Assessment Report on Invasive Alien Species and their Control

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The Intergovernmental Science-Policy Platform on Biodiversity & Ecosystem Services

#InvasiveAlienSpecies Assessment

UN environment programme

unesco

Food and Agriculture Organization of the United Nations

UNDP

1. The invasive alien species assessment

Invasive alien species are one of the 5 major drivers of biodiversity loss

Alien species are animals, plants, and other organisms that have been introduced by human activities to new regions

Invasive alien species are a subset of alien species, known to have established and spread with negative impacts on nature. Many invasive alien species also have impacts on people

“Biological invasions” is a term used to describe the process involving the intentional or unintentional transport or movement of a species outside its natural range by human activities and its introduction to new regions, where it may become established and spread.

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Main key findings

People and nature are threatened by invasive alien species in all regions of Earth

Current policies have been insufficient in managing biological invasions and preventing and controlling invasive alien species

The threats from invasive alien species are **increasing significantly** in every region

People at the heart of the problem, as **many human activities facilitate** the transport, introduction, establishment and spread of invasive alien species

Biological invasions and their adverse impacts can be prevented and mitigated through **effective management**

Ambitious progress in biological invasion management can be achieved with **integrated governance**

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A few numbers on status and impacts

established alien species have been introduced by human activities across all regions and biomes of Earth

of global species extinctions have been caused, solely or alongside other drivers, by invasive alien species

is the estimated global annual costs of biological invasions in 2019

of impacts on nature, nature's contributions to people and good quality of life are negative

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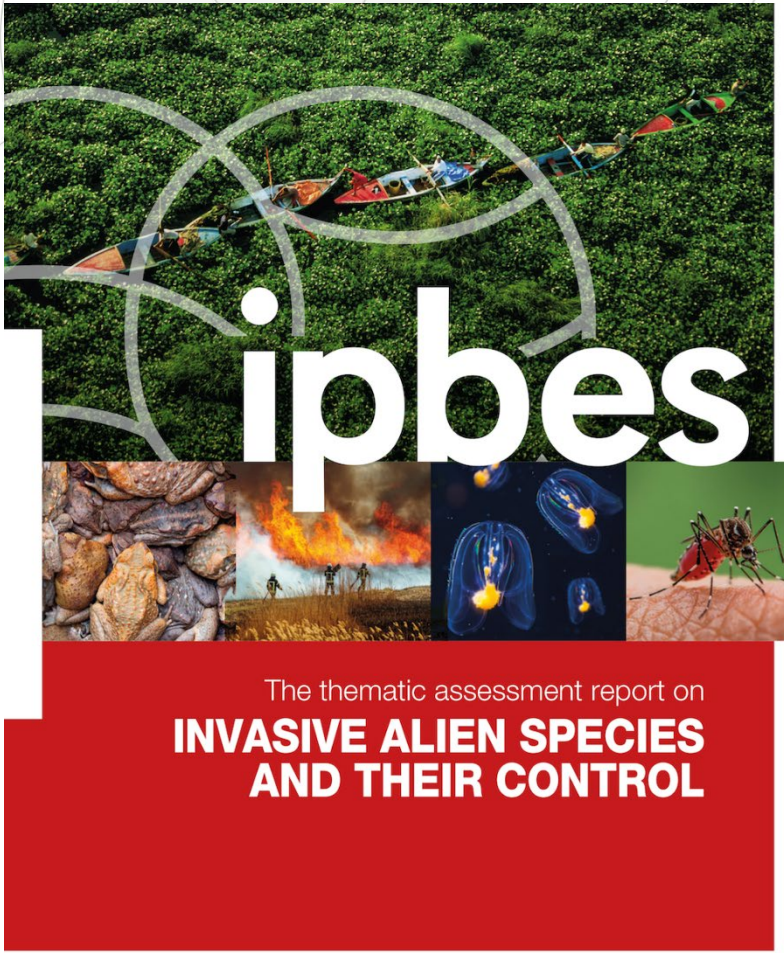
There is compelling evidence for immediate and sustained action

With sufficient resources and long-term commitment, preventing and controlling invasive alien species are attainable goals that will yield significant long-term benefits for people and nature.



