

FOSTERING OPEN
EARTH OBSERVATION
FOR EUROPE

10TH GEO EUROPEAN PROJECTS WORKSHOP | 31 MAY - 2 JUNE 2016, BERLIN

 **GROUP ON
EARTH OBSERVATIONS**



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#GEPW16

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Supporting Monitoring and Implementation of Sustainable Development Goals with Earth Observations

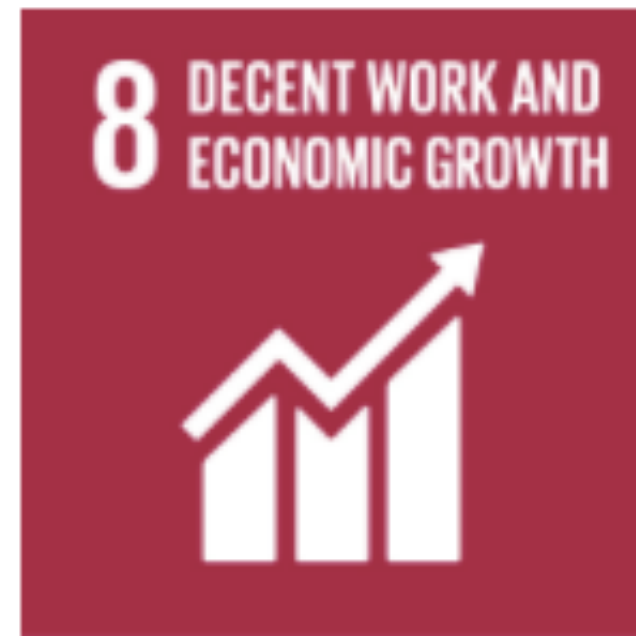
Hans-Peter Plag



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Prolog

Prolog



Prolog



The Sustainable Development Goals are not about something “nice to have”

Prolog



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Prolog



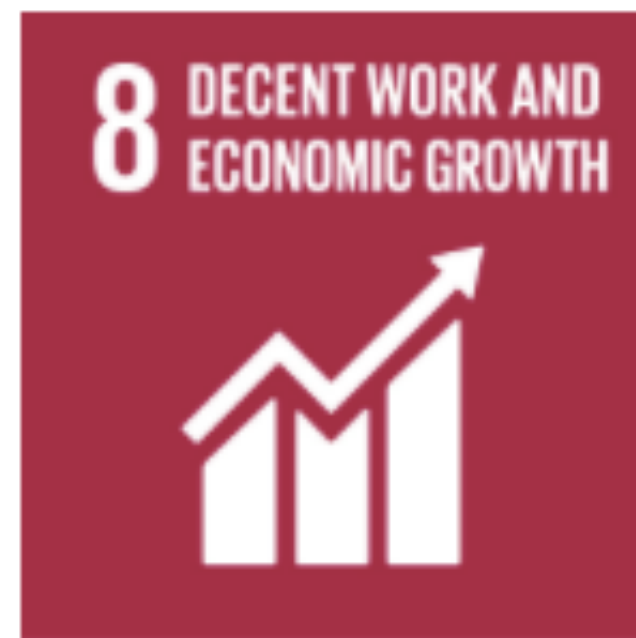
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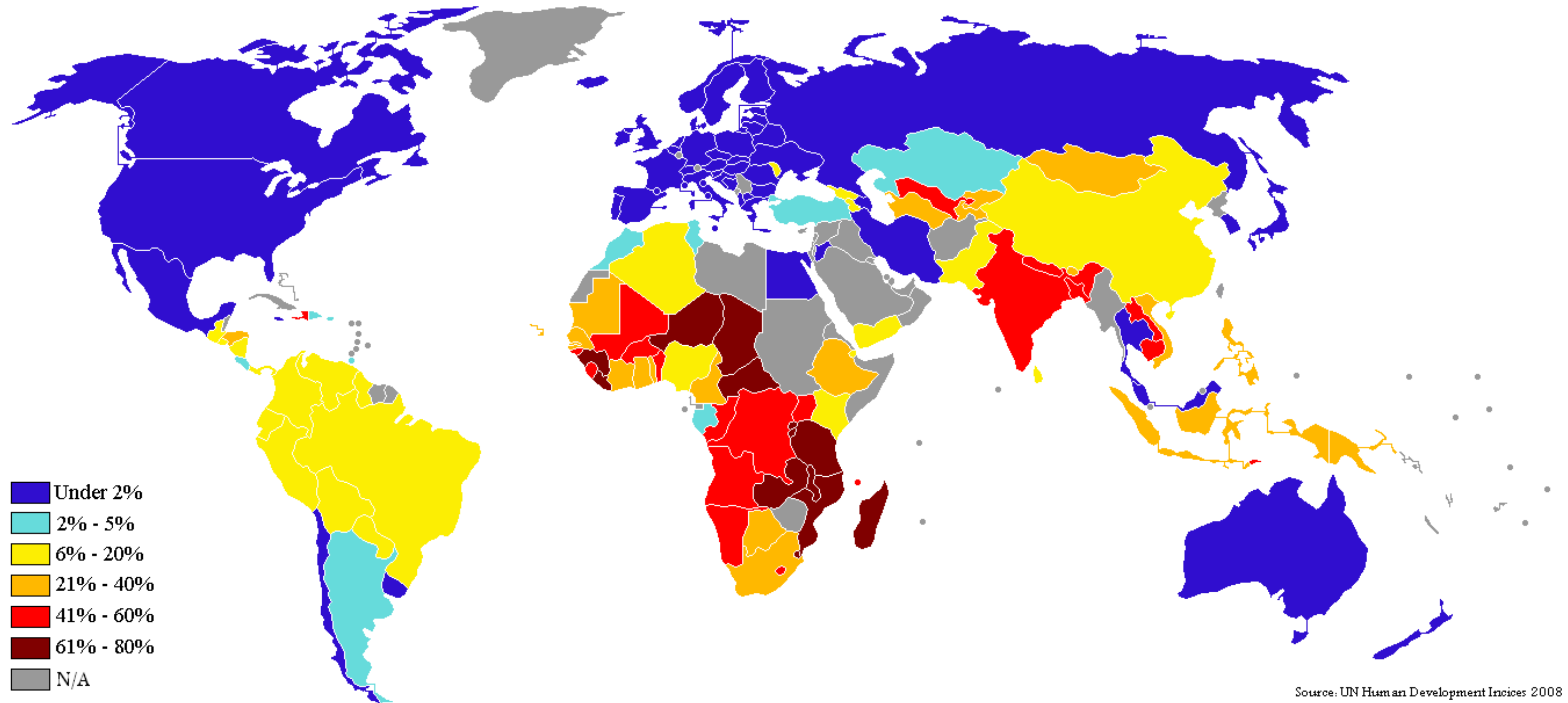


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The SDGs are about real-world problems, about people suffering, ...

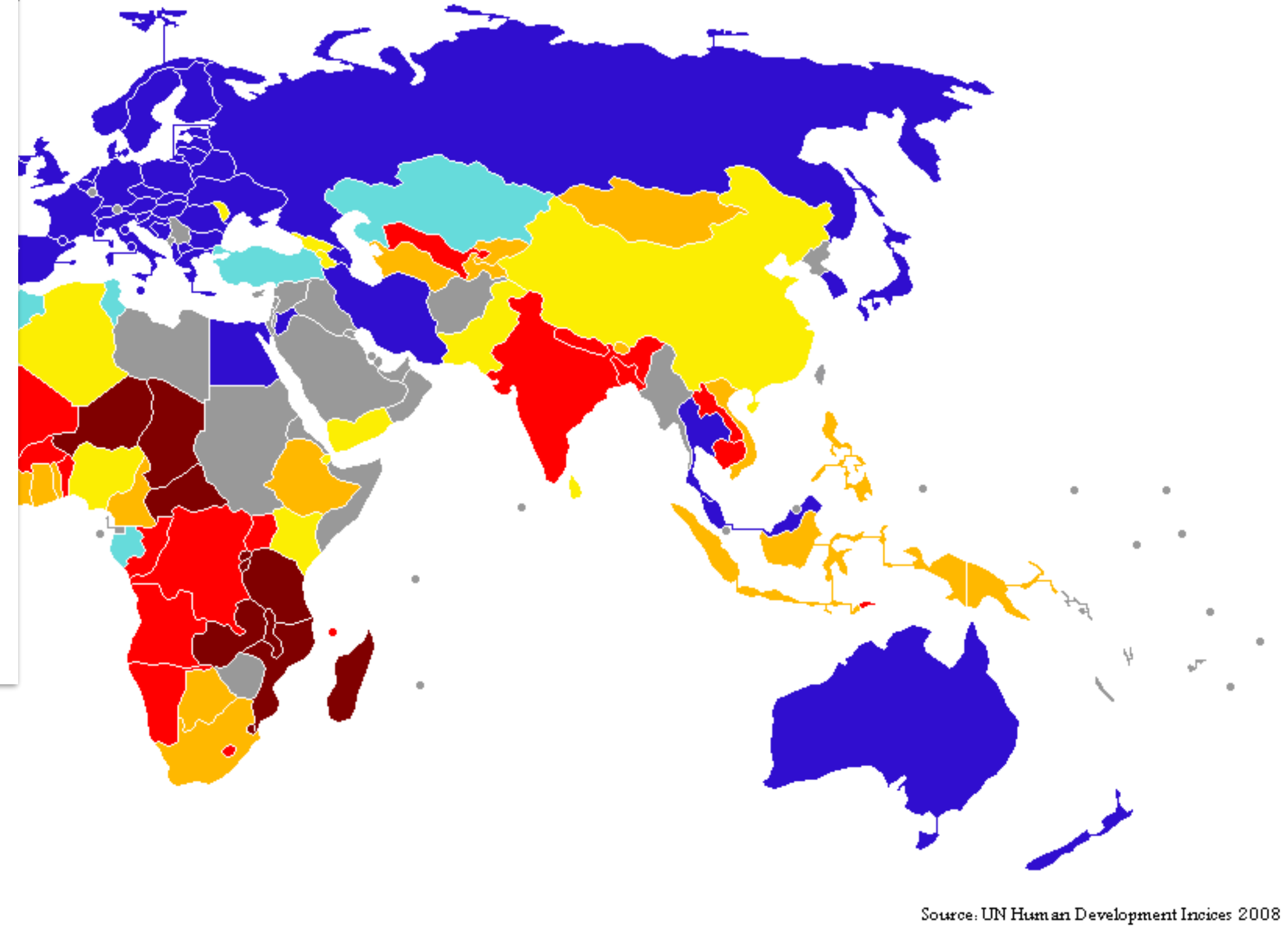
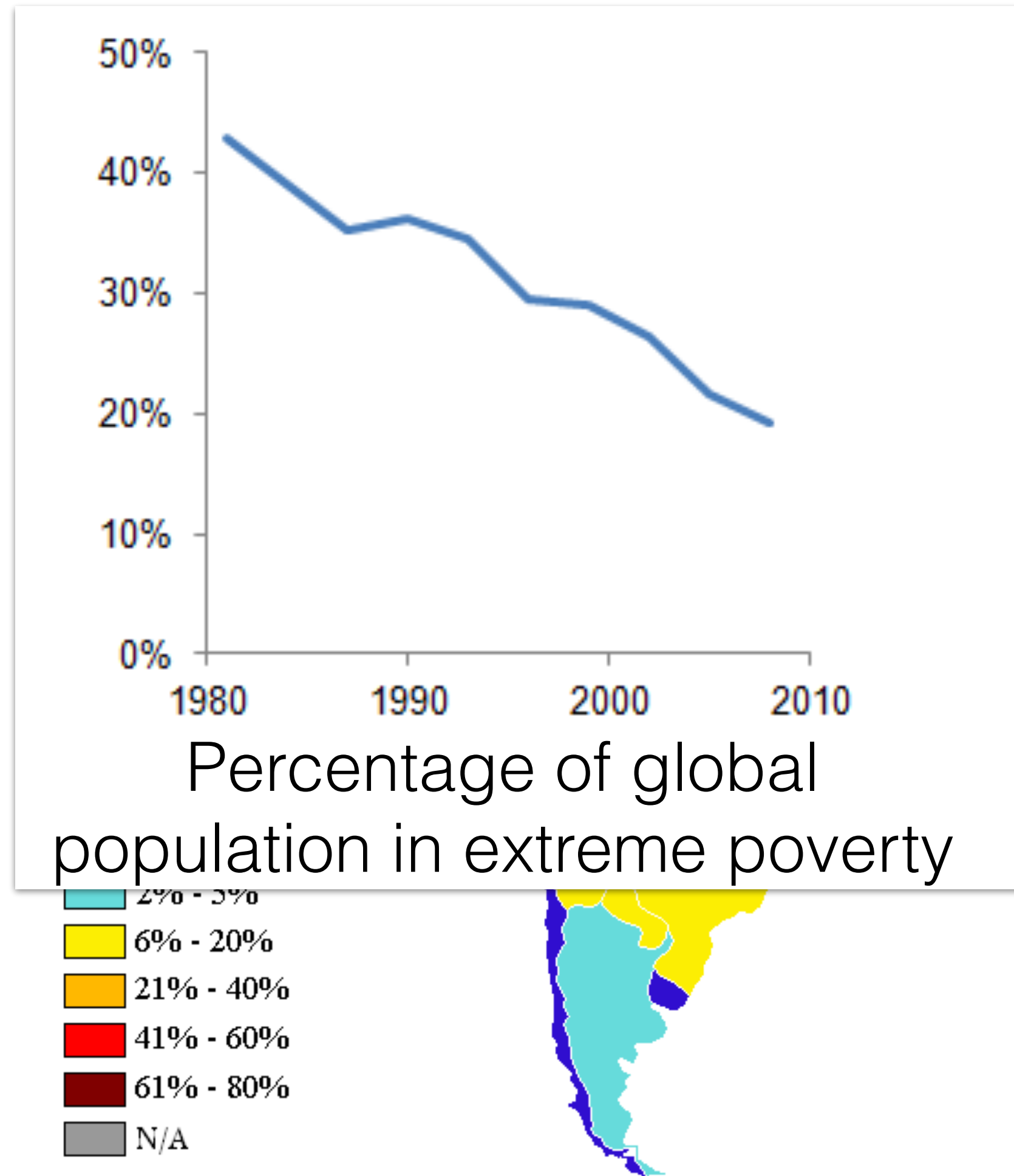
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Percentage of population living on less than \$1 a day (2008-2009), UN Human Development Index, 2008

