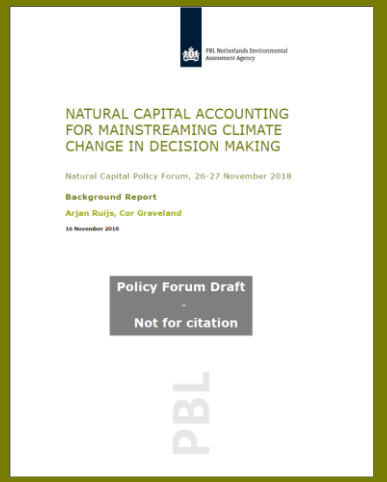
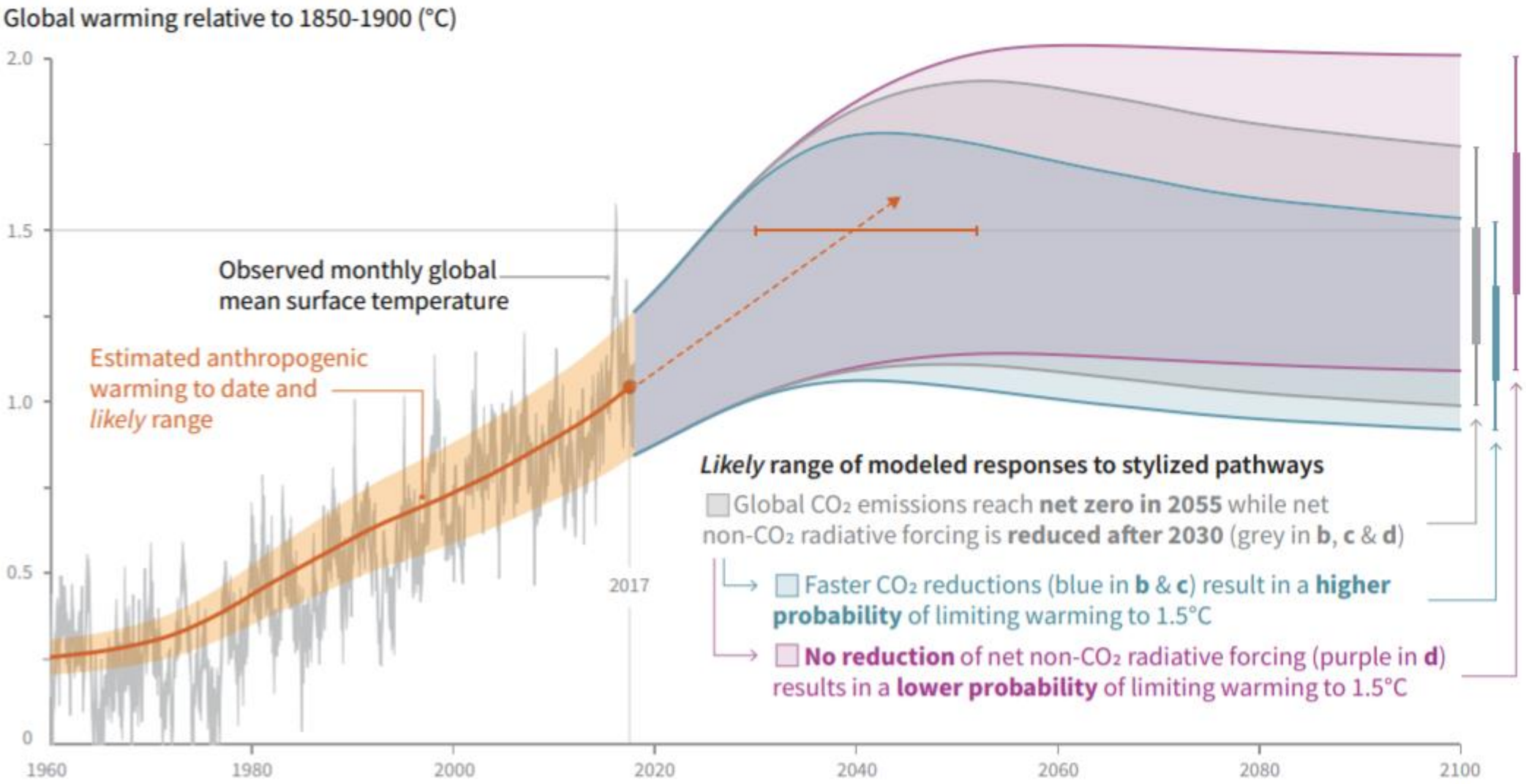
Natural Capital Accounting for mainstreaming climate change in decision making