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2. IAS assessment process

Developed over 4 years

3 Authors meetings (Tsukuba, online & Aarhus)
2 External reviews
1 Additional review by governments

The supporting evidence

Over 13,000 documents reviewed in depth
Various values and knowledge systems considered, drawing on scientific and grey literature, and information from Indigenous and local knowledge

Engagement with Indigenous and local knowledge

3 dialogue workshops (Montreal and online),
a call for contributions, and
collaboration with ILK experts and holders within the expert team and as contributing authors

Photo by IISD/ENB

Produced by a multidisciplinary team of 86 experts and many contributing authors

86 nominated experts from 47 countries, encompassing all regions and many disciplines

About 200 contributing authors, including from Indigenous Peoples and local communities

Supported by a management committee
Technical support unit based in Japan (Institute for Global Environmental Strategies, IGES)

3. Knowledge and data gaps: process and examples

Overall aims

1. Take advantage of the full breadth of expertise available in the author team

2. Transparent way of determining gaps

3. Evaluation of gaps

Identification classification and analysis of gaps

1. Gaps were identified across all chapters except Chapter 1 “Introduction” using a two-step survey:
   - Each chapter CLAs were asked to report max 10 of most important gaps from their chapter perspective (i.e., impacts, drivers, etc.)
   - All authors were asked to evaluate relevance of gaps (scale 1-5) for improving understanding, taking actions, costs and challenges
2. Gaps were categorized and classified into:
   - Implementation challenge (financial and scientific)
   - Potential gains (for taking actions and improving knowledge)
3. Synthetized in Chapter 6 and in Table SPM.A1

Photos by Claudio Concha Avello

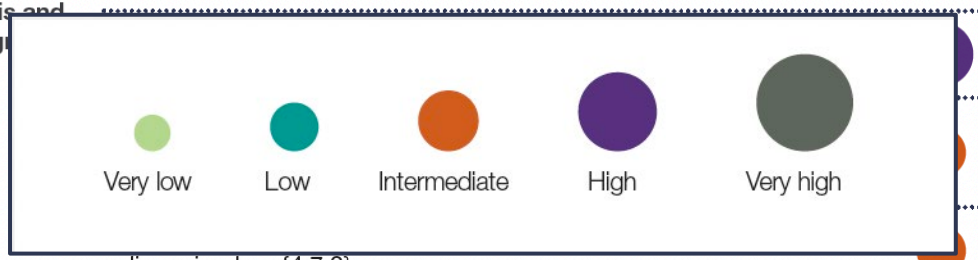
Categories of knowledge and data gaps

1. Gaps in biomes, units of analysis and species groups
2. Regional gaps in data and knowledge
3. Interoperable data gaps for monitoring invasive alien species and effects of drivers of biodiversity change
4. Gaps in how invasive alien species affect nature's contributions to people
5. Gaps in management and policy approaches
6. Gaps to fill to support the implementation of policy and management
7. Gaps of particular relevance to Indigenous Peoples and local communities