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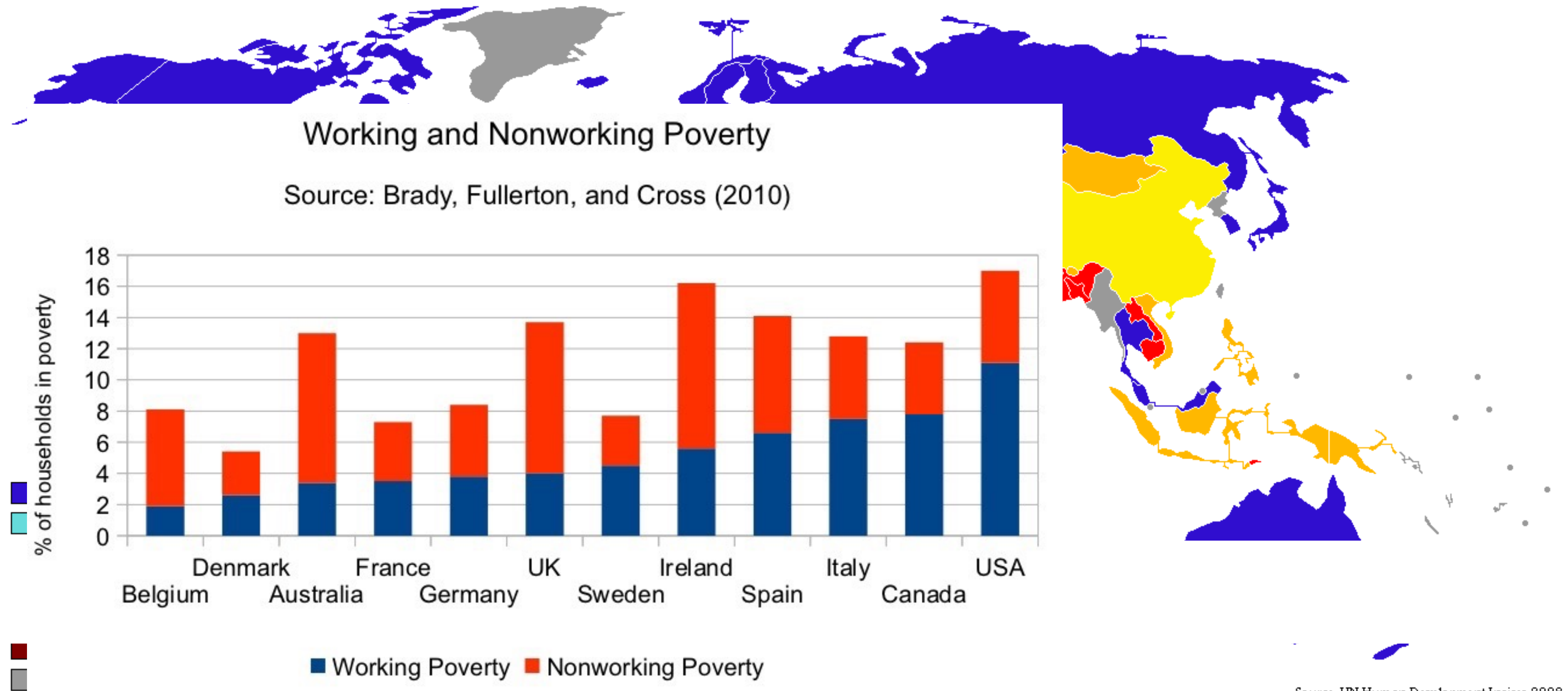
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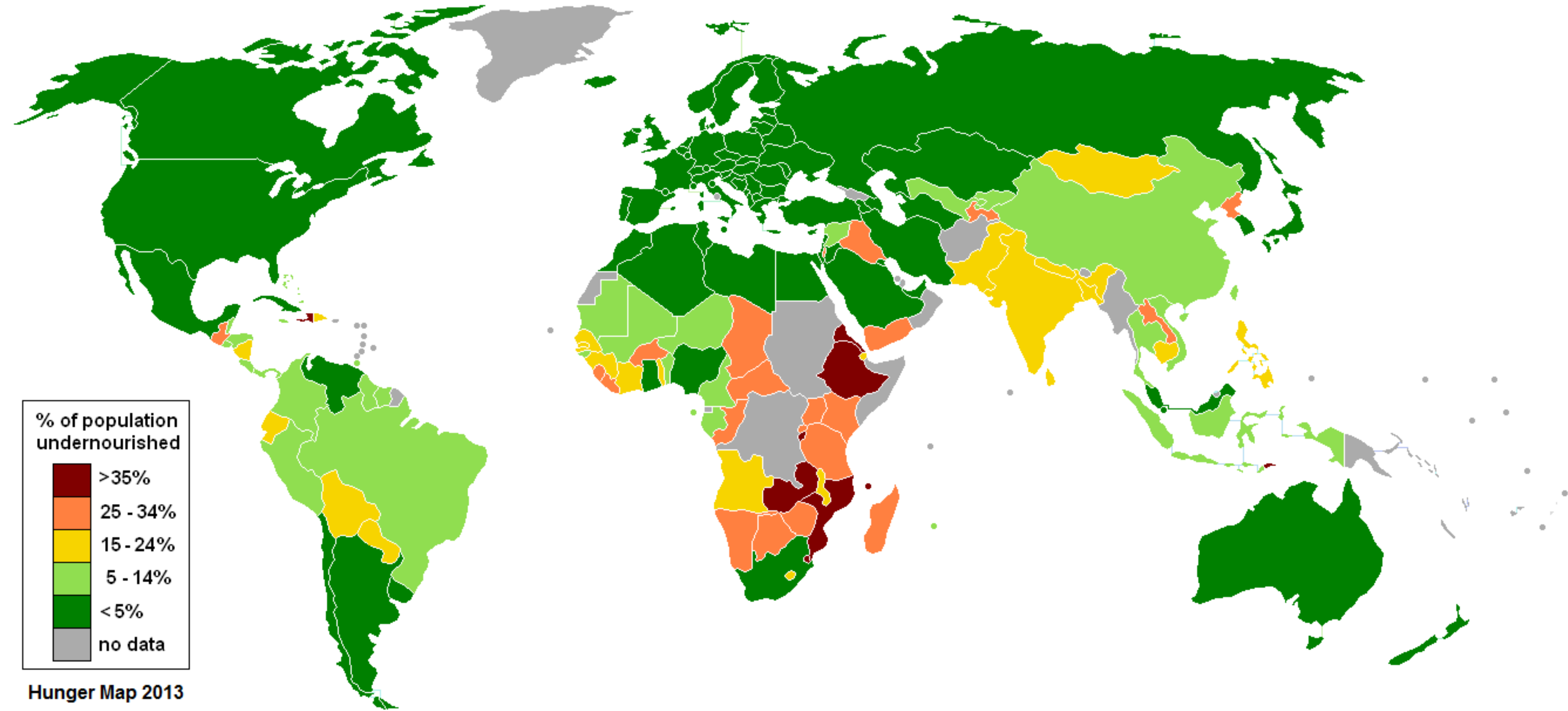


The SDGs are about real-world problems, about people suffering, ...

Prolog



Percentage of population undernourished



Hunger Map 2013



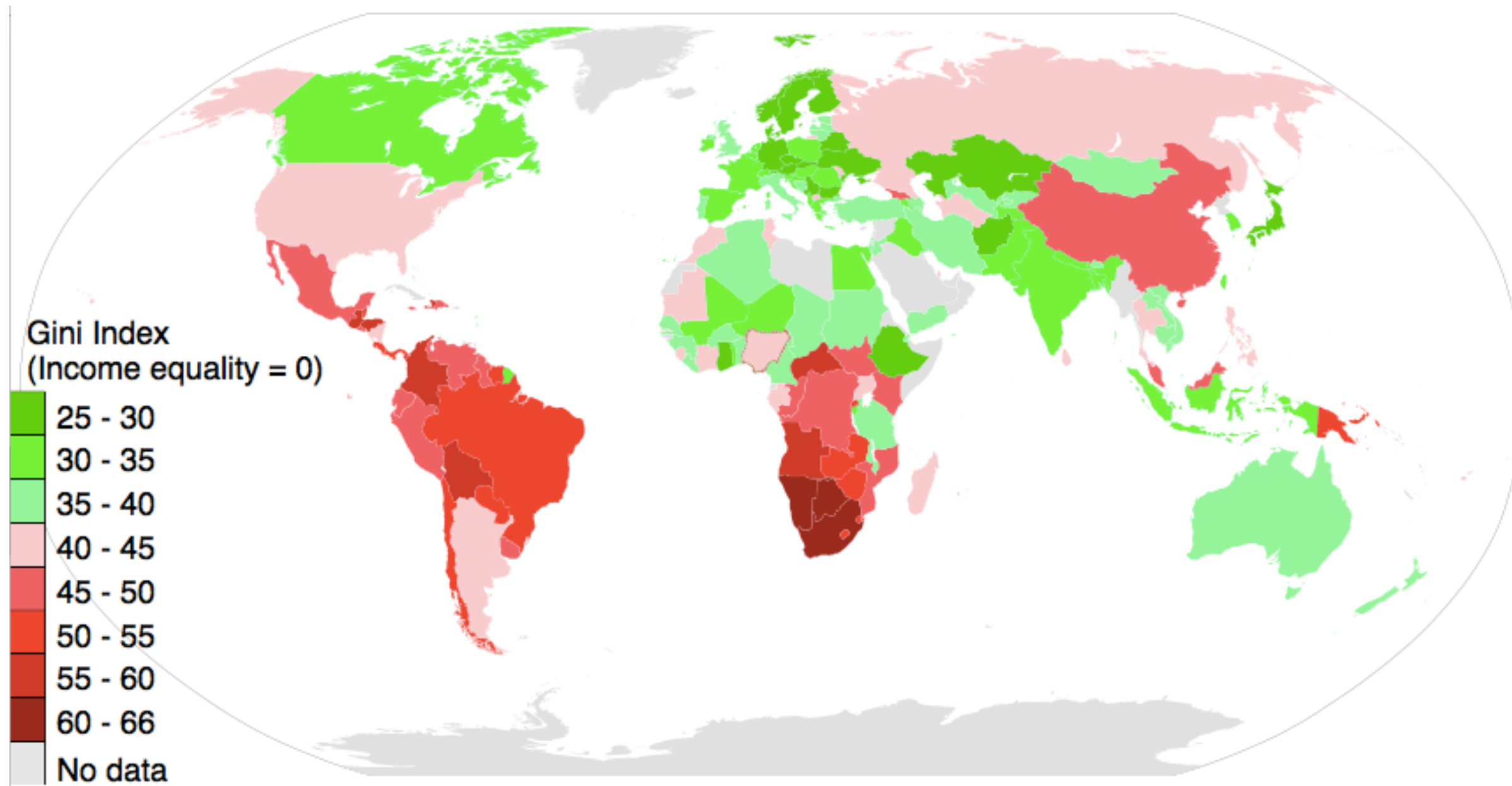
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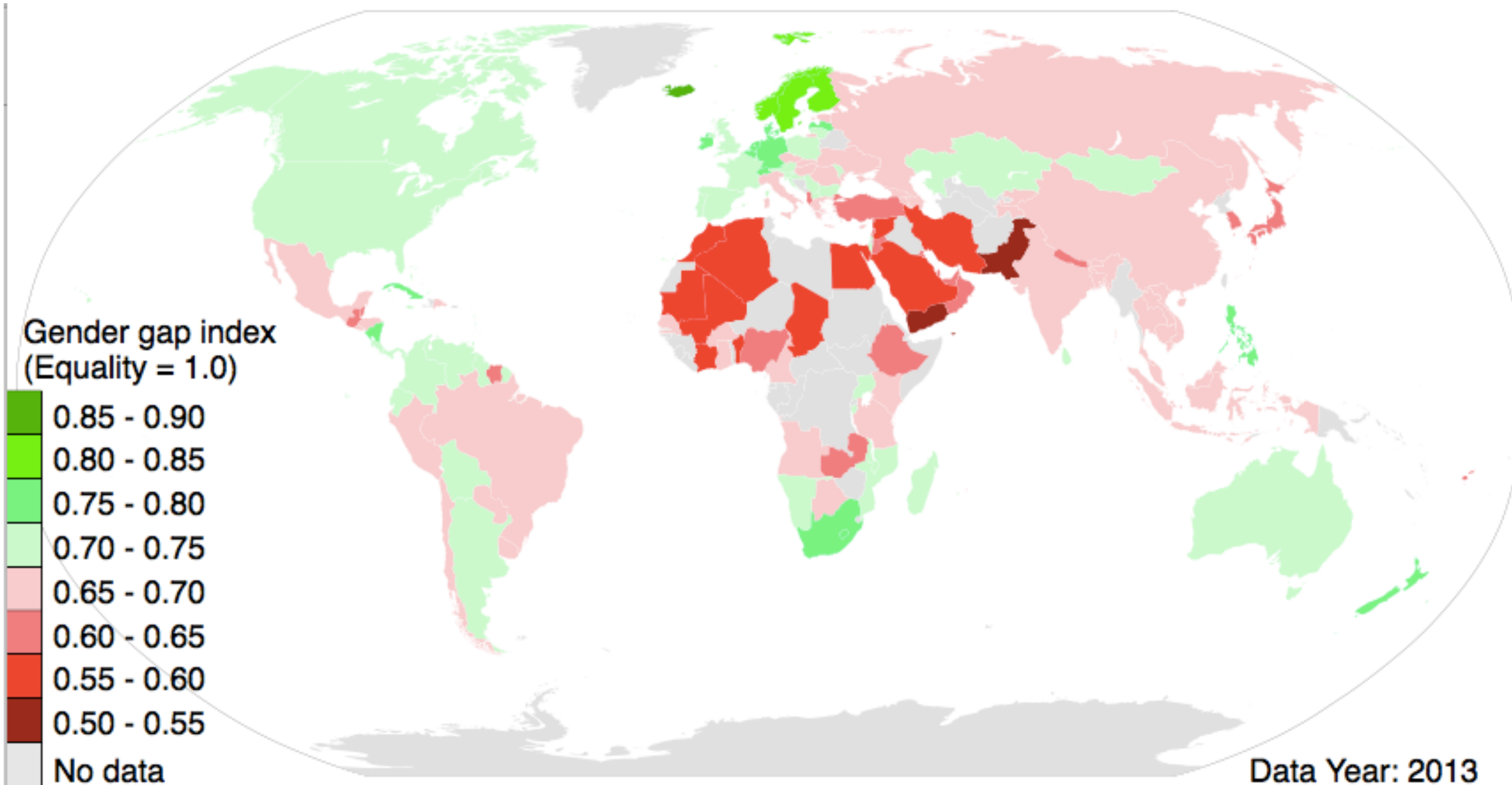


