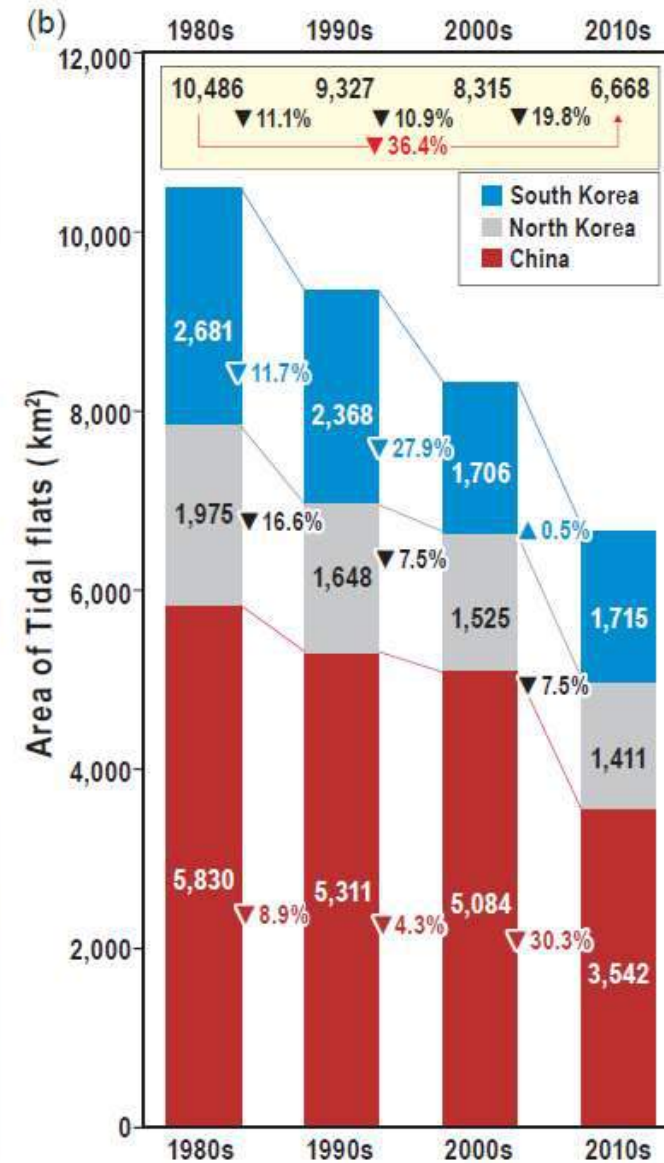
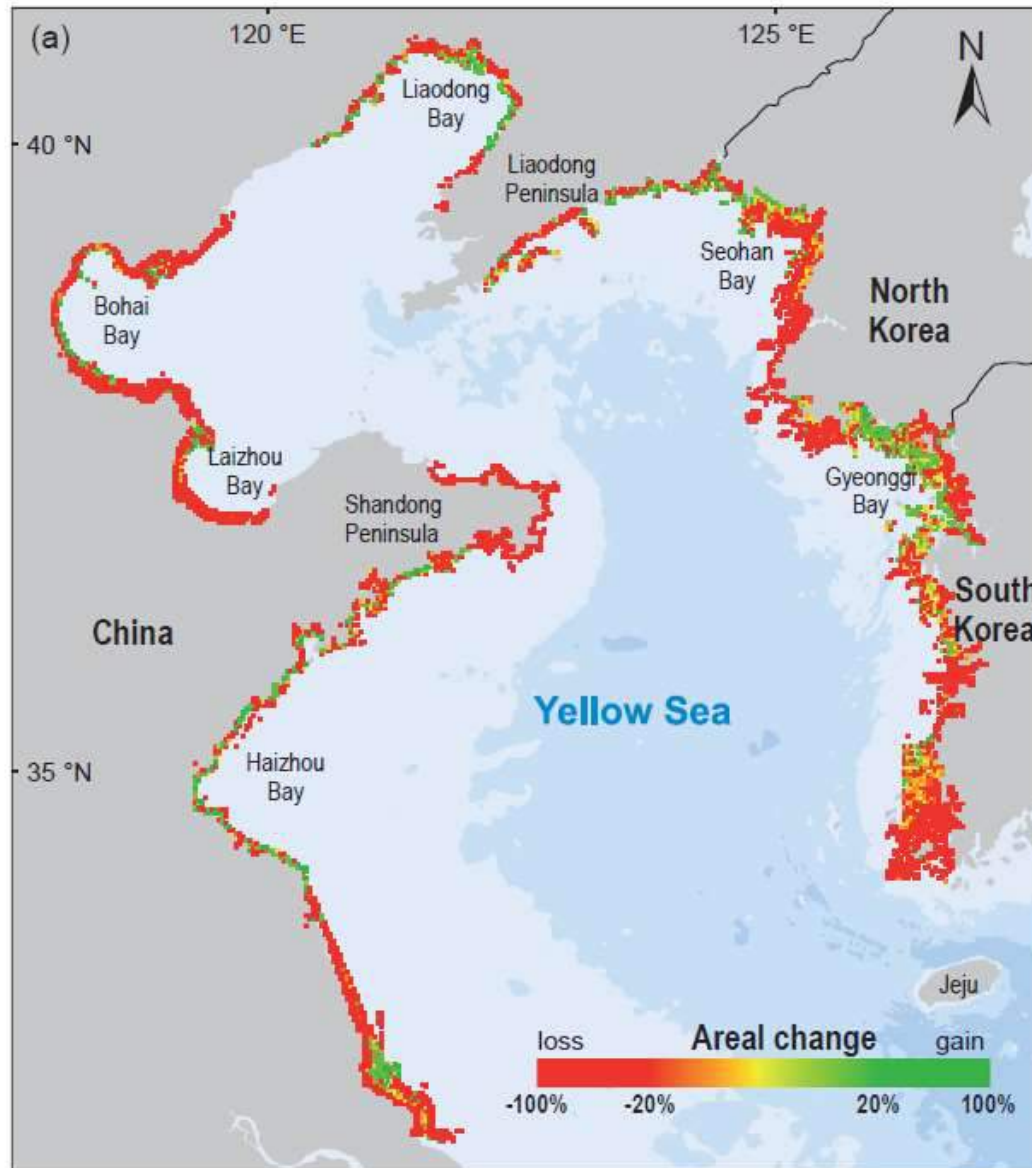
Less awareness on connection between Climate Change & MPAs