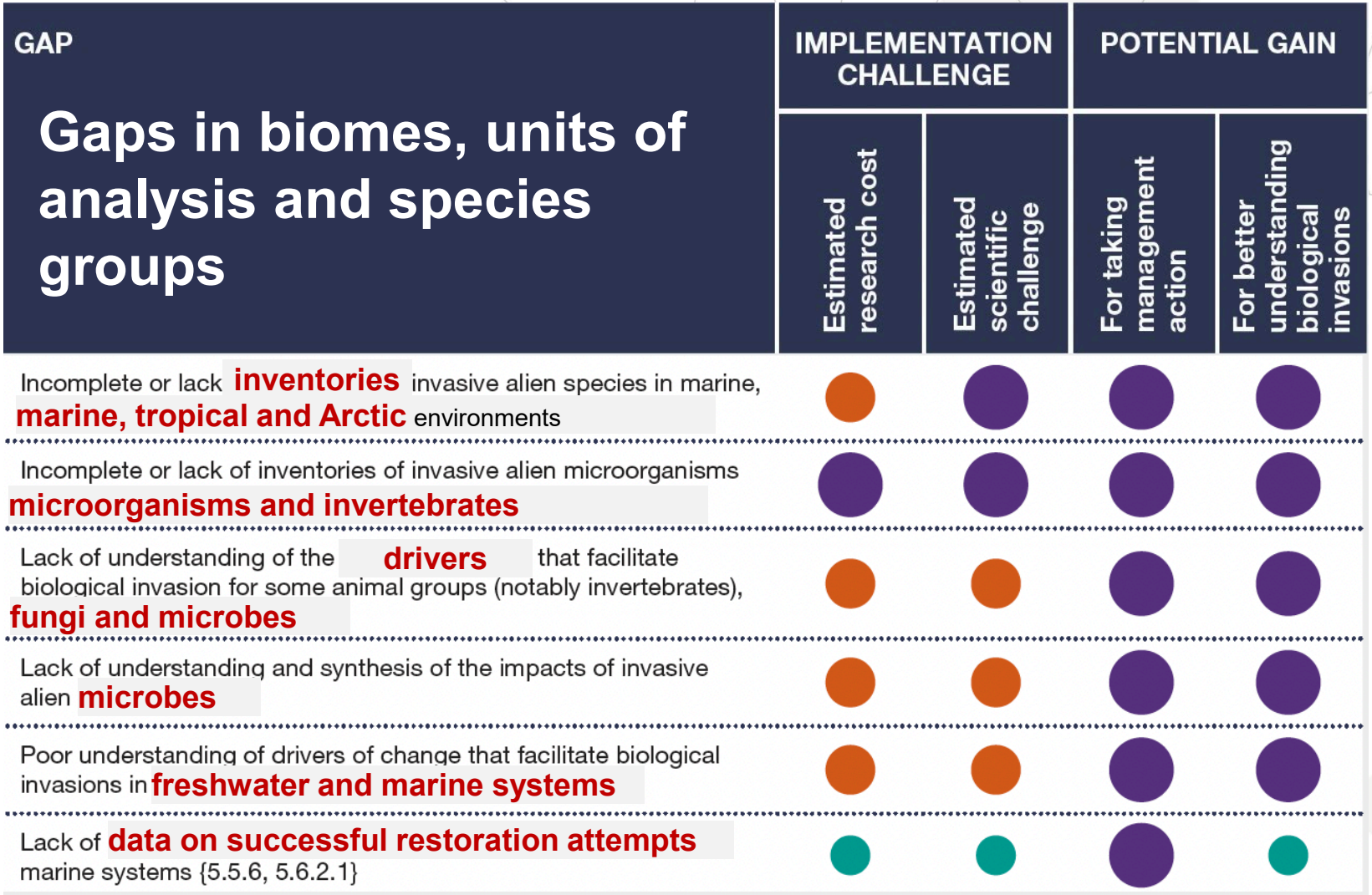
Table SPM A 1 Table of knowledge and data gaps

Synthesis of the most important knowledge and data gaps identified and collated through the assessment. Confidence levels in the summary for policymakers were allocated with full consideration of the gaps listed in the table; closing those gaps would strengthen the understanding of biological invasions. Experts have assessed the estimated cost and scientific challenge of closing these gaps, as well as the potential gain in increasing understanding of and successfully tackling biological invasions globally (from very low to very high). The listed gaps may not be relevant at local or regional scales.