The SDGs are about real-world problems, about people suffering, ...

Prolog



Women carry out 70% of the global work hours but they only earn 10% of the global salary



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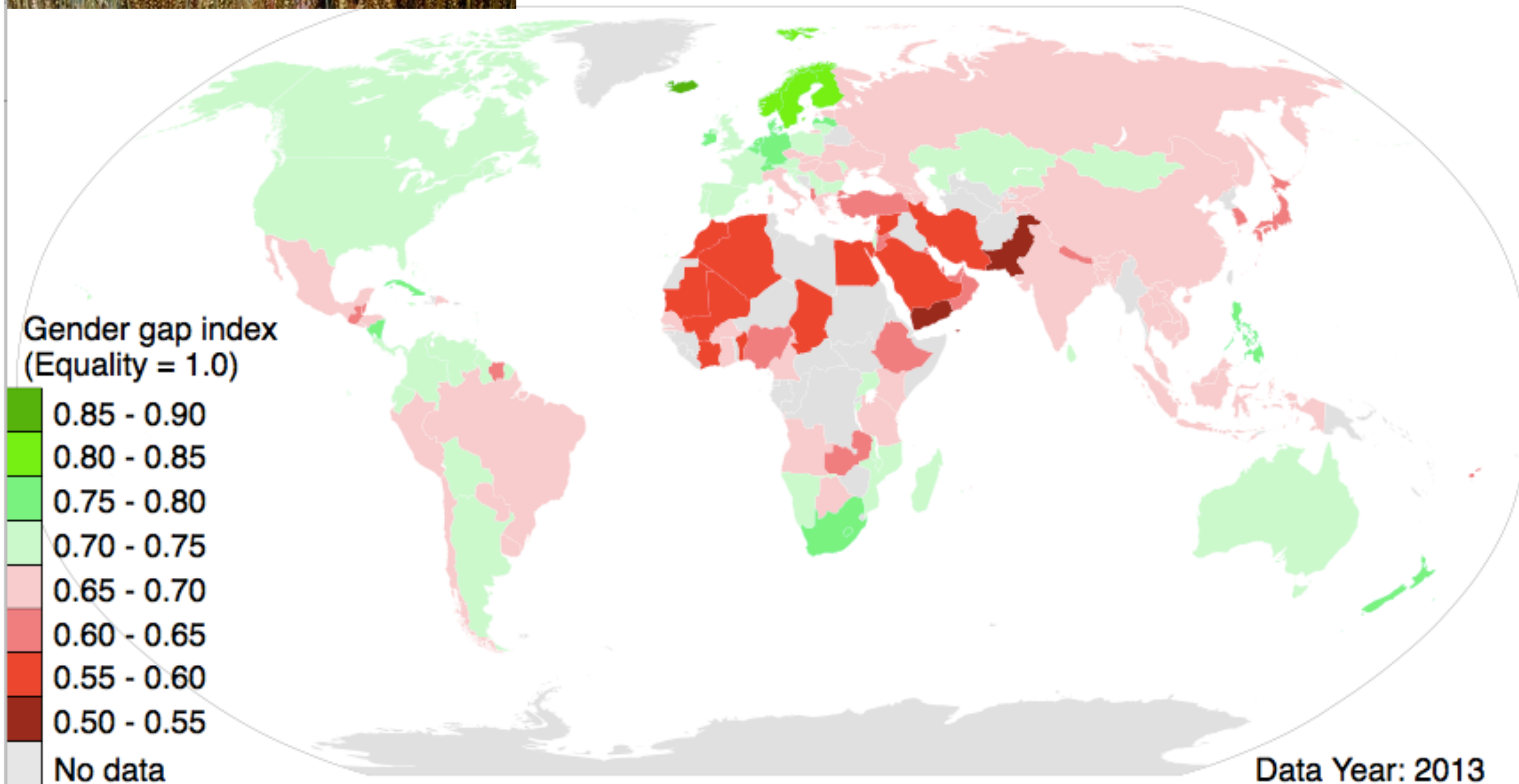
Prolog



Women make major contributions to crop production. Women have the least access to the means for increasing yields and moving from subsistence crops to market-oriented production



Women carry out 70% of the global work hours but they only earn 10% of the global salary



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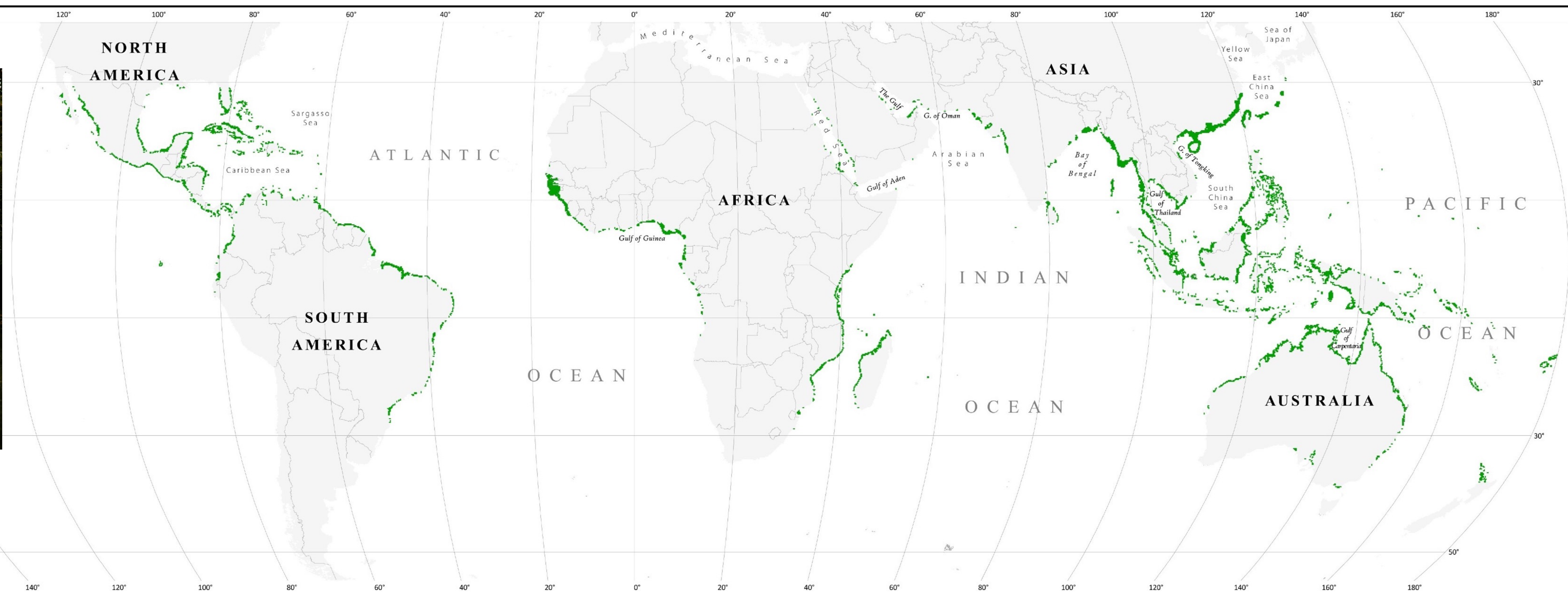
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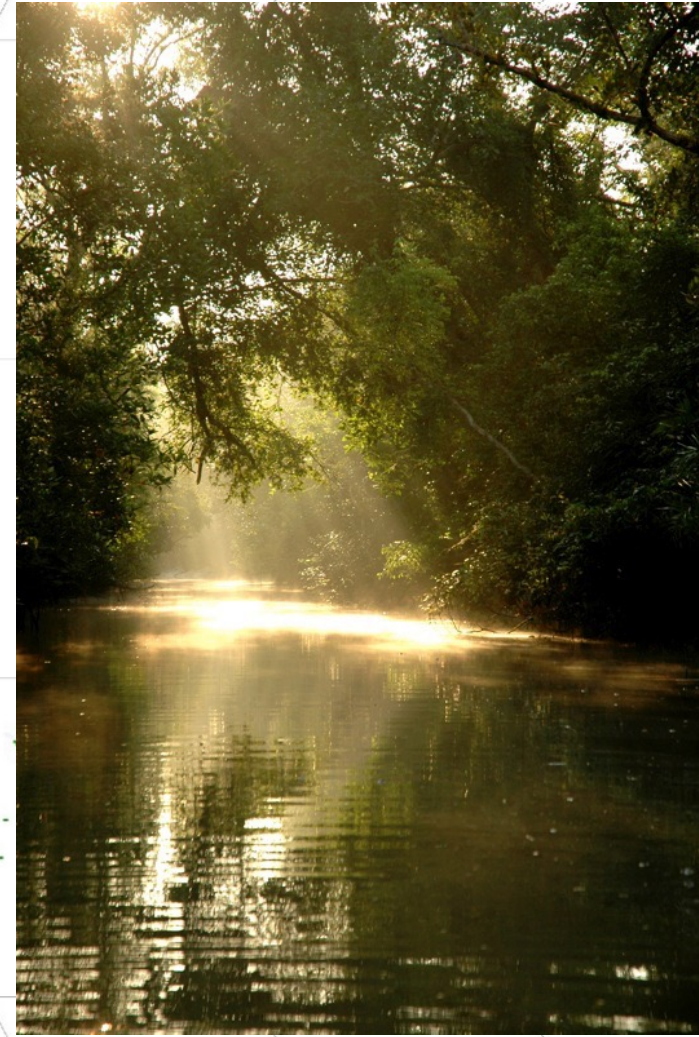
Mangroves



The SDGs are about real-world problems, about people suffering, ...