- Climate-driven biodiversity redistribution, faster in marine ecosystem than terrestrial ecosystem (Pech et al., 2017)
- Less awareness on climate change and its impact on marine ecosystem services



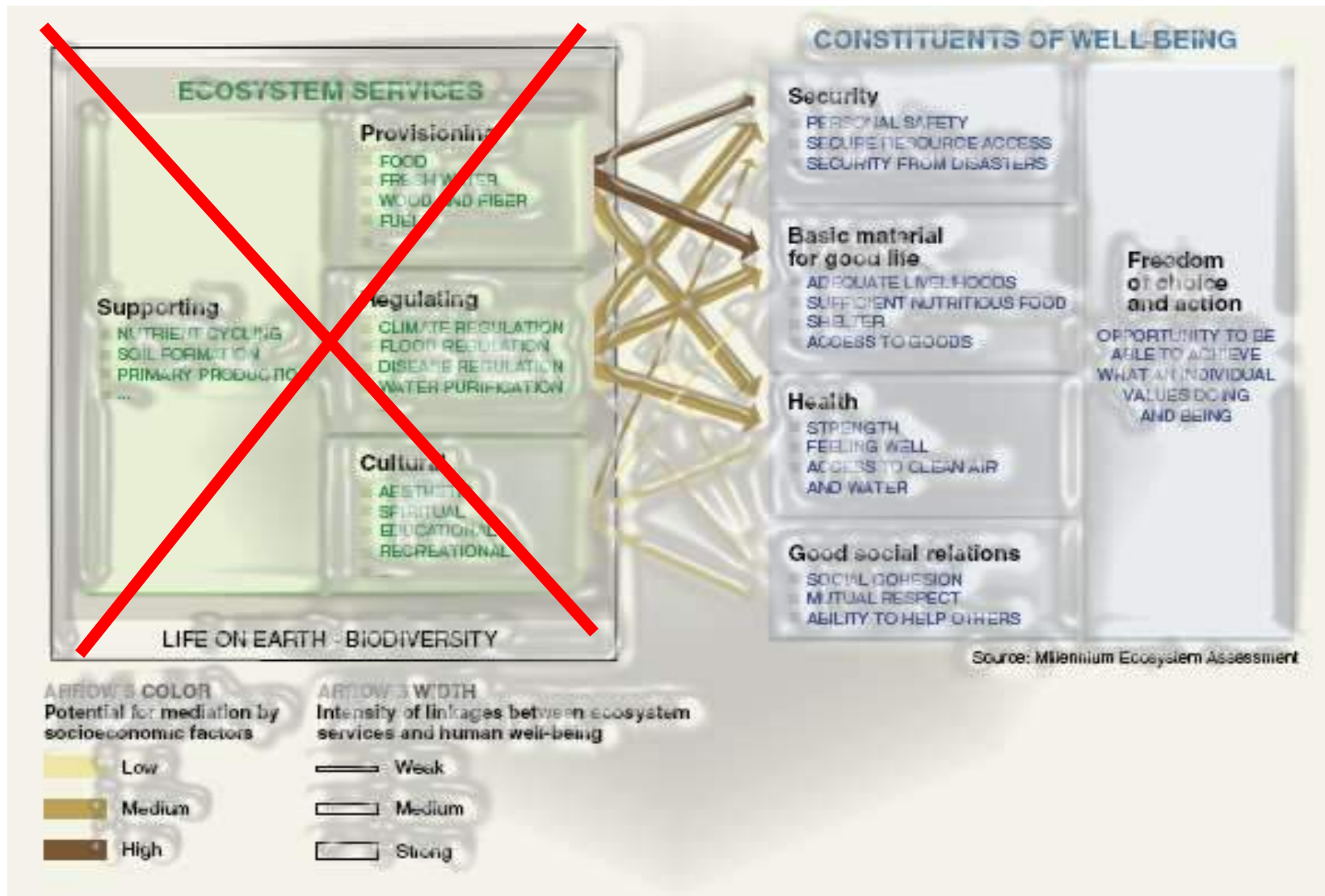
Modified from Nam(2015)

Human Intervention → Loss of natural capital (asset) for Yellow Sea ecosystem sustainability



Yim, Khim, Kwon, Nam et al., 2018


- Losing marine ecosystem services? or gaining alternative MES?