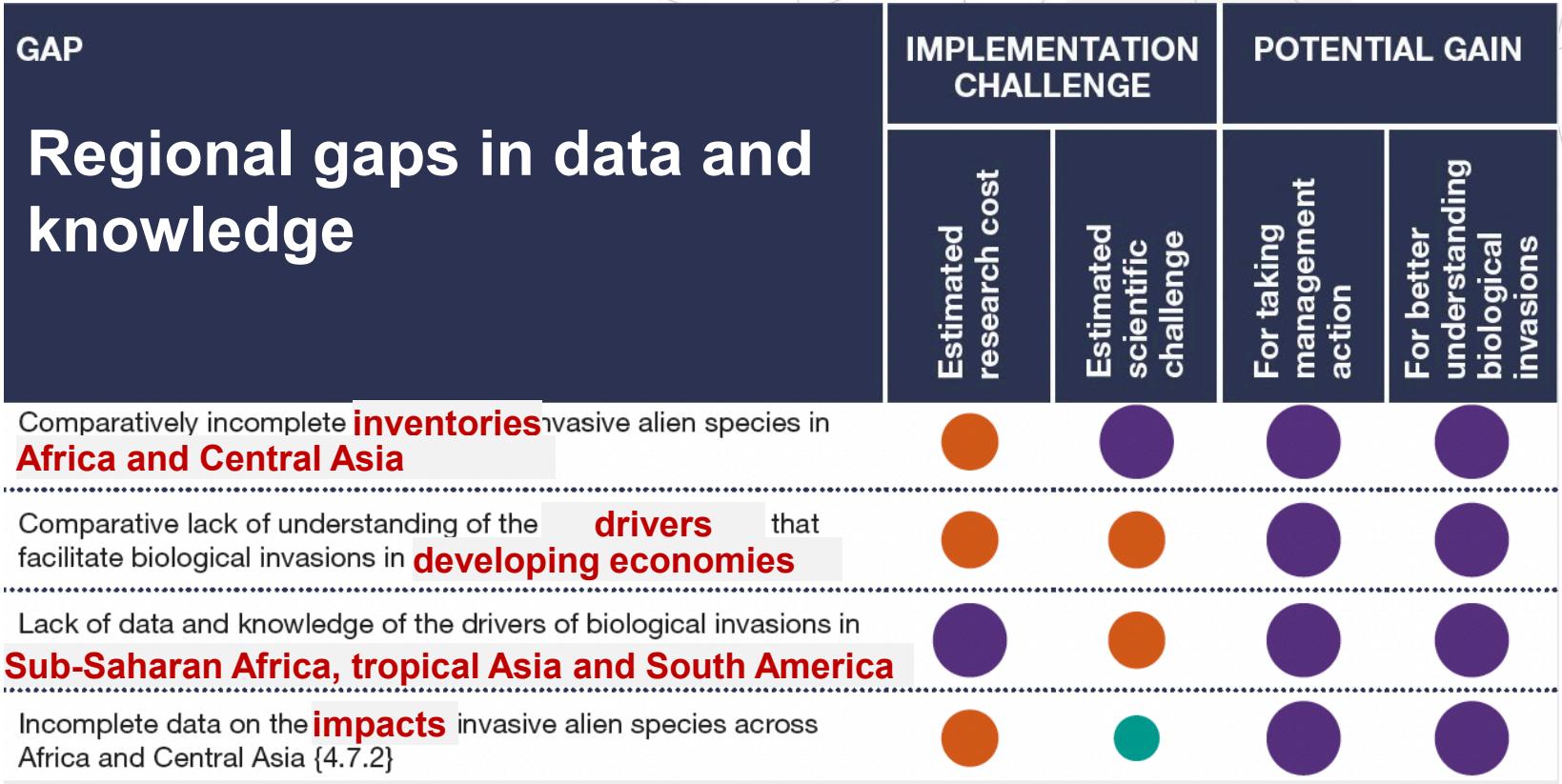
CATEGORY	GAP	IMPLEMENTATION CHALLENGE		POTENTIAL GAIN	
		Estimated research cost	Estimated scientific challenge	For taking management action	For better understanding biological invasions
Gaps in biomes, units of analysis and species gr	Incomplete or lack of inventories of invasive alien species in marine, tropical and Arctic ecosystems {2.5.2.1, 2.5.2.4, 2.5.2.5, 2.5.4}				
	alien microbes {4.7.2}				