Prolog

Mangroves



About half of mangrove loss has occurred in the last 50 years, mostly in the last two decades, due to:

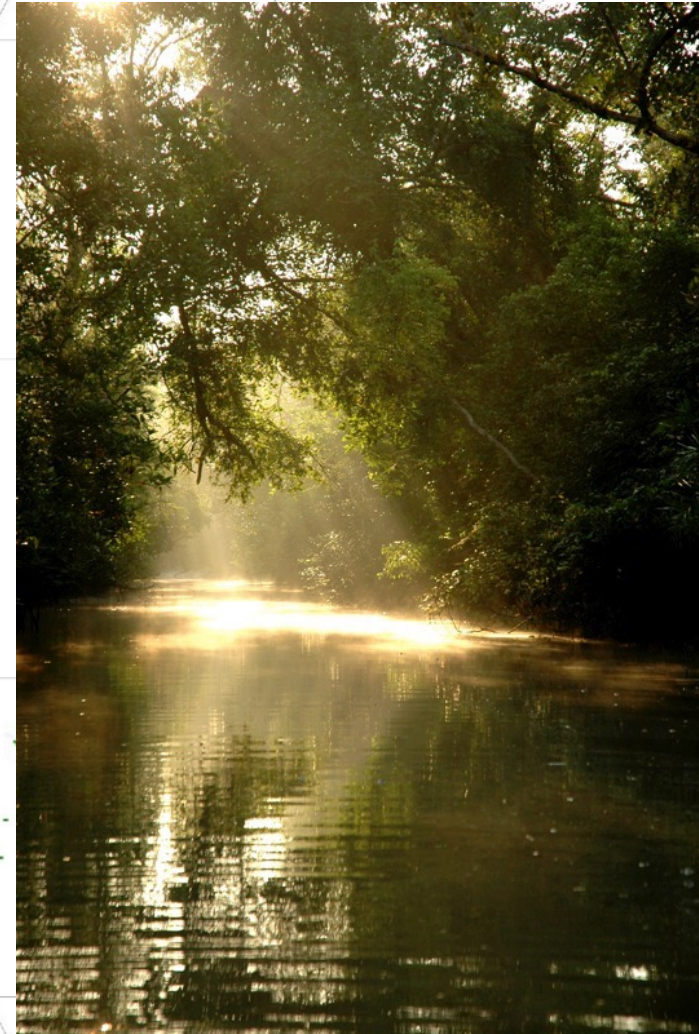
- shrimp farming
- tourism
- urbanization
- agriculture expansion
- roadways
- marinas, and
- other intrusive developments.



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Prolog

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- shrimp farming
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- other intrusive developments.



A Tragedy for our Oceans
Continuing heavy loss of mangrove forests represents a real tragedy for our oceans and the extensive life-support systems mangroves engender.



The SDGs are about real-world problems, about people suffering, ...

Mangroves link many of the SDGs ...



The SDGs are about real-world problems, about people suffering, ...

Prolog

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The SDGS are about real-world problems, about people suffering, ...

Support for SDG Implementation and Monitoring



The SDGs are about real-world problems, about people suffering, ...

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Support for SDG Implementation and Monitoring



SDGs and the Agenda 2030 are intended as our “Road to Dignity,” and we are on this road together.



Providing the Earth observation support needed for the implementation and monitoring of SDGs requires engaging with those who understand the issues.



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Support for SDG Implementation and Monitoring

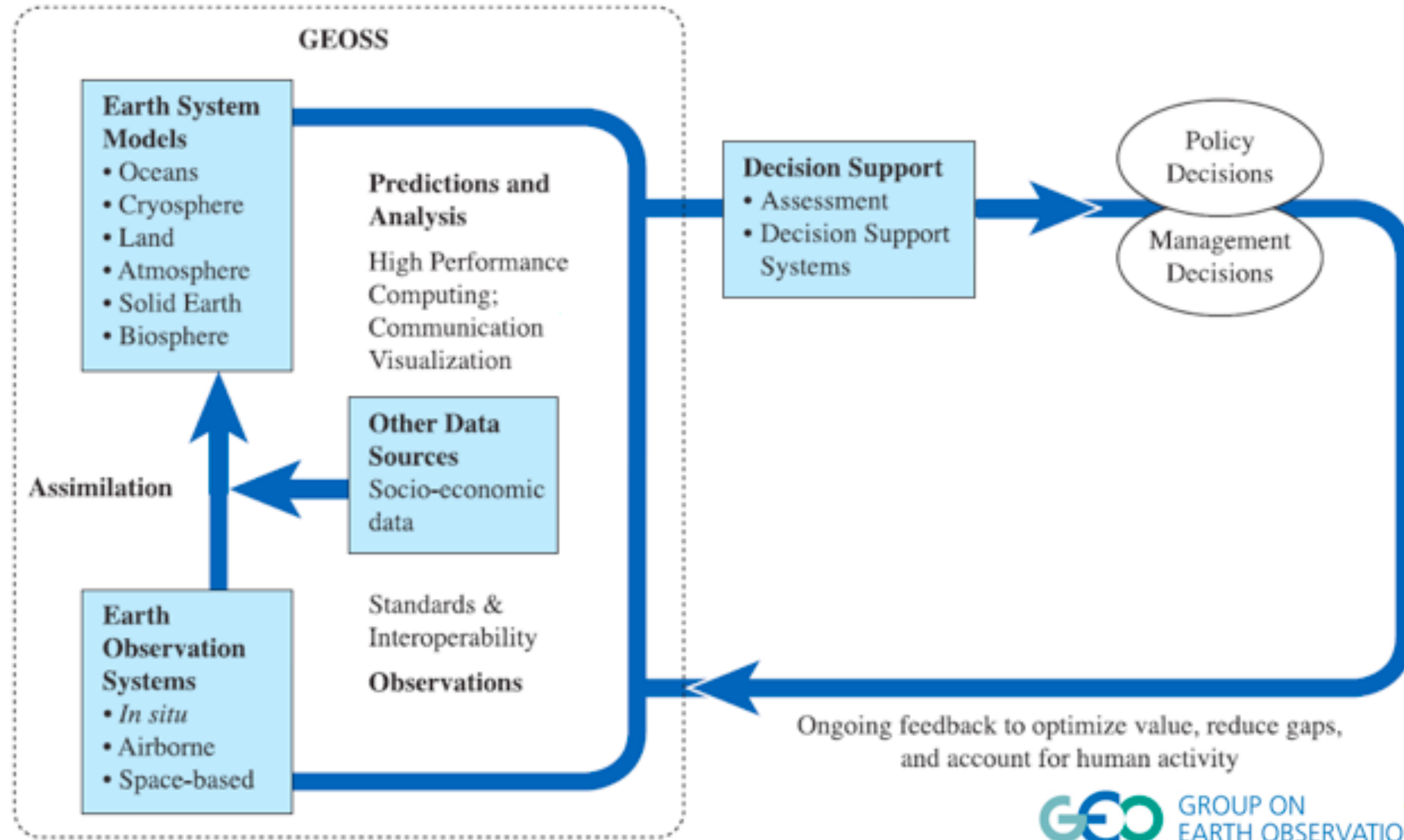


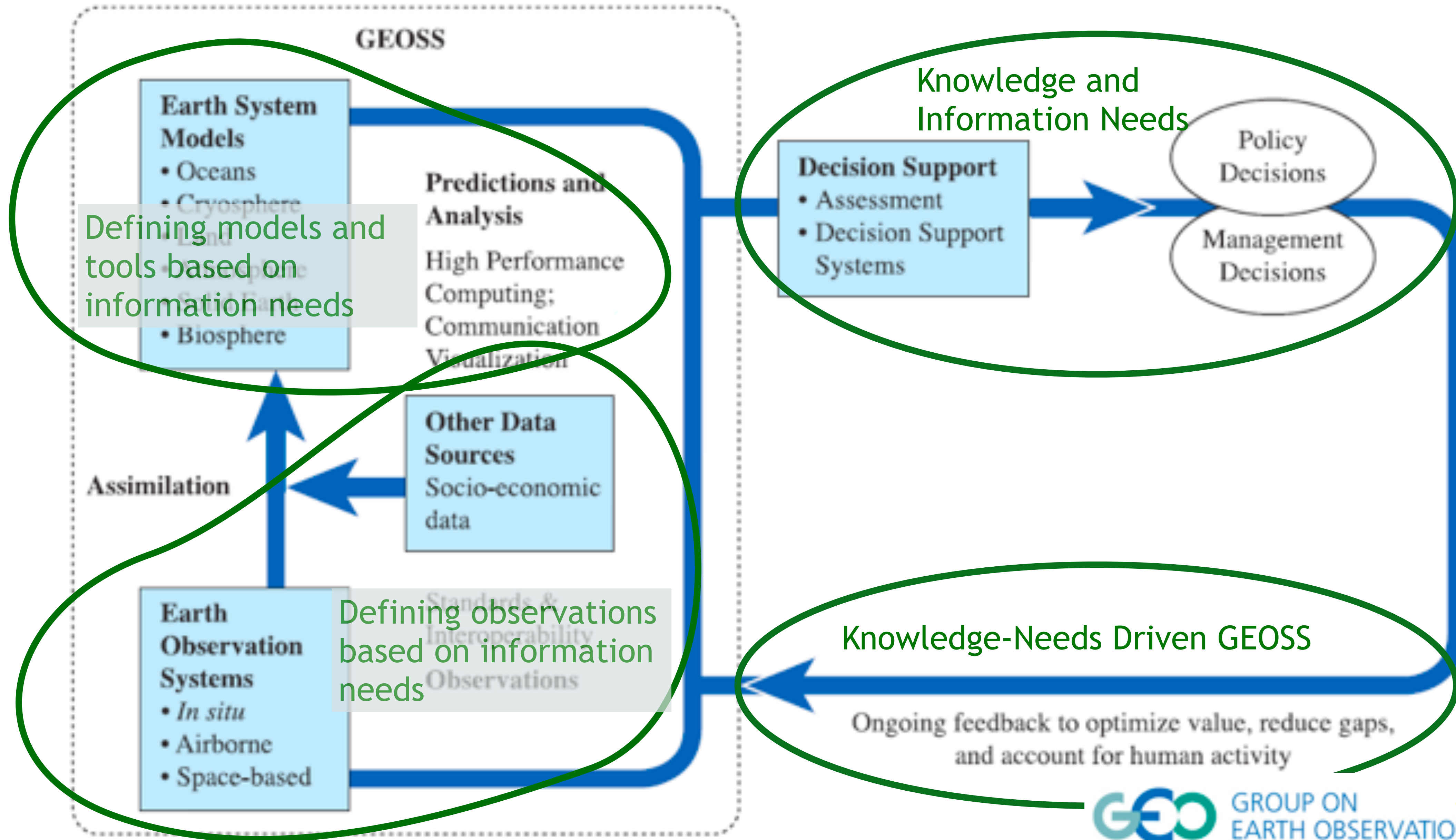
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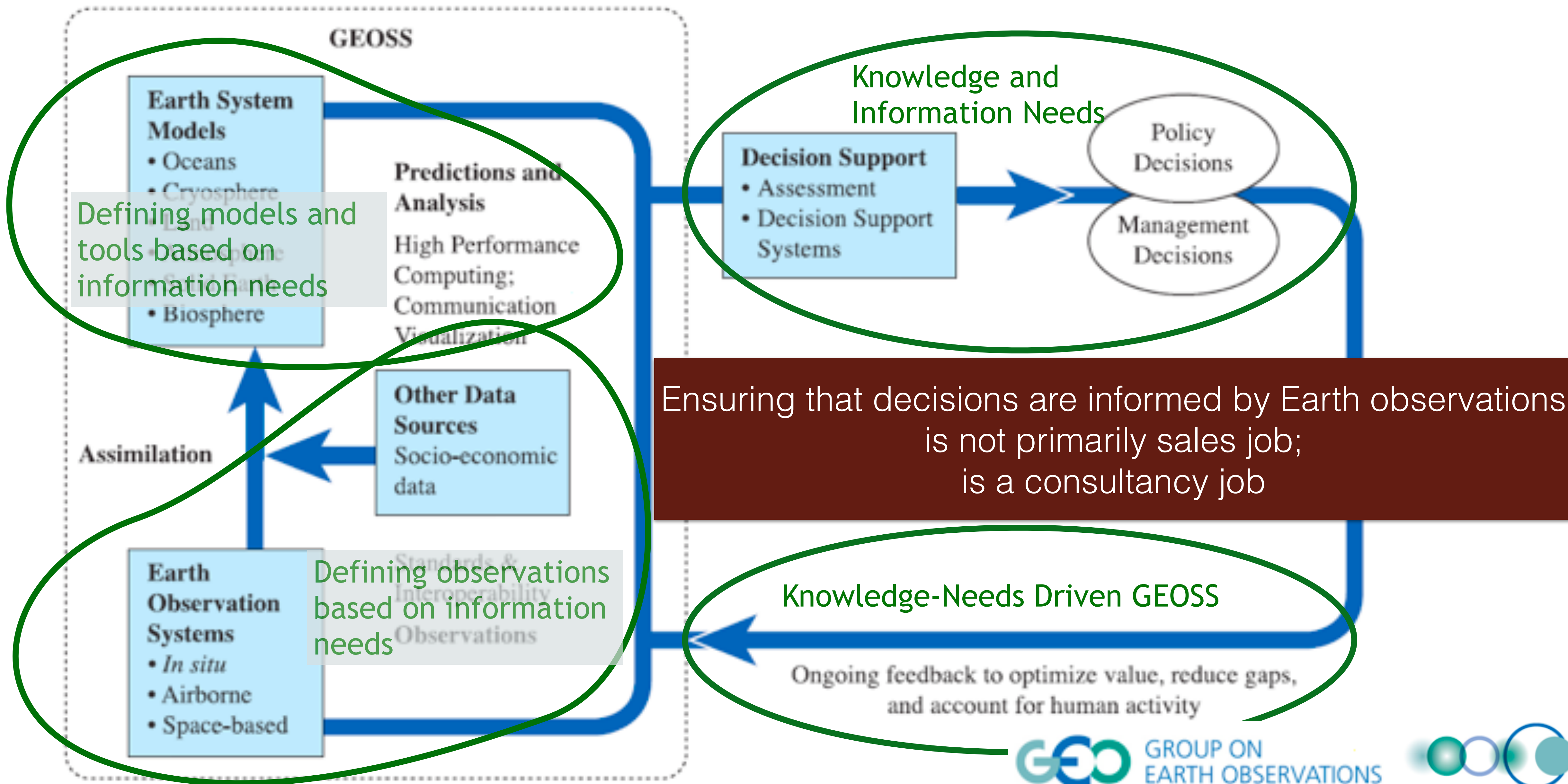
Providing the Earth observation support needed for the implementation and monitoring of SDGs requires engaging with those who understand the issues.