Motions for more Adaptive CMPAS

- Restoration and Protection based on Climate Change Dynamics

United Nations A/RES/73/284

 **General Assembly** Distr.: General
6 March 2019

Seventy-third session
Agenda item 14

**Resolution adopted by the General Assembly
on 1 March 2019**

[without reference to a Main Committee (A/73/L.76 and A/73/L.76/Add.1)]

73/284. United Nations Decade on Ecosystem Restoration (2021–2030)

The General Assembly,

Recalling the outcome document of the United Nations Conference on Sustainable Development, held in Rio de Janeiro, Brazil, from 20 to 22 June 2012, entitled “The future we want”,¹ in which the role of ecosystem restoration in achieving sustainable development was highlighted,

Recalling also Economic and Social Council resolutions 1980/67 of 25 July 1980 on international years and anniversaries and 1989/84 of 24 May 1989 on guidelines for international decades in economic and social fields and General Assembly resolutions 53/199 of 15 December 1998 and 61/185 of 20 December 2006 on the proclamation of international years,

TEN PRINCIPLES THAT UNDERPIN ECOSYSTEM RESTORATION



GLOBAL CONTRIBUTION



BROAD ENGAGEMENT



MANY TYPES OF ACTIVITIES



BENEFITS TO NATURE AND PEOPLE



ADDRESSES CAUSES OF DEGRADATION



KNOWLEDGE INTEGRATION



MEASURABLE GOALS



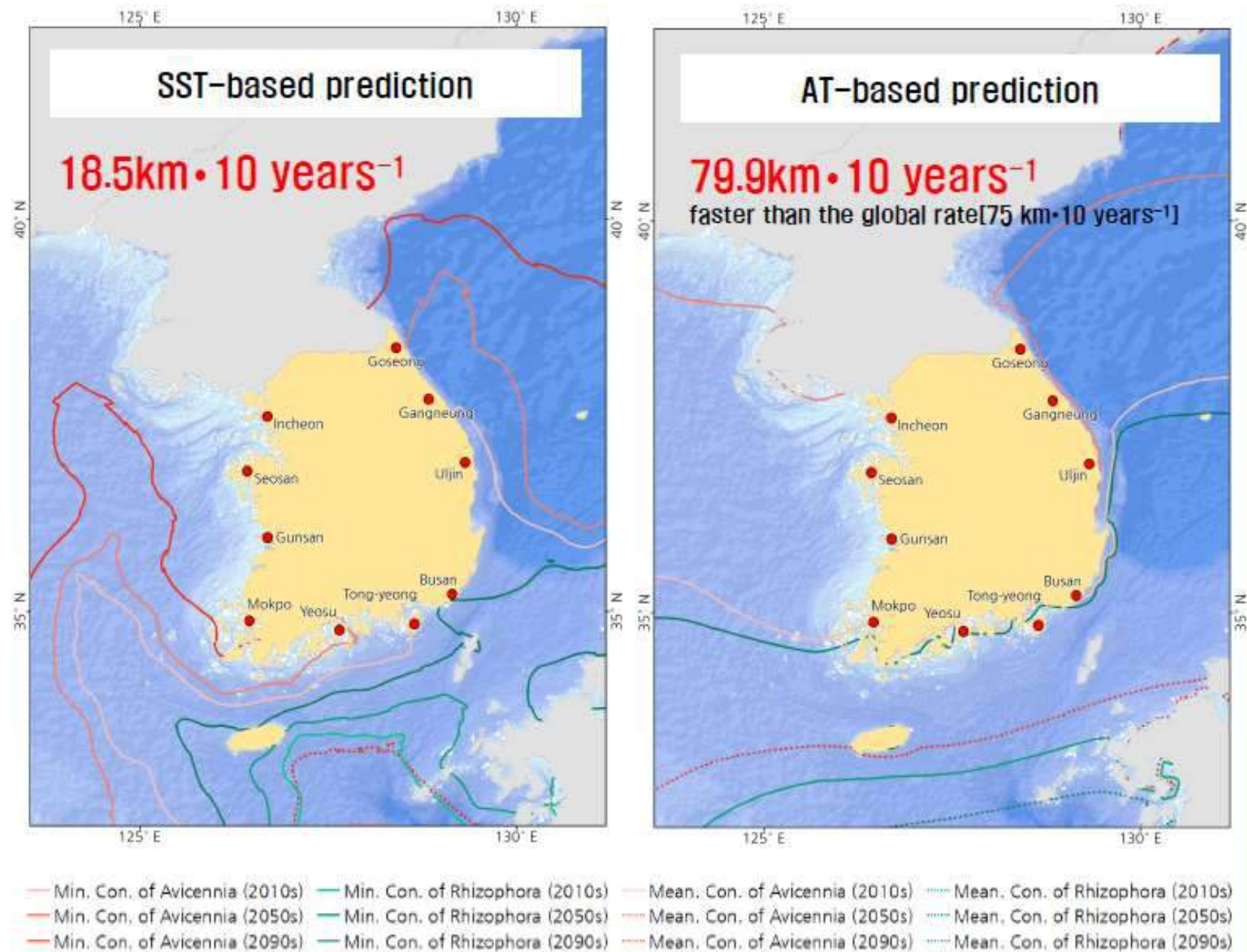
LOCAL AND LAND/ SEASCAPE CONTEXTS



MONITORING AND MANAGEMENT

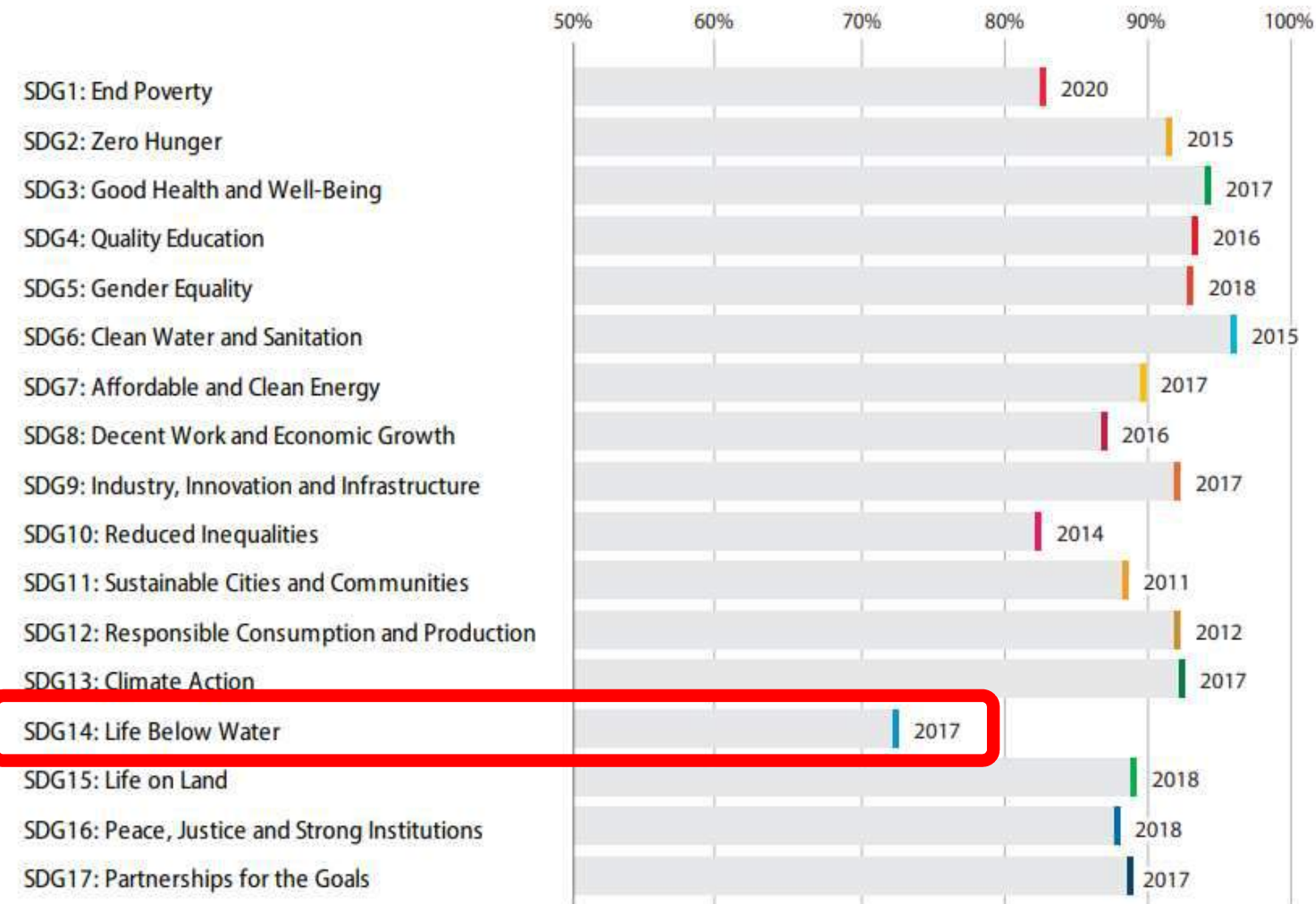


POLICY INTEGRATION



Data availability and timeliness vary extensively across the SDGs

Global data availability (in %) and average year of reference (in years) by SDGs (official and non-official data sources)



Motion 3 : Expansion of individual MPA size and Networking

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Most CMPAs are small, not enough to mitigate and buffer anthropogenic impacts

Addressing a critical issue in MPAs, Paper Parks
(less than 3 Key Features of NEOLI)

No-take

Enforced well

Old (> 10 years)

Large (> 100 km²) : small one is more vulnerable

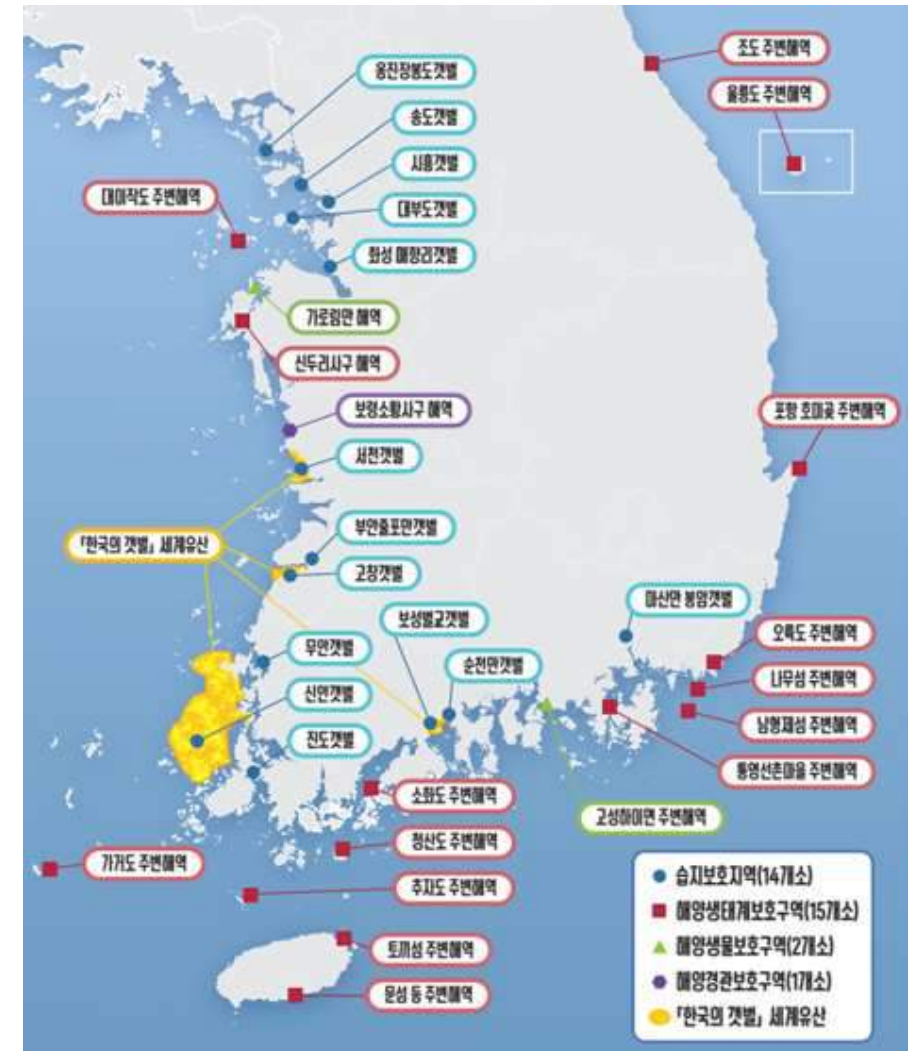
Isolated

Edgar et al., 2014, Nature

59% of MPAs, only one or two features
“not ecologically distinguishable from fished sites”