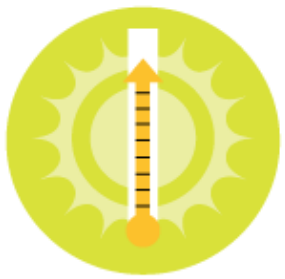
Arjan Ruijs – PBL Netherlands Environmental Assessment Agency

26 Nov. 2018

a) Observed global temperature change and modeled responses to stylized anthropogenic emission and forcing pathways



Source: IPCC







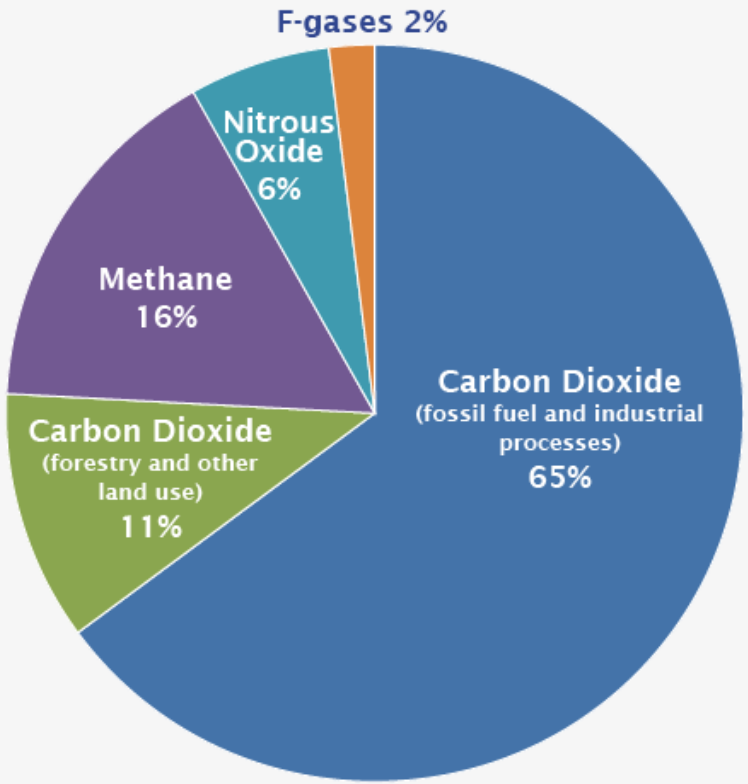




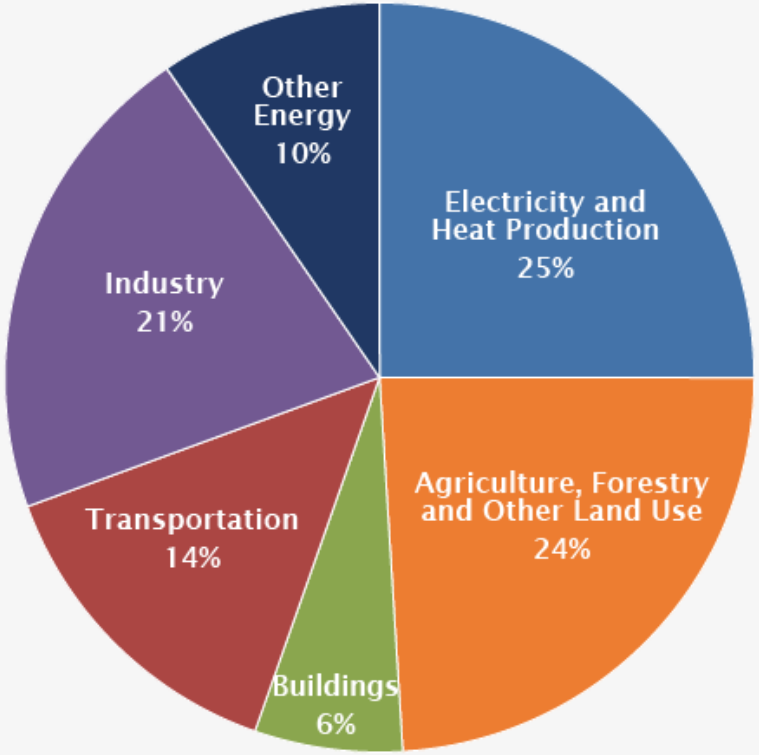




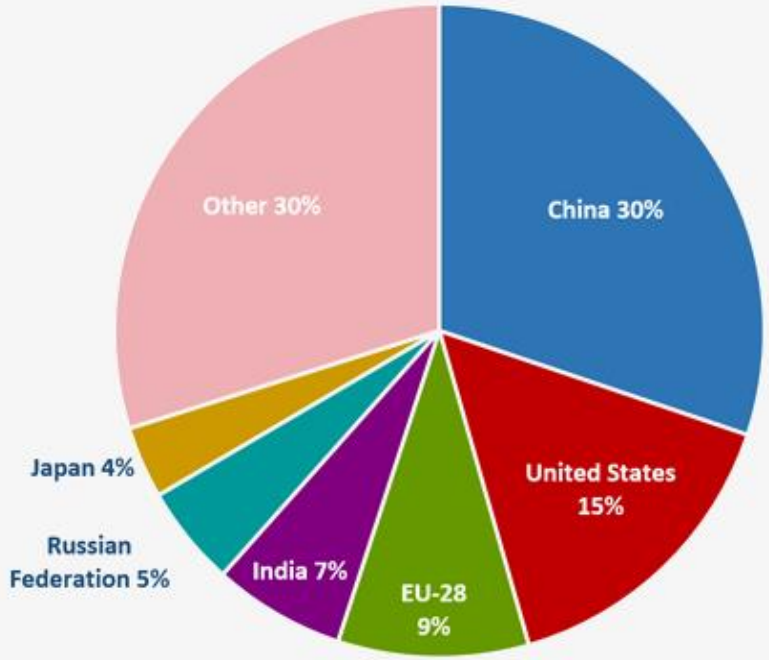
Global Greenhouse Gas Emissions by Gas



Global Greenhouse Gas Emissions by Economic Sector



2014 Global CO_2 Emissions from Fossil Fuel Combustion and Some Industrial Processes



Source: https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data

THE PARIS CLIMATE AGREEMENT: KEY POINTS

Temperatures
2100

- Keep warming 'well below 2C'
- Continue efforts to limit the rise in temperatures to 1.5C

Financing
2020-2025

- Rich countries must provide $US100bn from 2020, as a 'floor'
- Amount to be updated by 2025

Burden sharing

- Developed countries must provide financial resources to help developing countries
- Other countries are invited to provide support on a voluntary basis

Climate-related losses

- Vulnerable countries have won recognition of the need for 'averting, minimising and addressing' losses suffered because of climate change