Instead of being technology and science-driven, we - the Earth observation and science communities - need to be problem-driven and part of the process.

The SDGs are about real-world problems, about people suffering, ...











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- **Observation requirements**

- What are the (observation) needs?

- What are the policy drivers?

- What are the challenges we are facing today in this societal challenge?

- **Existing frameworks, networks and activities**

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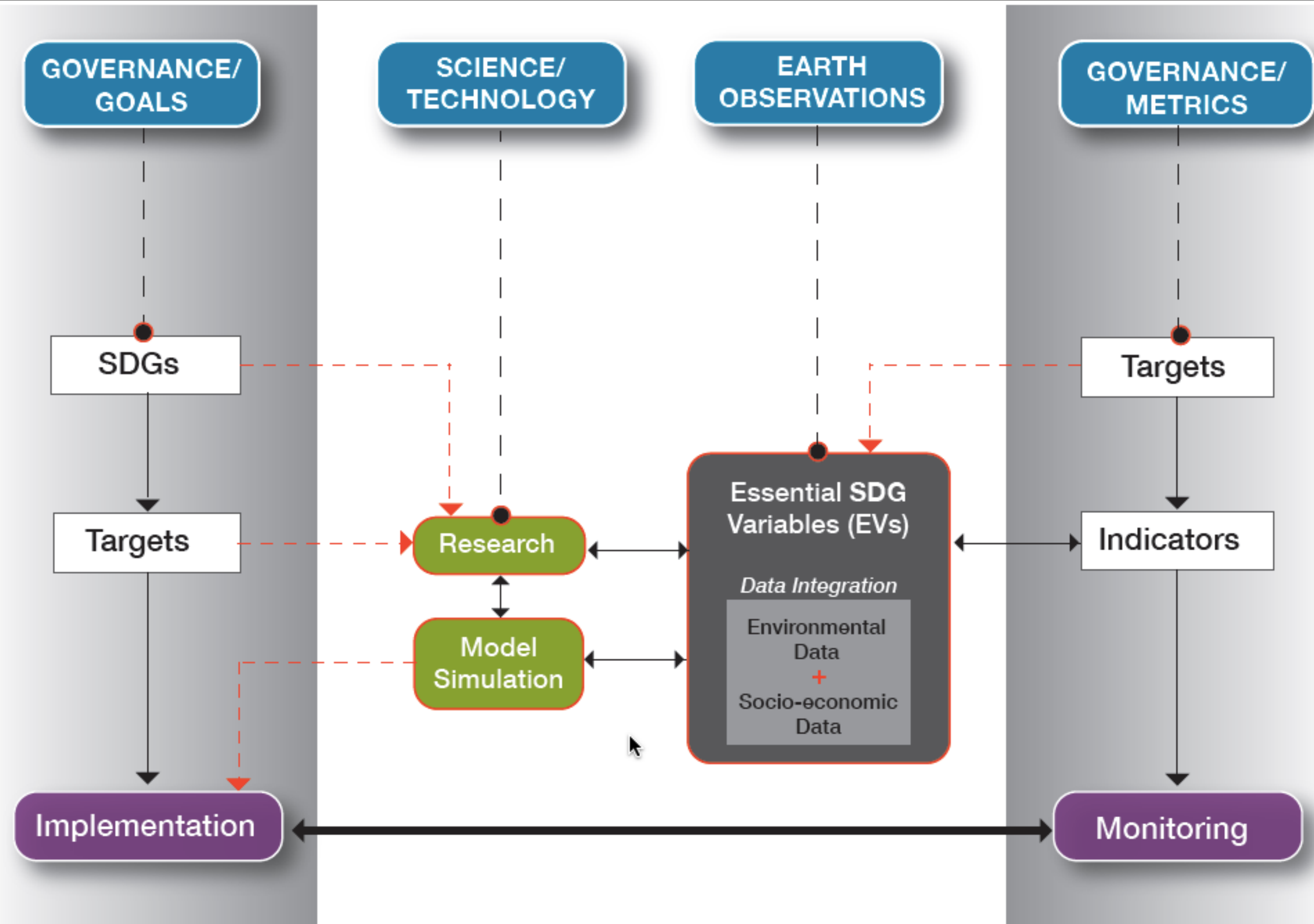
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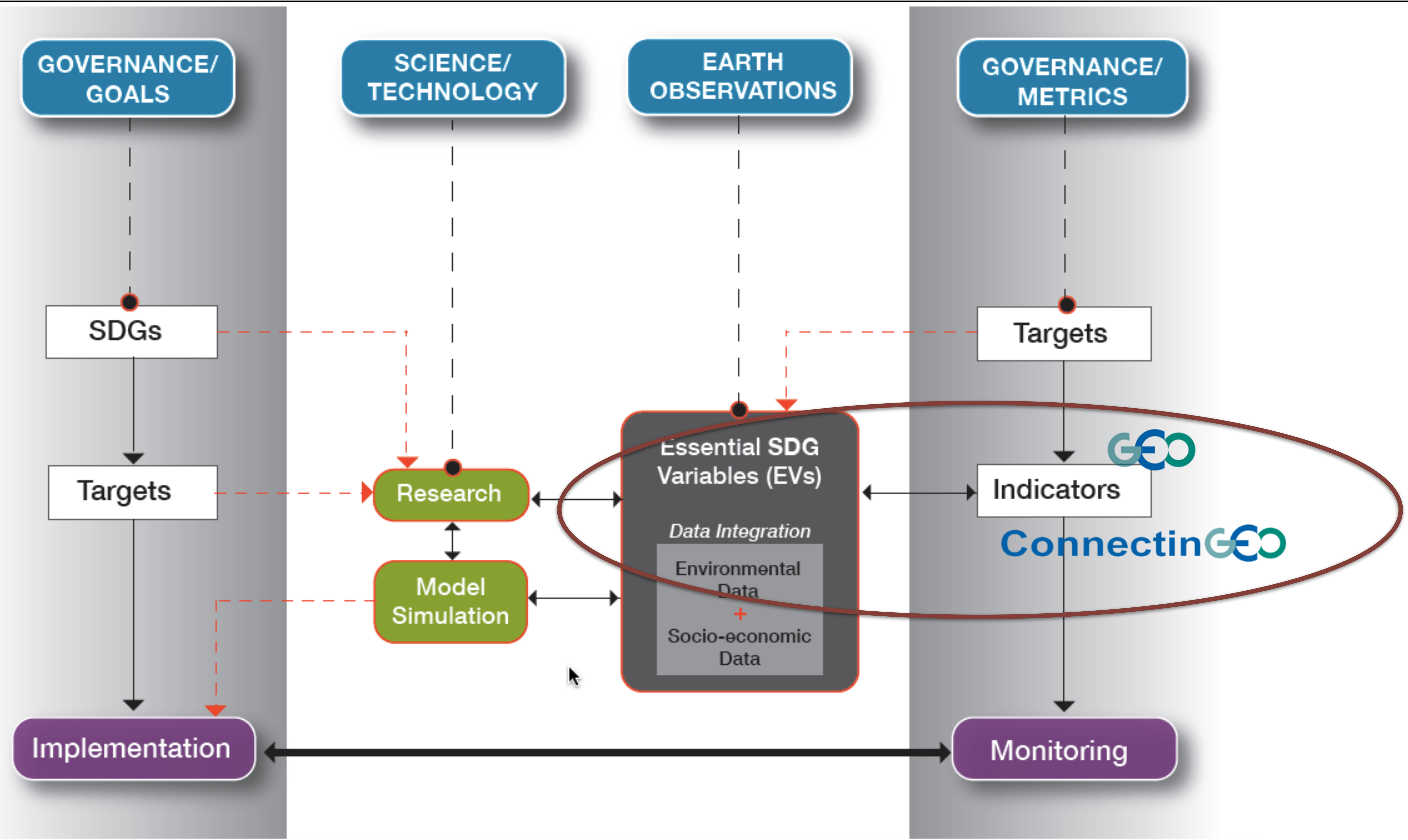
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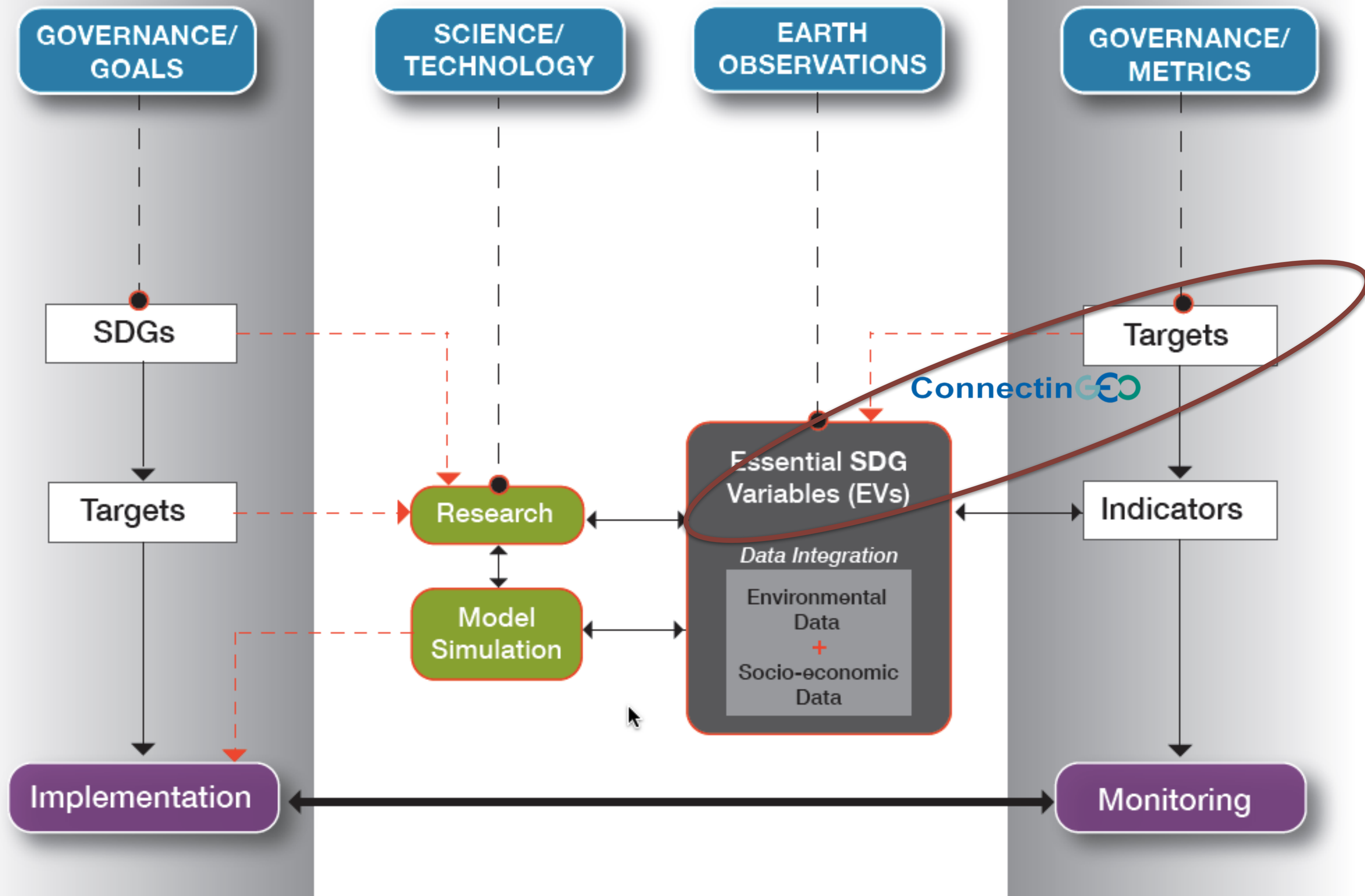
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Process