Small size of MPAs driven by political, economic
and social constraints

→ less contribution to living organisms (fish,
invertebrate, algae etc)(IUCN)



KOEM homepage

Rarely Studied on Benefits of MPA Network

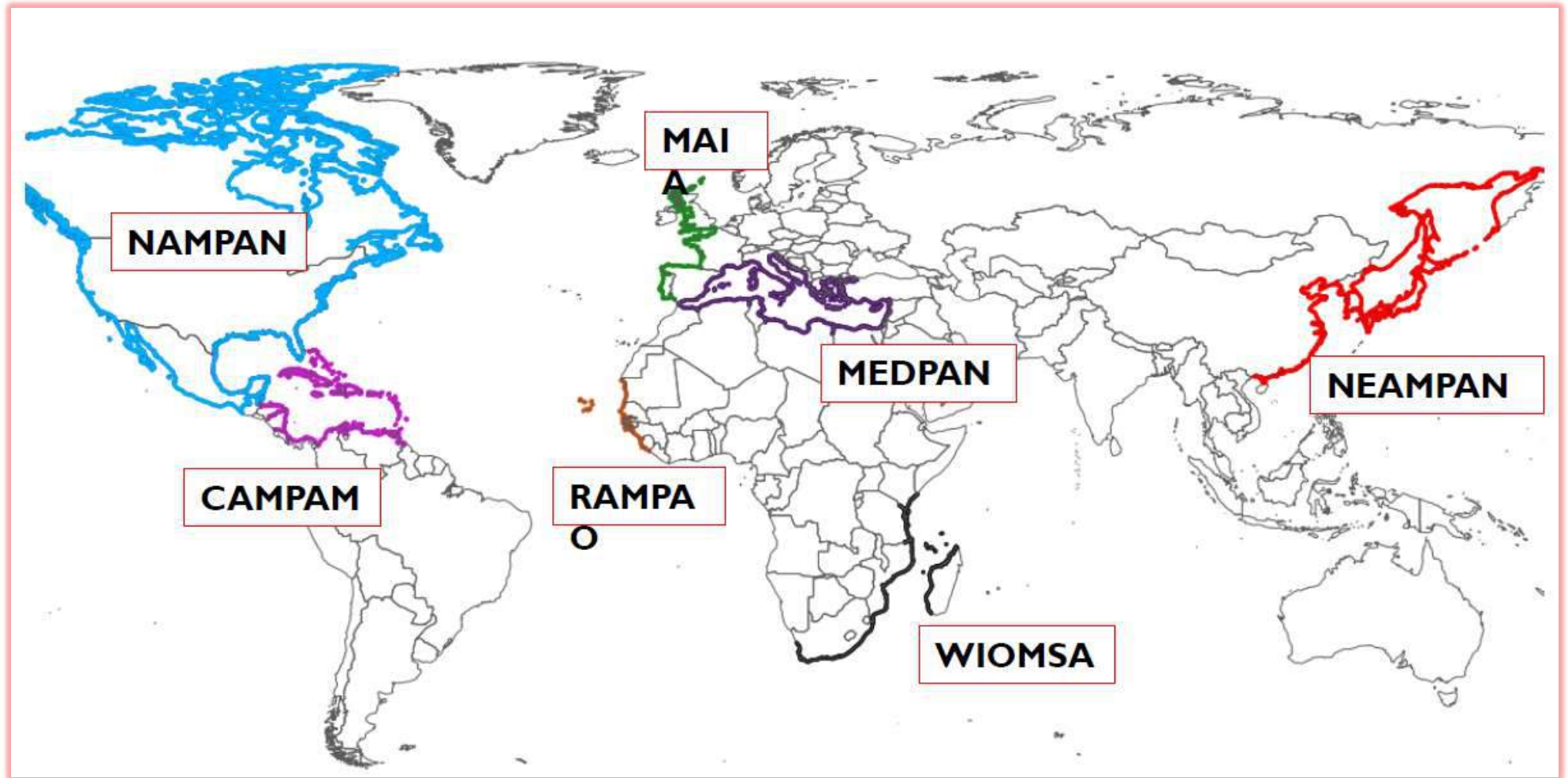
Benefits of MPA vs MPA Network

Benefits of MPAs are well known, but Benefits of their Network, not yet in terms of concrete and scientific evidence

£6.3 billion - £10 billion
- the estimated benefits
of a network of Marine
Protected Areas in
Scottish waters over 20
years.