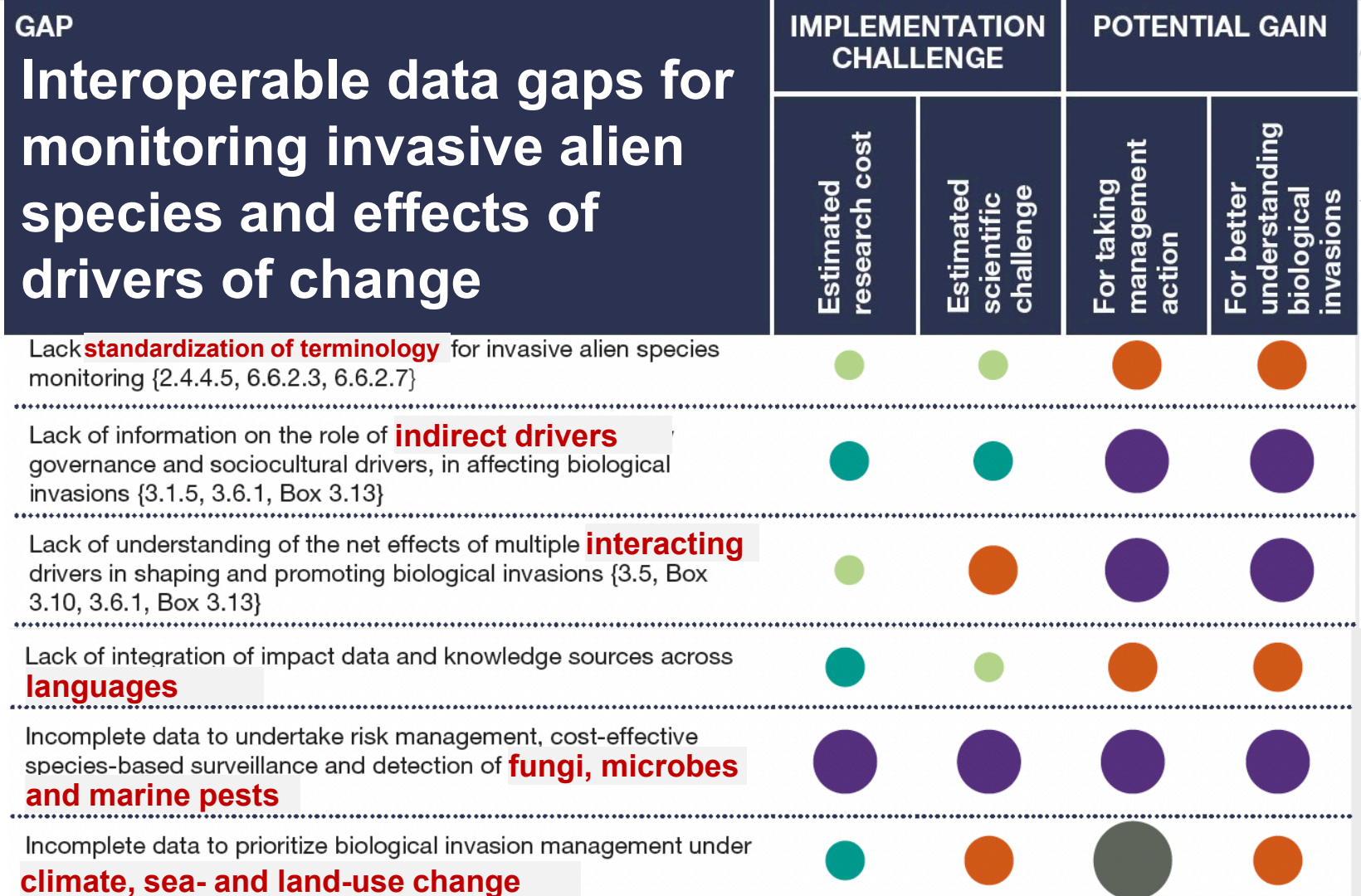
Gaps in biomes, units of analysis and species groups