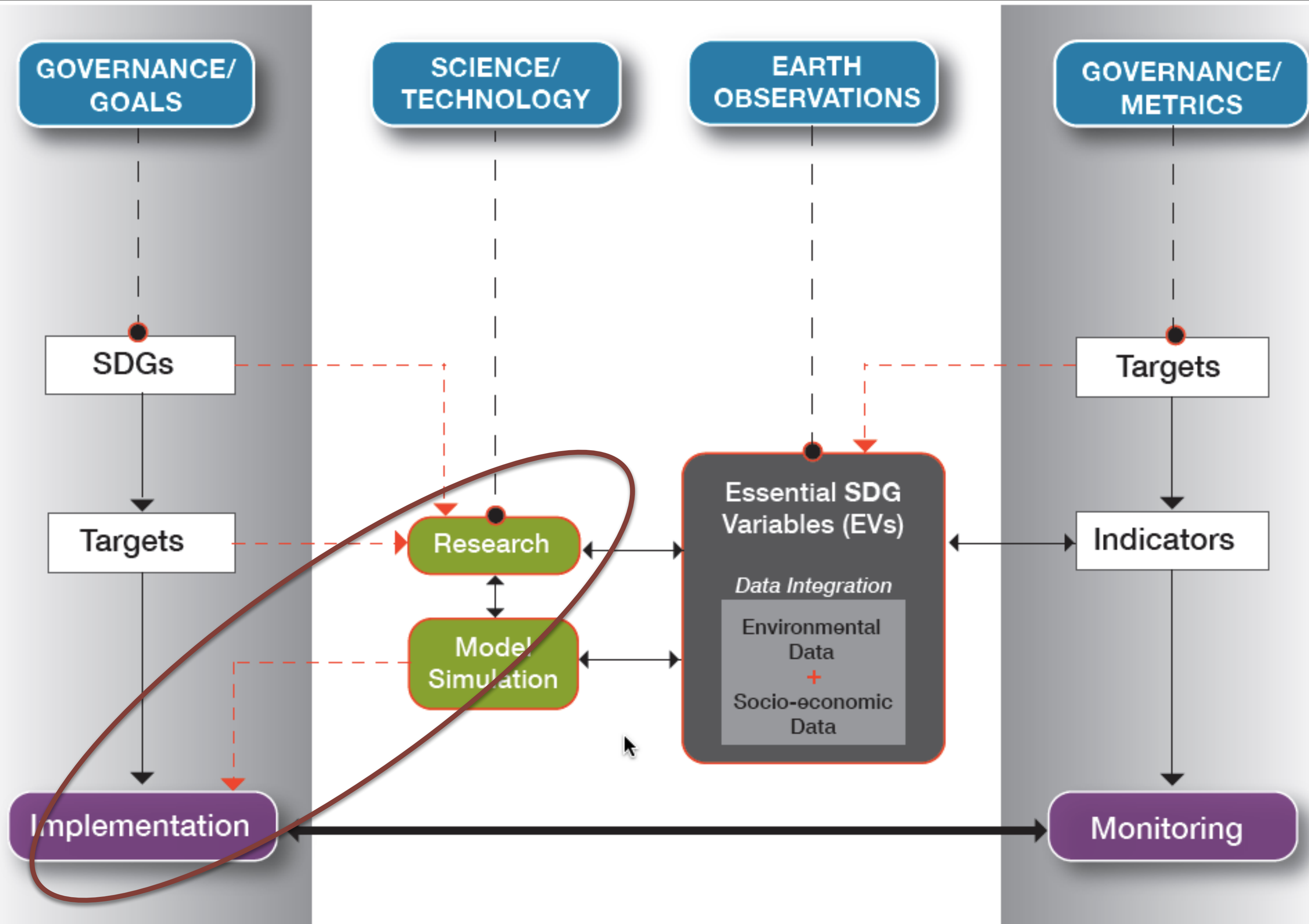
Assessment





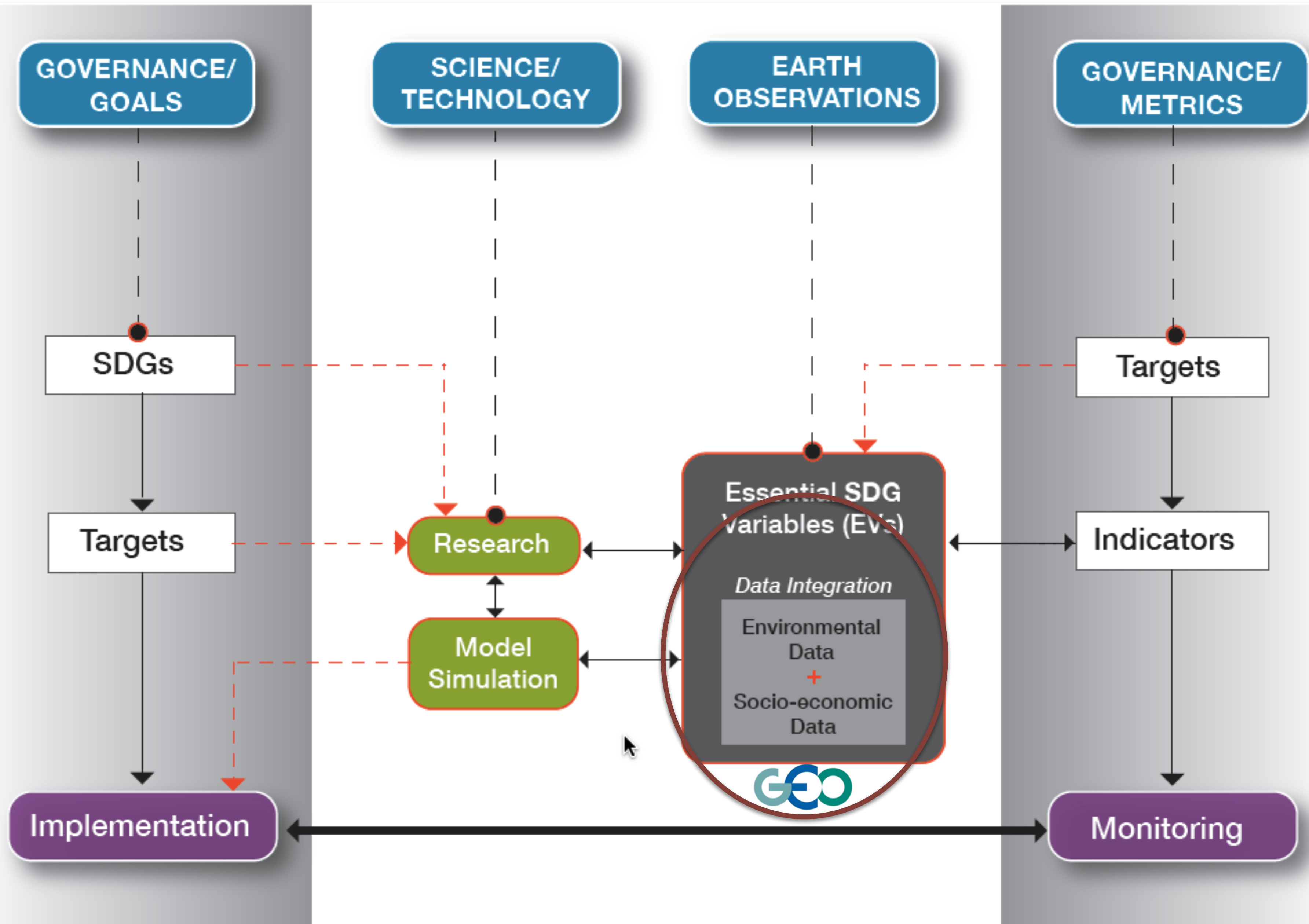
Process

Assessment



Process

Assessment



SDG



Target

Target 6.3: By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

Indicator

6.3.1 Percentage of wastewater safely treated

6.3.2 Percentage of bodies of water with good ambient water quality

Essential Variable

Water usage
Wastewater treated

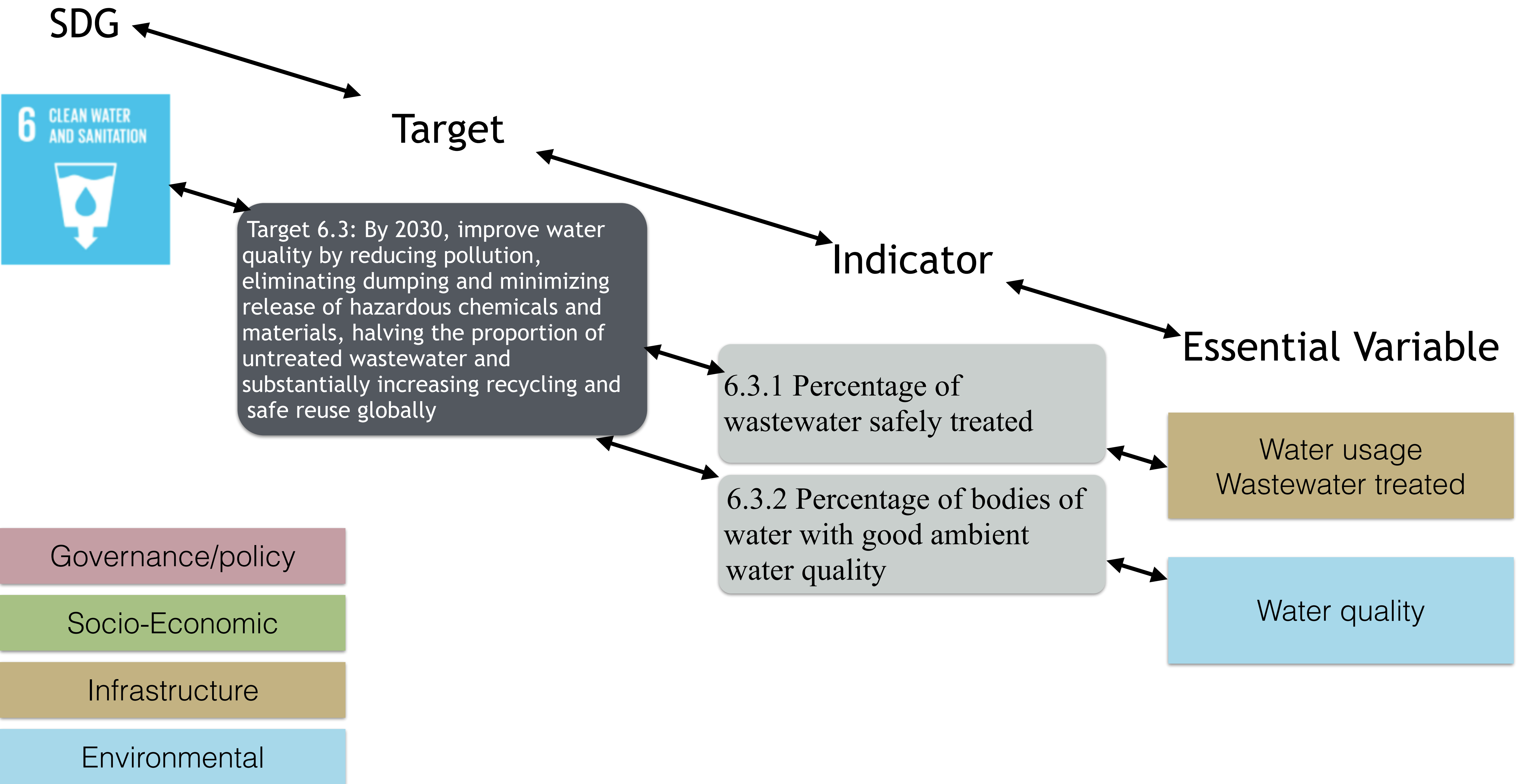
Water quality

Governance/policy

Socio-Economic

Infrastructure

Environmental



SDG



Target

1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

Indicator

1.4.1* Proportion of the population living in households with access to basic services

Essential Variable

Water Supply S.

Electricity Supply S.

Sewage S.

...

Communication S.