Gonzalez-Alvarez et al., 2012

NEAMPAN is new one, requiring more strong and expanded networking



NEAMPAN Secretariat, 2014 at 1st Steering Committee of NEAMPAN

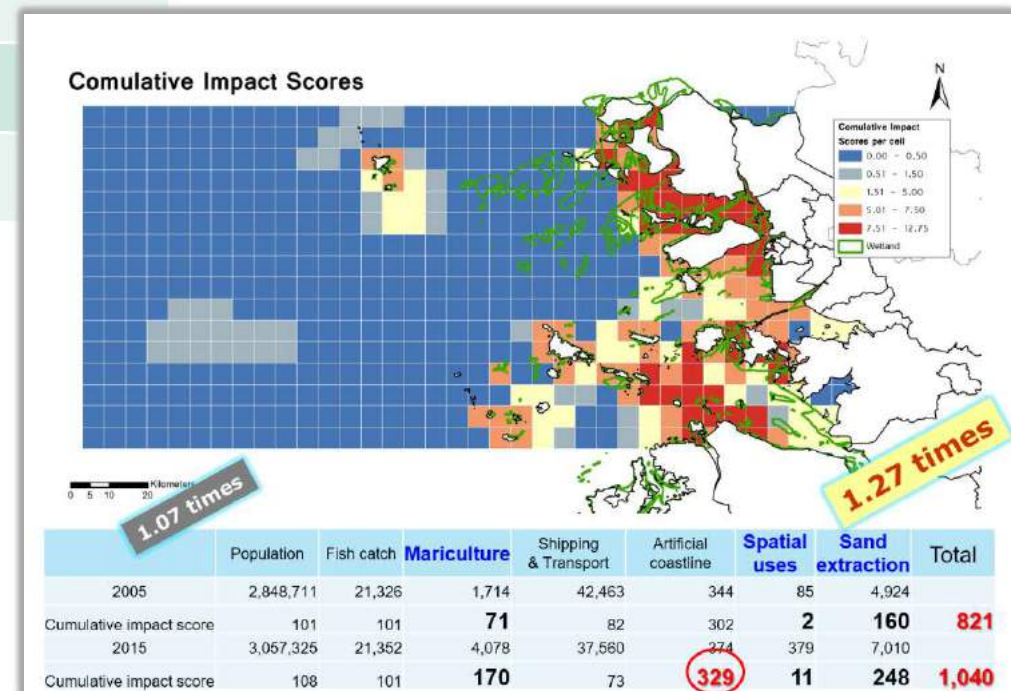
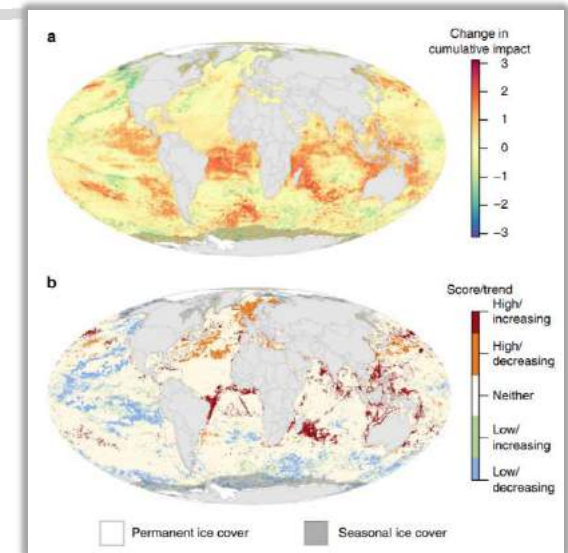
Motion 4 : More Putting LBAs into CMPAs management

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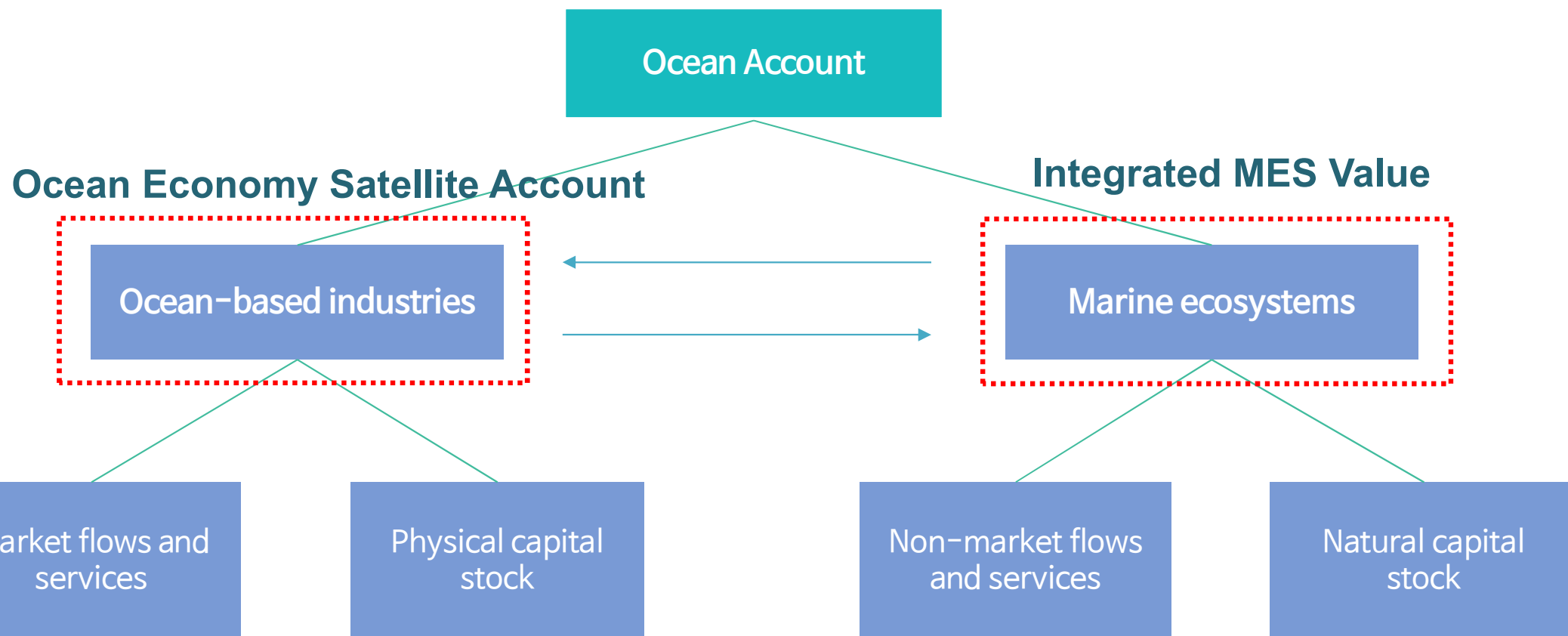
Cumulative Impact, leading to staggered ecological function of marine ecosystems and their PAs