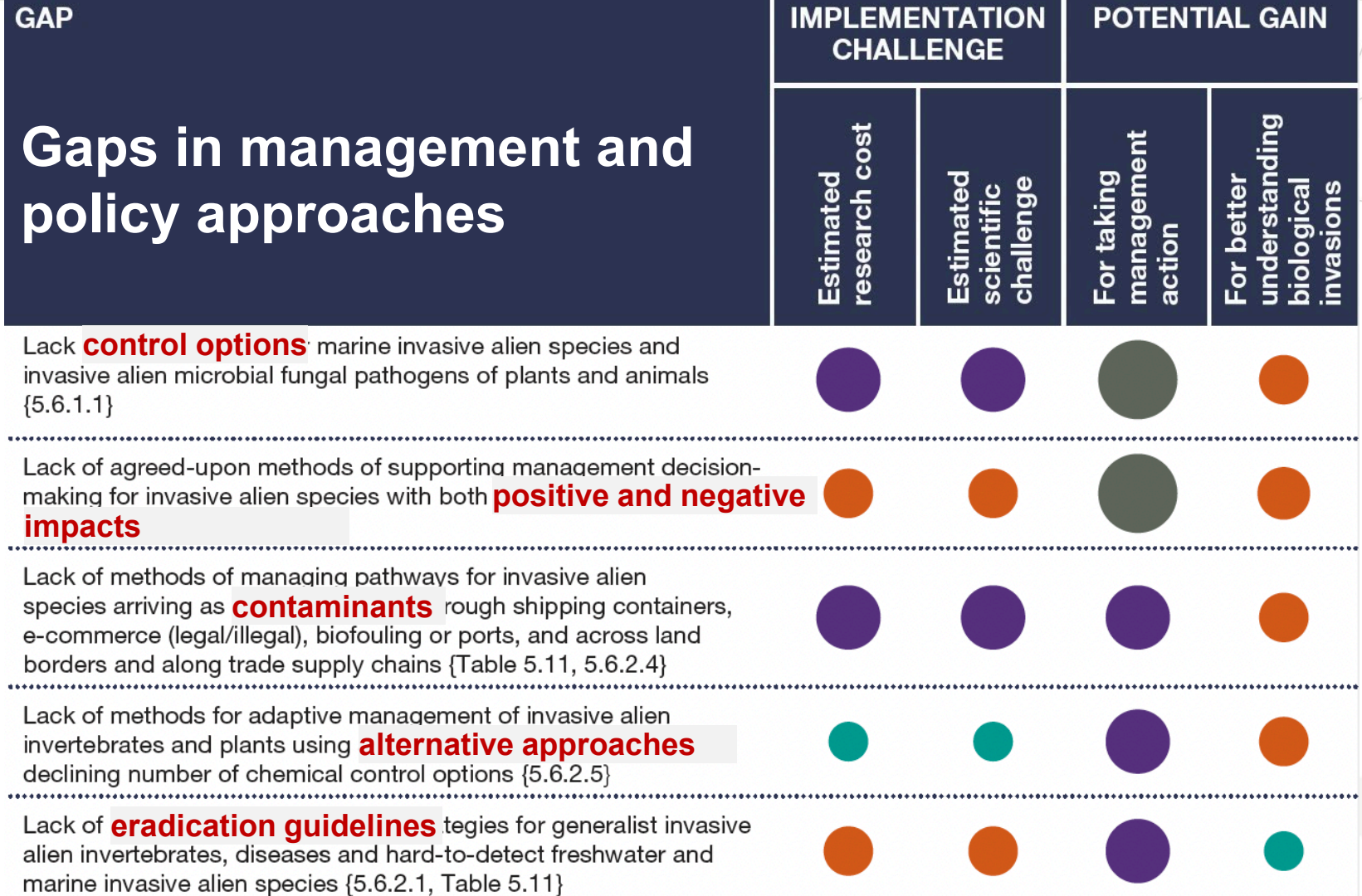
Regional gaps in data and knowledge



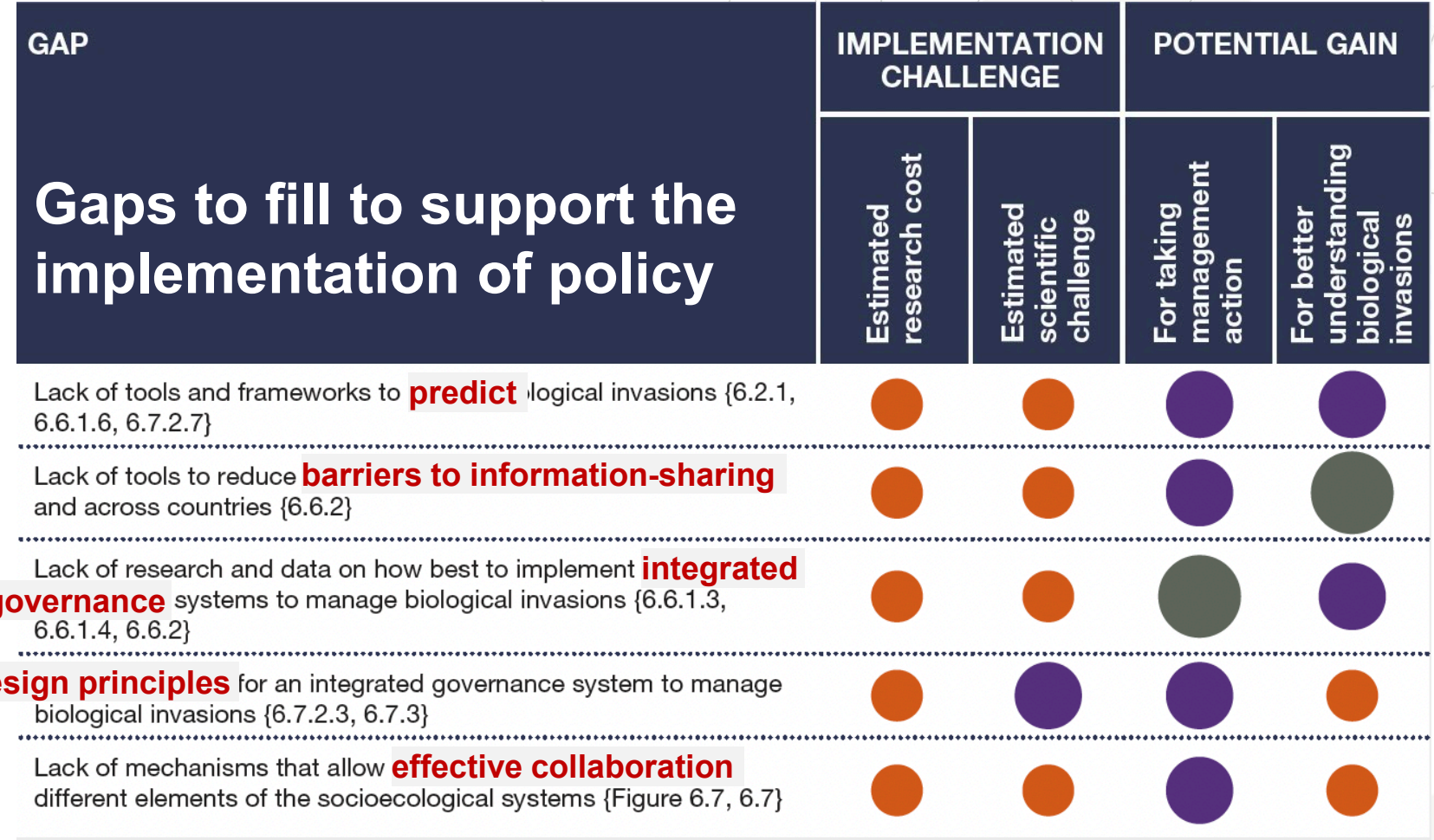
Interoperable data gaps for monitoring invasive alien species and effects of drivers of change



Gaps in management and policy approaches



Gaps to fill to support the implementation of policy



Gaps of particular relevance to Indigenous Peoples and local communities

GAP	IMPLEMENTATION CHALLENGE		POTENTIAL GAIN	
	Estimated research cost	Estimated scientific challenge	For taking management action	For better understanding biological invasions
Lack of information on invasive alien species **status & trends** on land and water managed by Indigenous Peoples and local communities {Box 2.6}	●	●	●	●
Lack of information on Indigenous and local knowledge, values and culture regarding **drivers & impacts** of invasive alien species on land and water managed by Indigenous Peoples and local communities {1.6.7.1, Box 3.12}	●	●	●	●
Lack of understanding of and mechanisms for **sharing knowledge** on invasive alien species and their drivers, impacts, management and governance among Indigenous Peoples and local communities and researchers and other outsiders {6.6.1.5}	●	●	●	●
Lack of consideration of the knowledge and perceptions of Indigenous Peoples and local communities in **scenarios & models** {1.6.7.3, 4.7.1, 6.6.1.6}	●	●	●	●

Overview of gaps

Lack of knowledge:

1. Regional (species and impacts) (everywhere but particularly in developing economies)
2. Taxonomic (particularly microbes and invertebrates)
3. Aquatic environments
4. Processes (interaction of drivers, models & scenarios)

Lack of standards and instruments:

5. Governance (design of integrated governance, effective collaboration, IPLC)
6. Management (control and monitoring) (aquatic systems, climate change, guidelines, IPLC)
7. Lack of international standards (terminology, language)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Thank you!
¡Gracias!
Merci!
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