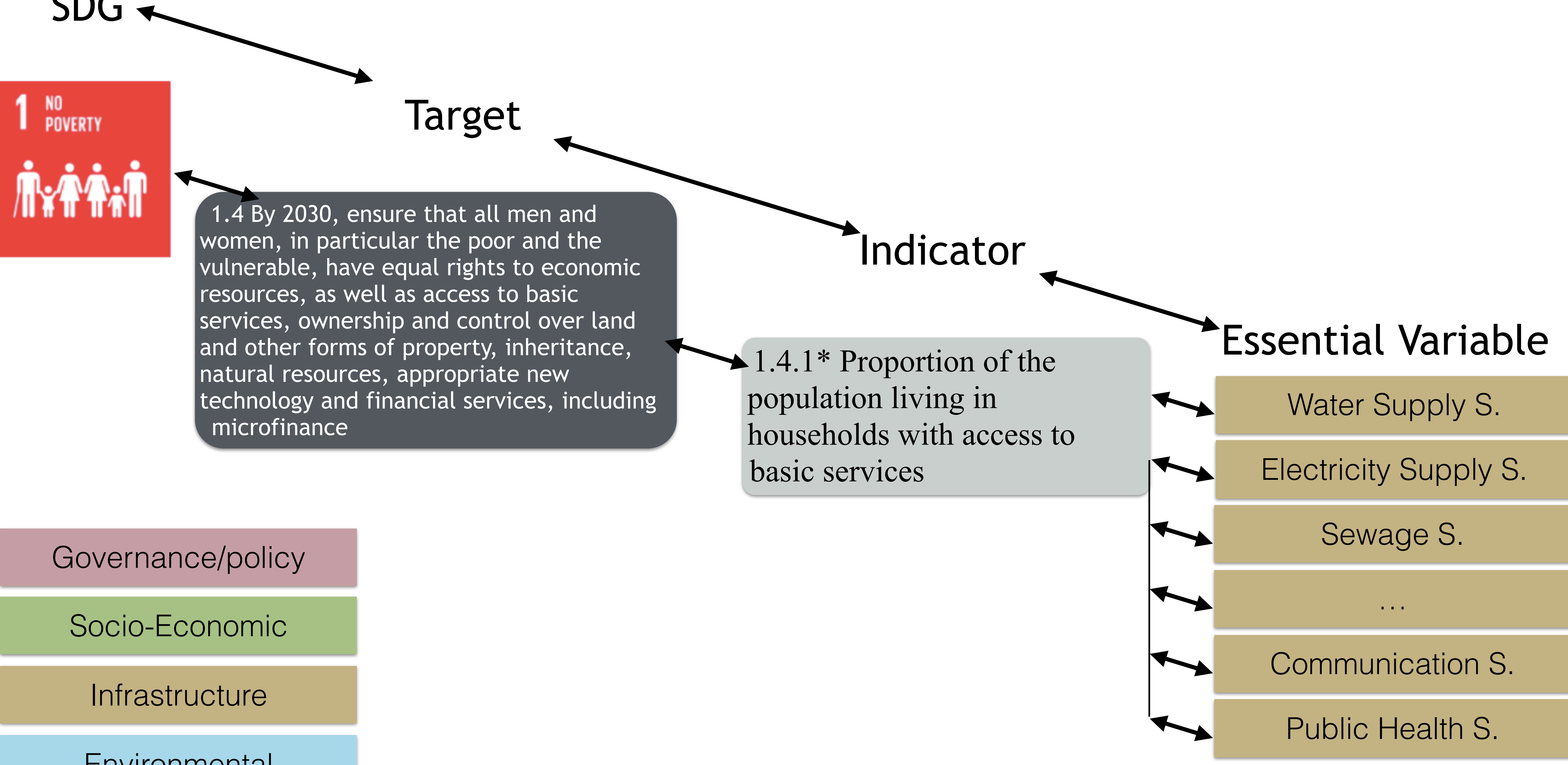
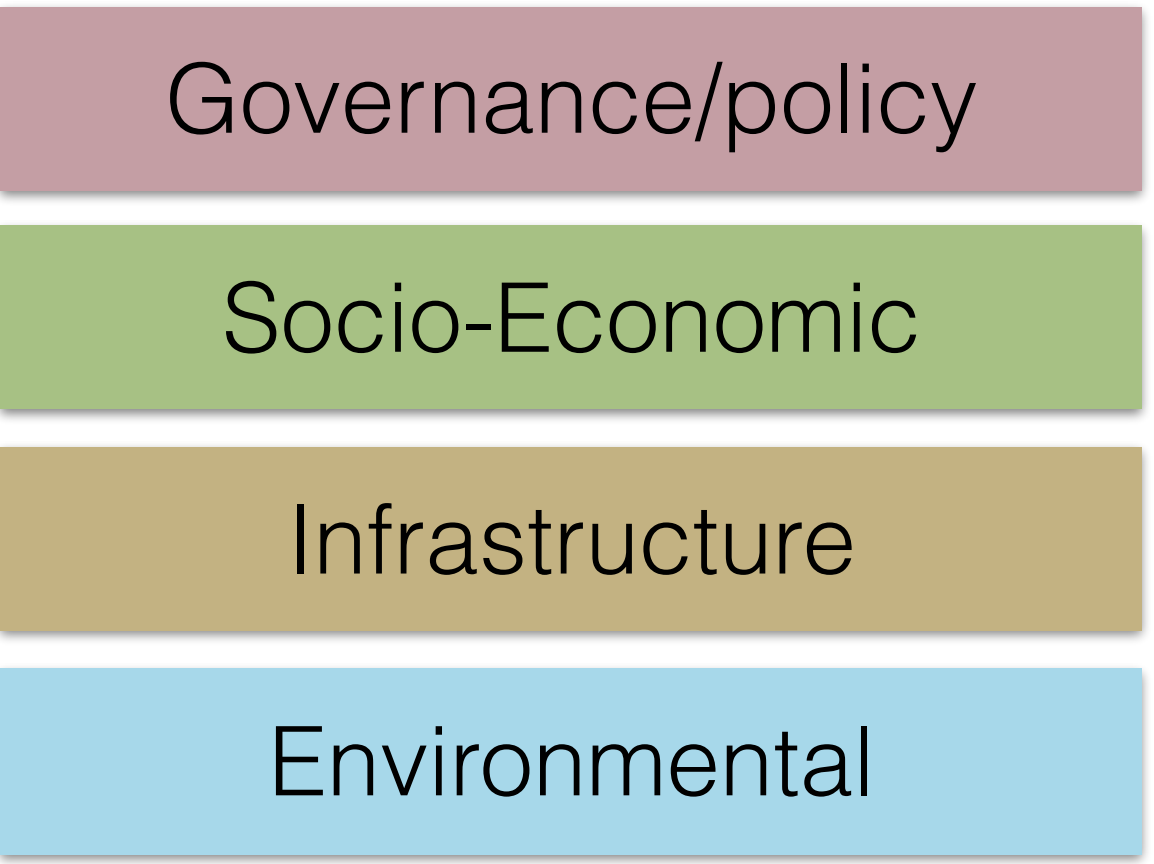
Public Health S.

Governance/policy

Socio-Economic

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GEO GI-18:
Earth Observations in Service of the
2030 Agenda for Sustainable
Development



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GEO Secretariat and GI-18 prepared
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EARTH OBSERVATION AND GEOSPATIAL INFORMATION RESOURCES FOR SDG MONITORING



	Population distribution	Cities and infrastructure mapping	Elevation and topography	Land cover and use mapping	Oceanographic observations	Hydrological and water quality observations	Atmospheric and air quality monitoring	Biodiversity and ecosystem observations	Agricultural Monitoring	Hazards, disasters and environmental impact monitoring
1 No poverty										
2 Zero hunger										
3 Good health and well-being										
4 Quality education										
5 Gender equality										
6 Clean water and sanitation										
7 Affordable and clean energy										
8 Decent work and economic growth										
9 Industry, Innovation and Infrastructure										
10 Reduced Inequalities										
11 Sustainable cities and communities										
12 Responsible consumption and production										
13 Climate action										
14 Life below water										
15 Life on land										
16 Peace, Justice and strong Institutions										
17 Partnerships for the goals										

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Many other GEO Initiatives are including SDG monitoring in their implementation plan

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3 GOOD HEALTH
AND WELL-BEING



SDG-3 Ensure healthy lives and promote well-being for all at all ages

Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

- Current indicators:

- 3.9.1 Mortality rate attributed to household and ambient air pollution
- 3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe WASH services)

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- Focus is on the impacts and outcomes
- Mortality is not a good indicator because:
 - There is an accumulative effect that generates a huge time delay
 - A decrease in mortality can happen even if pollution is increasing in the short term.
- SDG indicators do not account for the relation between pollution and mortality. EC directives in place do account for this





SDG Indicators and Earth Observations

Applied “goal-based” approach to identify Essential SDG Variables (ESDGVs):



SDG Indicators and Earth Observations

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For details, see ConnectinGEO D2.3



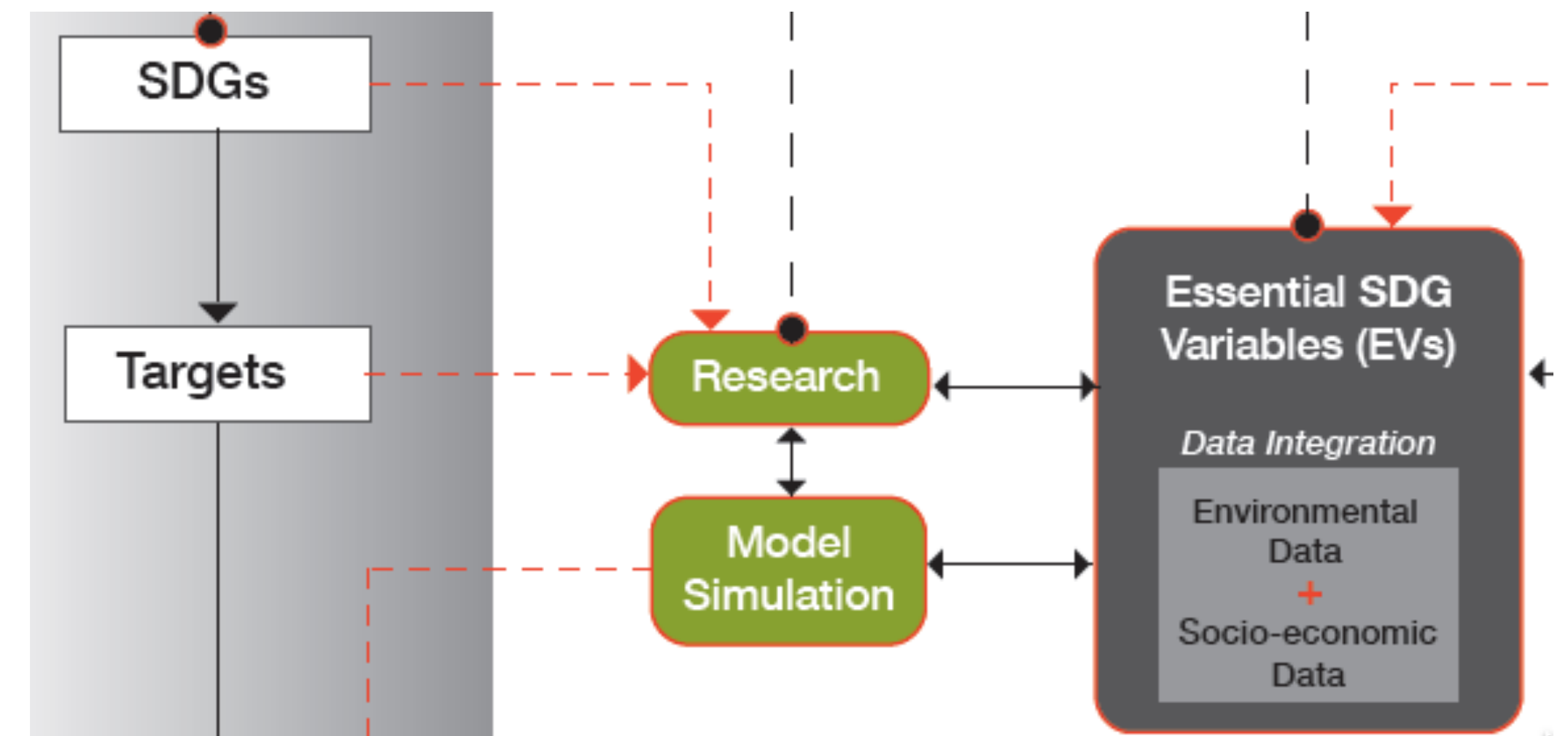
47th Session of the UN Statistical Commission:

- ...
- (c) Agreed on the revised terms of reference of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs), as presented in annex I of the report;
- (d) Agreed **as a practical starting point with the proposed global indicator framework** for the Goals and targets of the 2030 Agenda for Sustainable Development as reflected in the list of indicators presented in annex IV of the report, subject to future technical refinement;
- (e) Requested the IAEG-SDGs to take into account the specific proposals for refinements of indicators made by Member States during the discussion;
- (f) Recognized that the **development of a robust and high-quality indicator framework is a technical process that will need to continue over time**, including by **making use of expertise in other related expert processes**, and requested the Inter-agency and Expert Group on Sustainable Development Goal Indicators to provide its proposals and **a plan for reviews of the indicator framework**, to the 48th session of the Statistical Commission;
- ...