Country	Impact score in 2013	Change over 5 years
DPR Korea	3.6102	-0.03106
RO Korea	4.8542	0.13060
China	5.1714	0.07045
Japan	4.2891	0.15299
Russia	2.3668	0.09861
U.S	3.5298	-0.11903

Halpern et al., 2015



Nam & Choi, 2017

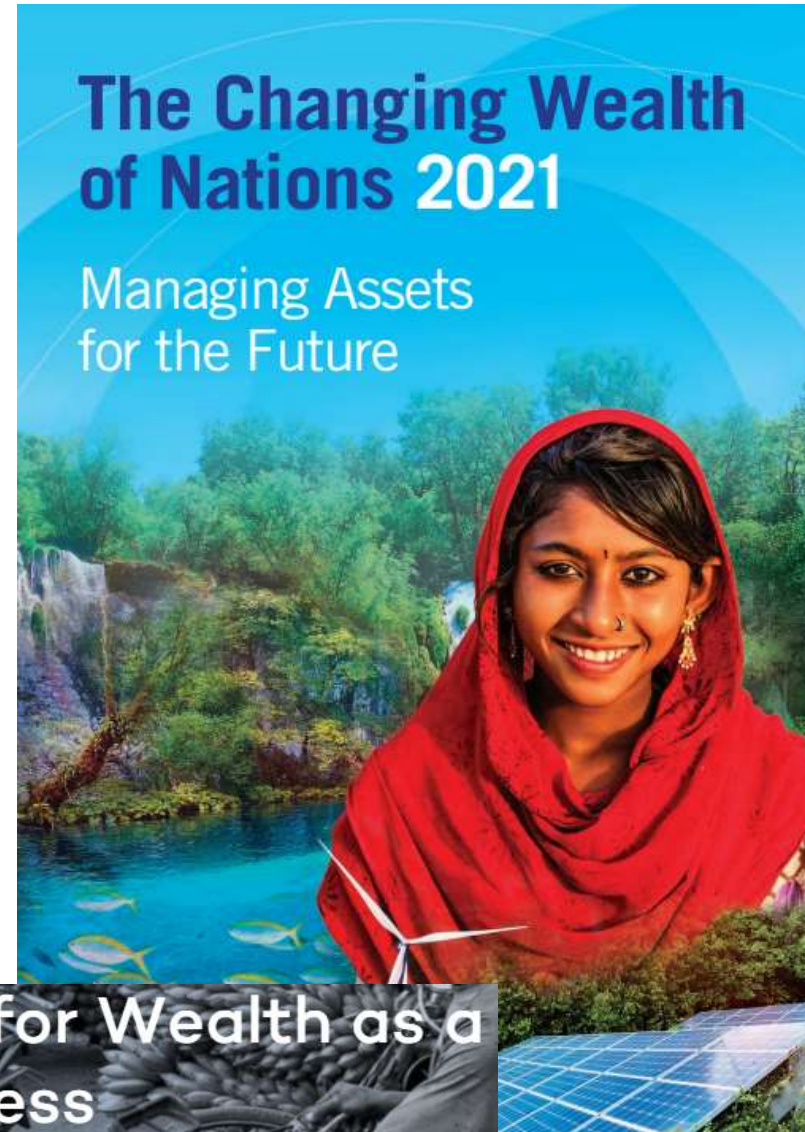


Moving Beyond GDP: The Case for Wealth as a Core Measure of National Progress

For more than 70 years, gross domestic product (GDP) has been the most frequently cited and influential indicator of national wellbeing and progress.

The Changing Wealth of Nations 2021

Managing Assets for the Future



Moving Beyond GDP: The Case for Wealth as a Core Measure of National Progress

26 April 2022 | Online



* 주: 해역을 0.5분 단위 격자(약 0.93km)로 구분하고, 격자별 갯벌 생태계서비스(조절 및 문화) 가치의 합을 도시

Motion 6 : Strengthening ESG for Oceans – Blue ESG

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ESG and its related measures are proliferating, but land-oriented or focused approach

Green Bond Guidelines of Korea (2020)

금융위원회는 지난 1월 25일, '21년 녹색금융 사업 추진 계획'을 발표하고 녹색채권 가이드라인'에 기반하여 금융회사·기업과의 업무협약 체결을 통해 녹색채권 발행 시범사업을 실시하기로 했다.