Specialisation

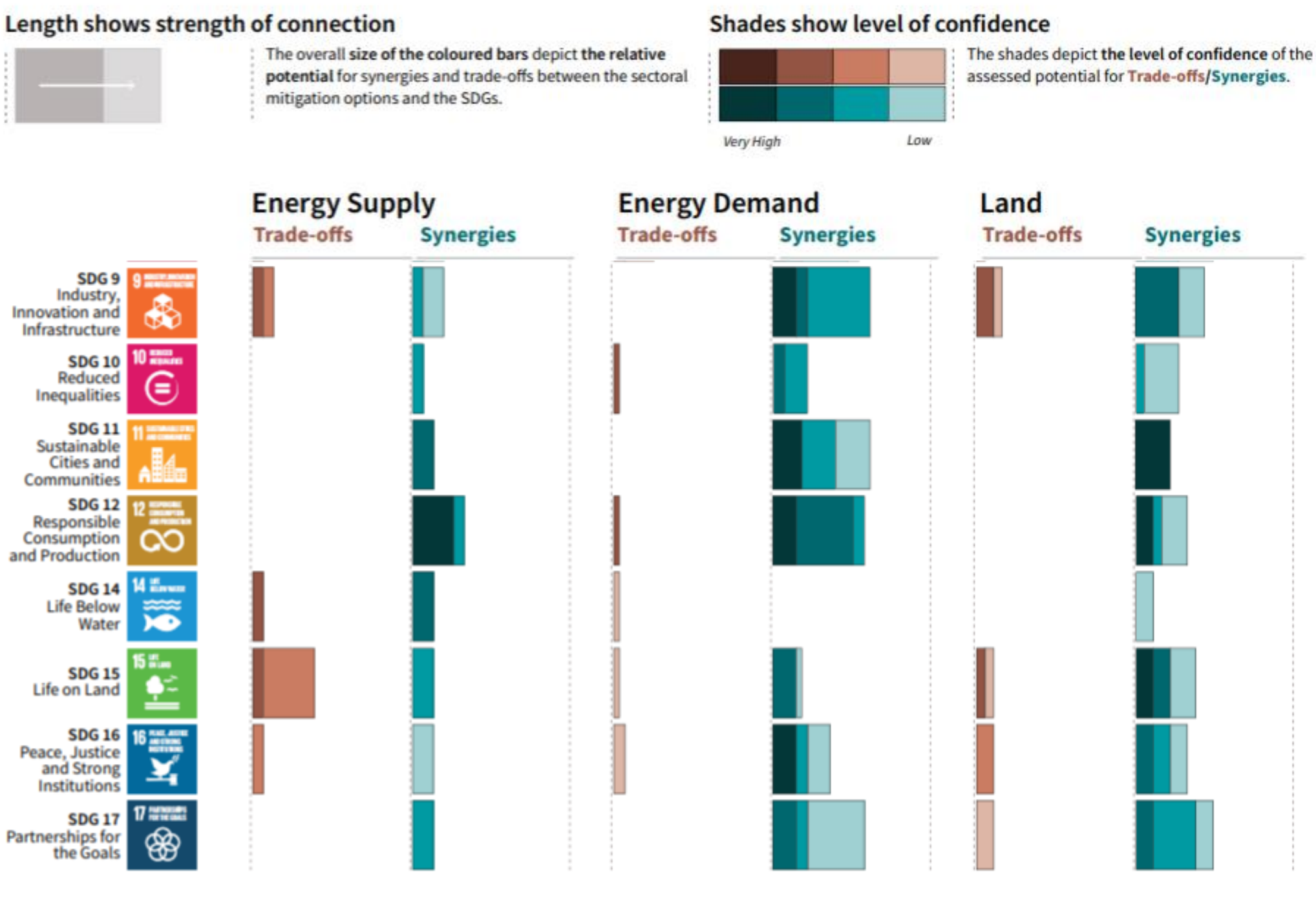
- Developed countries must continue to 'take the lead' in the reduction of greenhouse gases
- Developing nations are encouraged to 'enhance their efforts' and move over time to cuts