Science and EO-based decision support for SDG Implementation

- Data integration in support of research
- Data-driven simulation: “What if” questions
- Models for the socio-economic and environmental coupled system (Model Web)
- Agent-based models to account for human behavior
- Geo-Design for integration and change
- GEOSS Knowledge Base: Linking decision and policy makers to EO-derived knowledge





Science and EO-based decision support for SDG Implementation

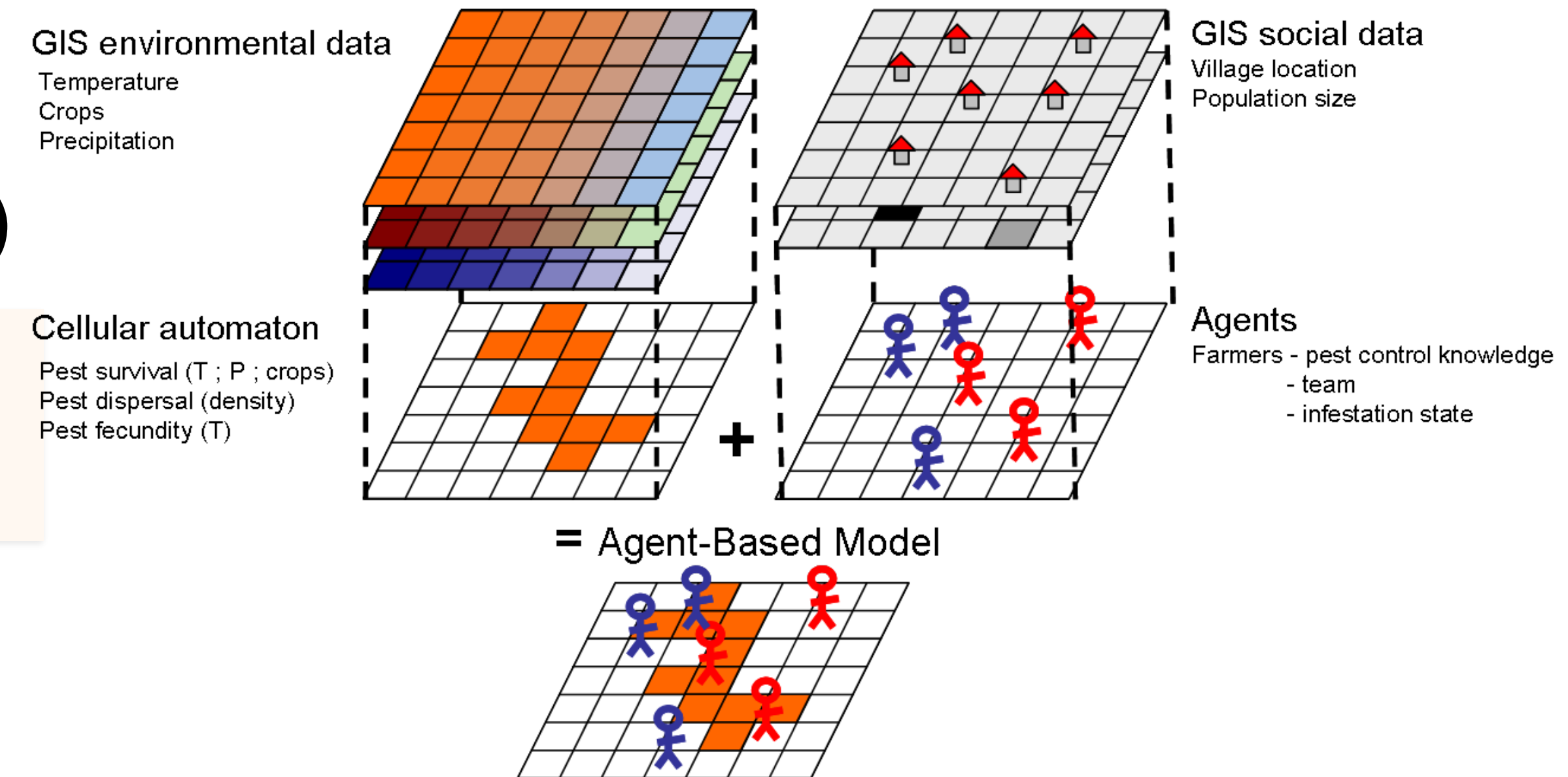
- Data integration in support of research
- Data-driven simulation: “What if” questions
- Models for the socio-economic and environmental coupled system (Model Web)
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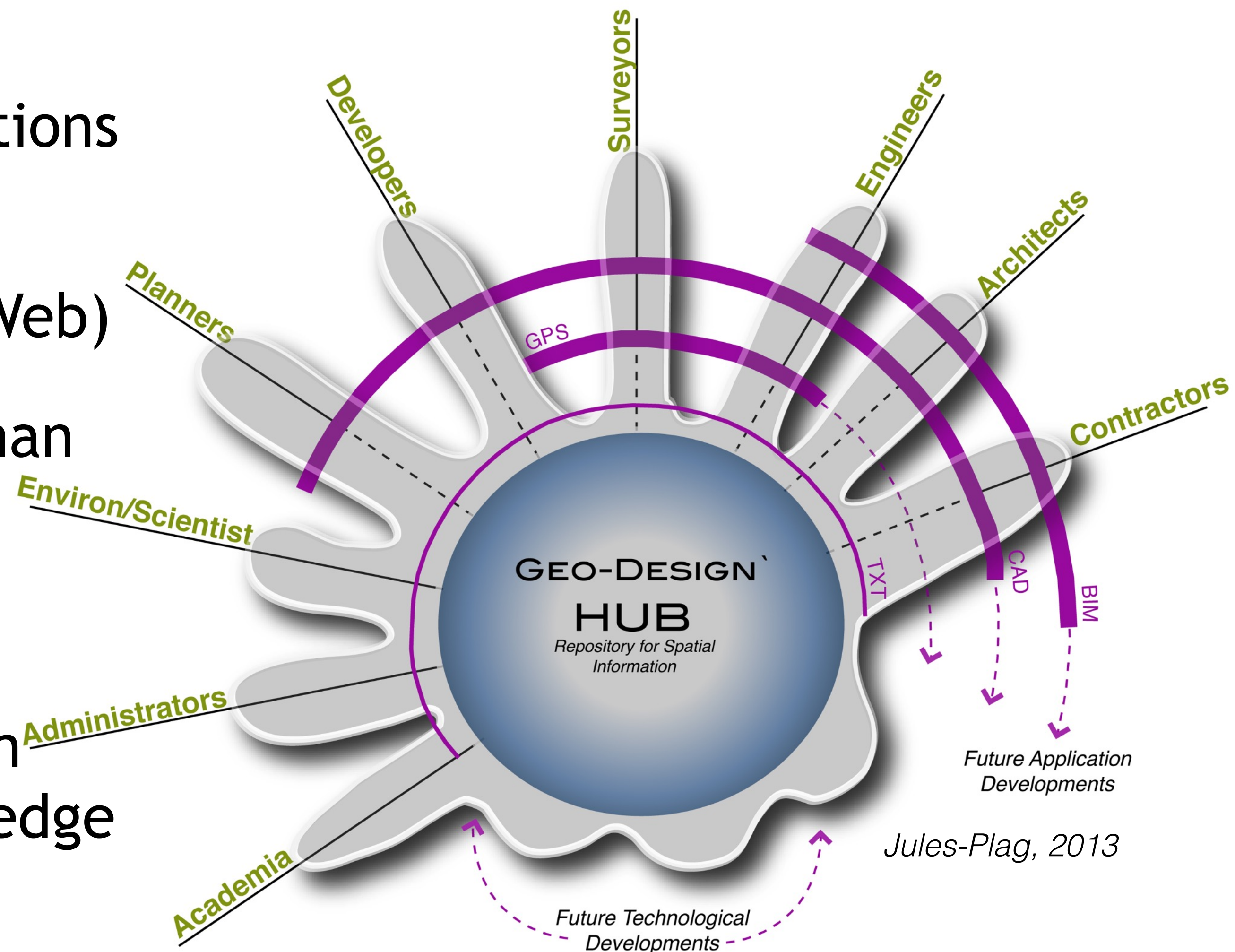
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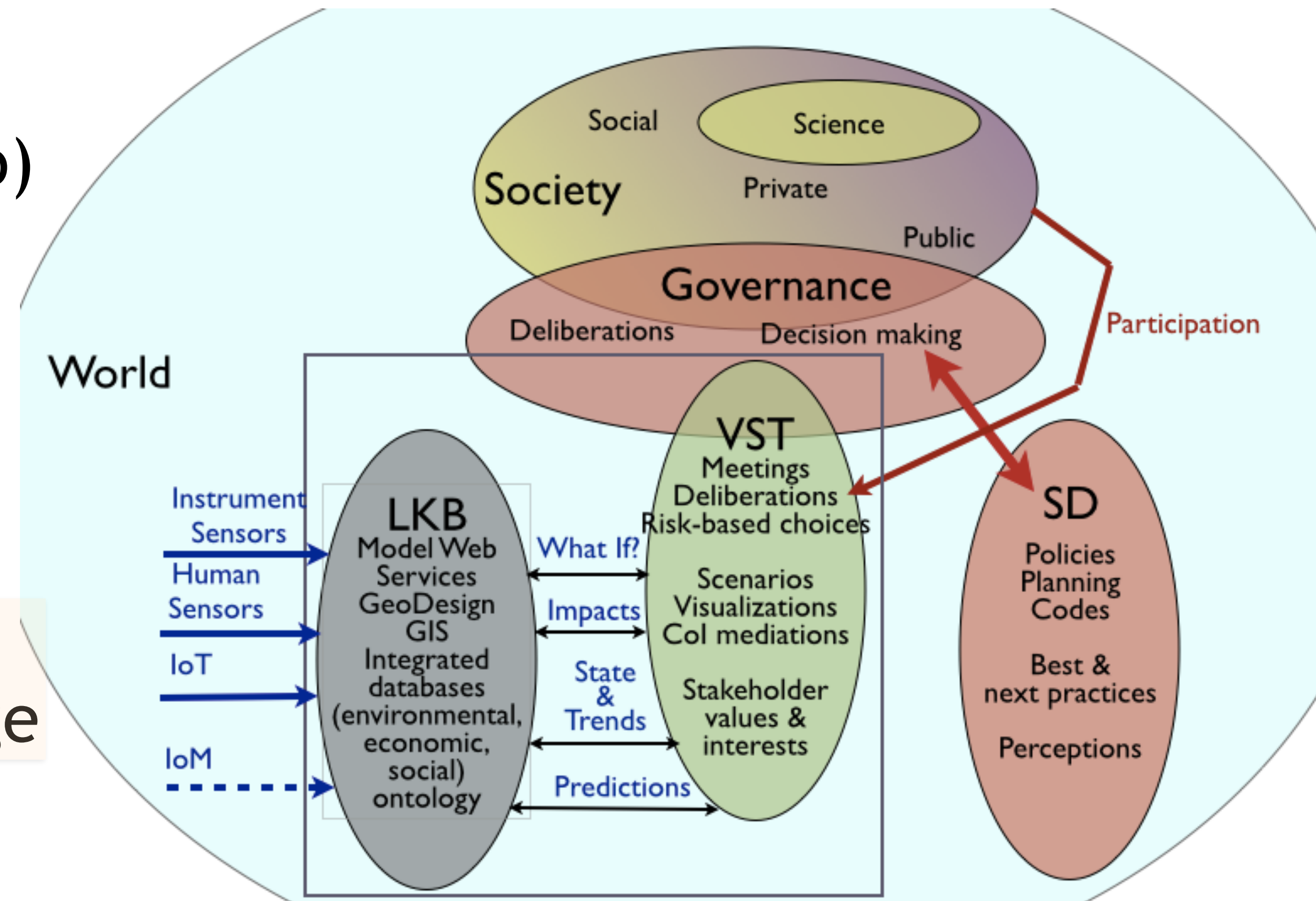
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Speakers are asked to cover, to the extent possible

- **Observation requirements**
 - What are the (observation) needs?
 - What are the policy drivers?
 - What are the challenges we are facing today in this societal challenge?
- **Existing frameworks, networks and activities**
 - What are the current activities covering this Societal Benefit Areas in Europe/in GEO?
- **Identified gaps in technology, infrastructures and data availability/accessibility**
 - What is it that the existing activities are not covering?
 - What is it needed to advance?
 - Which opportunities exist to add value by R&I activities?
- **Recommendations for potential activities/instruments/networks and their potential impact**
 - users targeted by the potential flagged activities,
 - opportunities for creation of growth and new markets





- Current indicator framework is biased towards socio-economic variables:
 - *Participate in the IAEG-SDGs processes to change this (member countries and experts)*
- Several indicators benefit for integration of environmental and socio-economic data:
 - *GEO and GI-18: develop infrastructure that facilitates data integration*
 - *support for in situ observations, also related to the built environment*
- Monitoring of progress towards targets would benefit from EO-based indicators:
 - *Interaction with IAEG-SDGs to improve the framework*
- Design and implementation of actions to reach the targets needs broad support from science and Earth observations:
 - *Objective of GI-18? Develop tool boxes and infrastructure, including geo-design hubs, model webs, agent-based models*
 - *Be part of the process - it's **our** road to dignity*
- Accept the problems as the drivers for the EO activities and the research we prioritize
 - *Carry out a comprehensive assessment of the research needs for SDG implementation and the resulting observational needs.*





Thanks