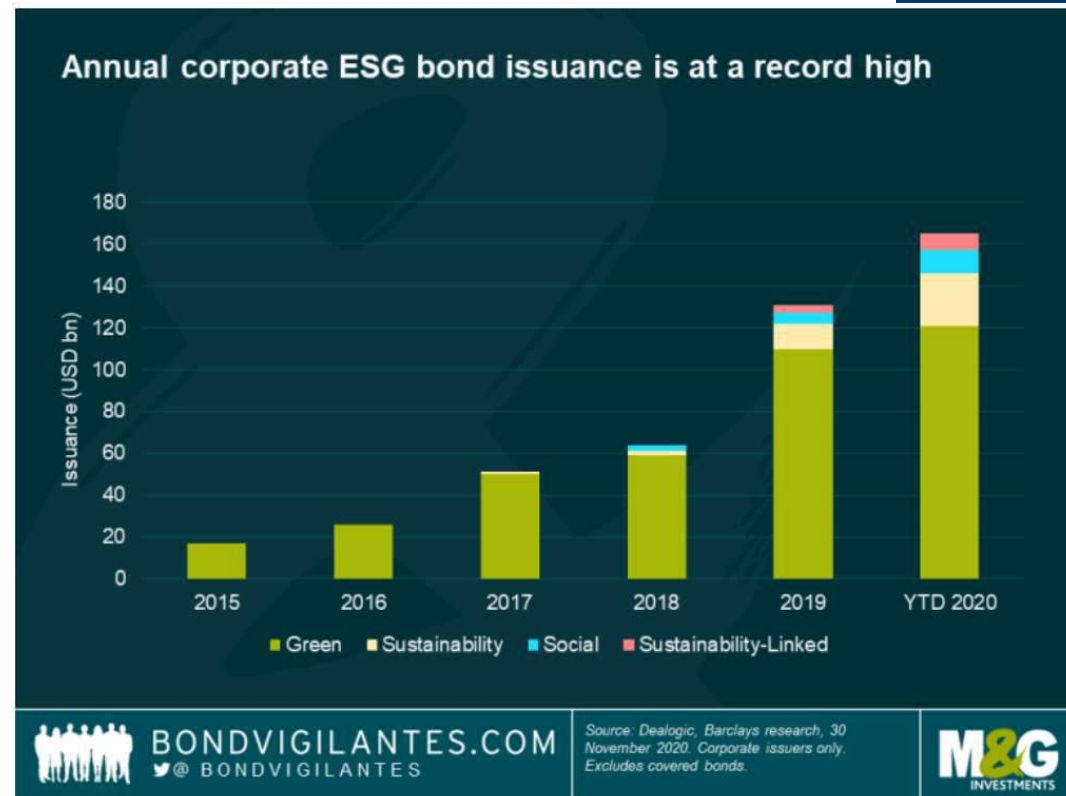
위원회는 시범 사업을 통해 기업 등에서 발행하는 녹색채권이 가이드라인과 부합하는지 여부를 분석·발표할 계획이다.

녹색채권 가이드라인 (2020.12)

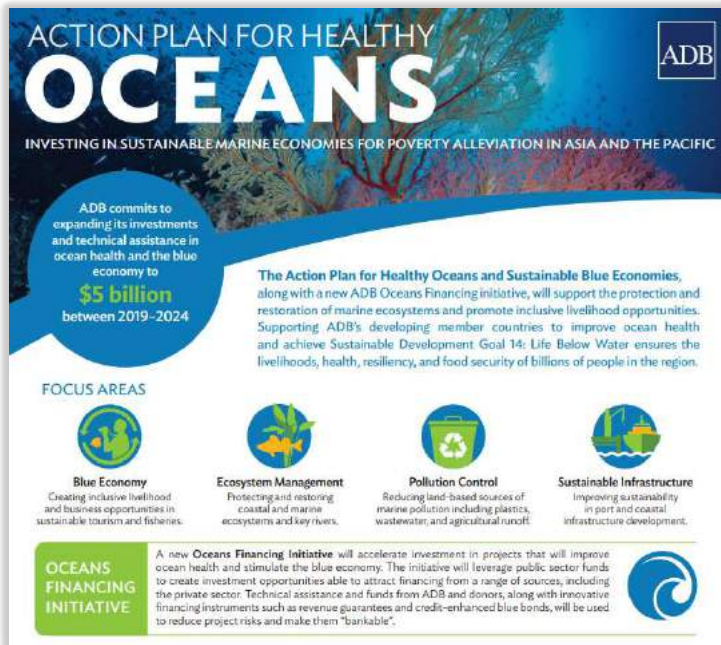
Green Bond Guidelines



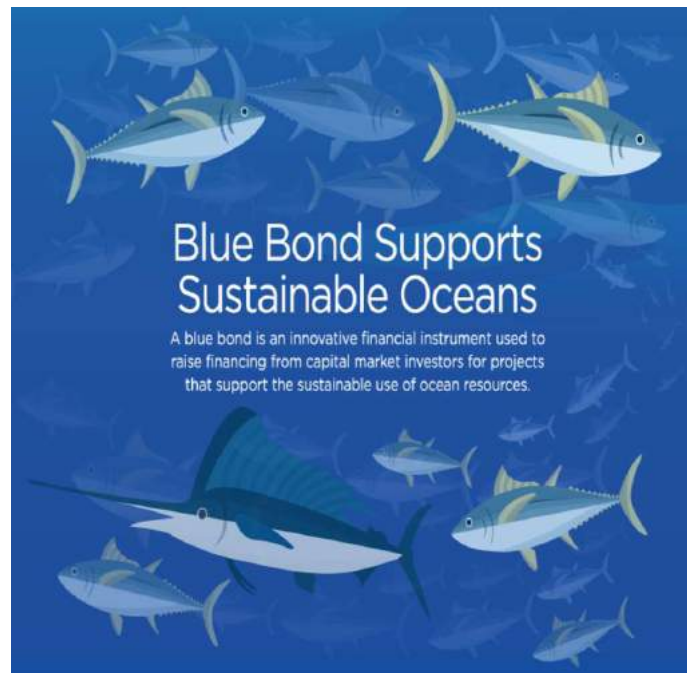
<https://www.bondvigilantes.com/insights/2021/02/green-bonds-blue-bonds-esg-bonds-galore-a-beginners-guide-for-fixed-income-investors>



ADB investment of USD 5 bn. for Ocean



Initiated by **KMI** in 2022



<https://www.worldbank.org/en/news/feature/2018/10/29/sovereign-blue-bond-issuance-frequently-asked-questions>



Q&A