Emissions goals
2050

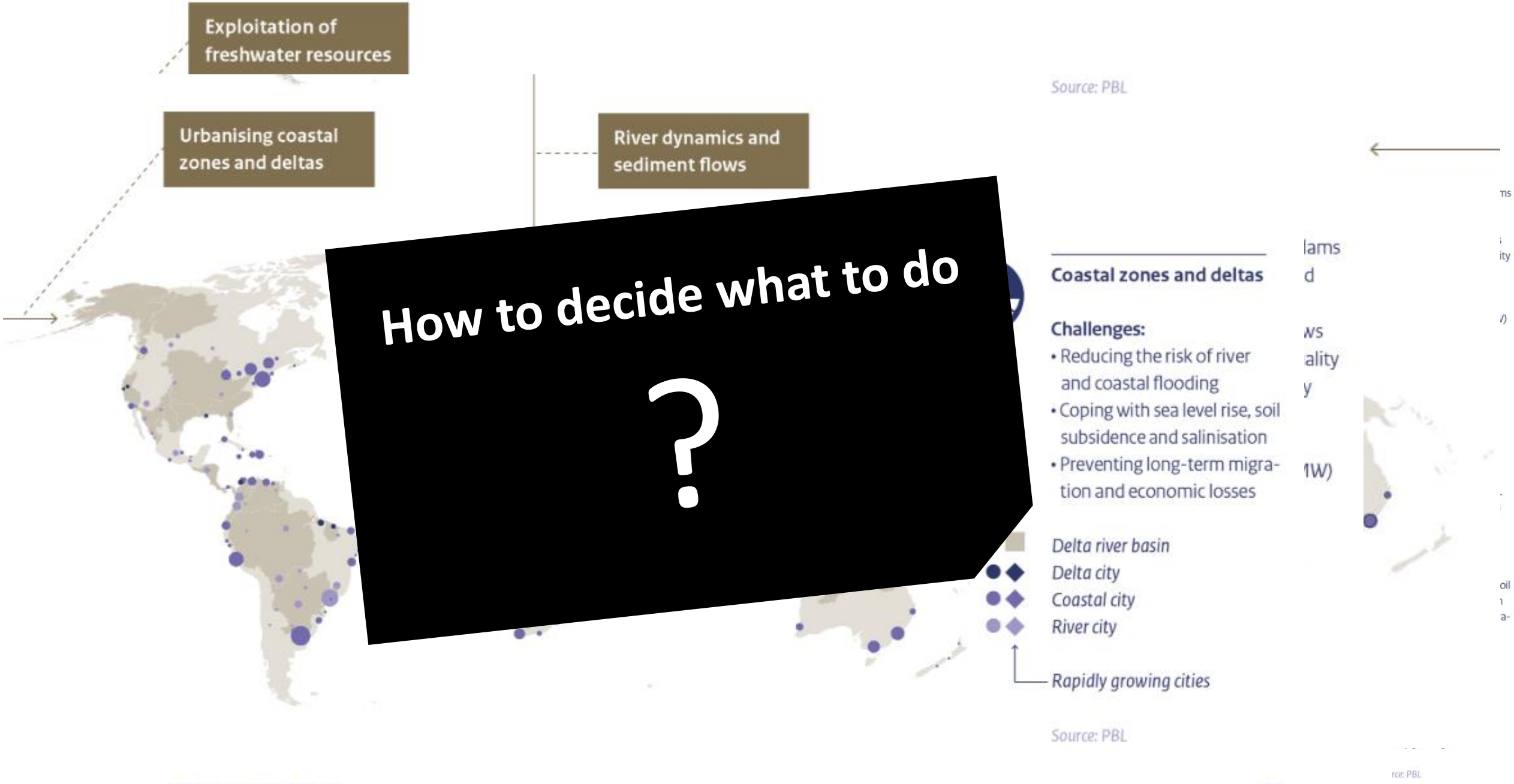
- Aim for greenhouse gas emissions to peak 'as soon as possible'
- From 2050: rapid reductions to achieve a balance between emissions from human activity and the amount that can be captured by 'sinks'

Review mechanism
2025

- A review every five years. First mandatory world review: 2025
- Each review to show an improvement compared with the previous period


Length shows strength of connection
The overall size of the coloured bars depict the relative potential for synergies and trade-offs between the sectoral mitigation options and the SDGs.
Shades show level of confidence
The shades depict the level of confidence of the assessed potential for Trade-offs/Synergies.
Very High
Low
Energy Supply
Trade-offs
Synergies
Energy Demand
Trade-offs
Synergies
Land
Trade-offs
Synergies
SDG 9 Industry, Innovation and Infrastructure
SDG 10 Reduced Inequalities
SDG 11 Sustainable Cities and Communities
SDG 12 Responsible Consumption and Production
SDG 14 Life Below Water
SDG 15 Life on Land
SDG 16 Peace, Justice and Strong Institutions
SDG 17 Partnerships for the Goals

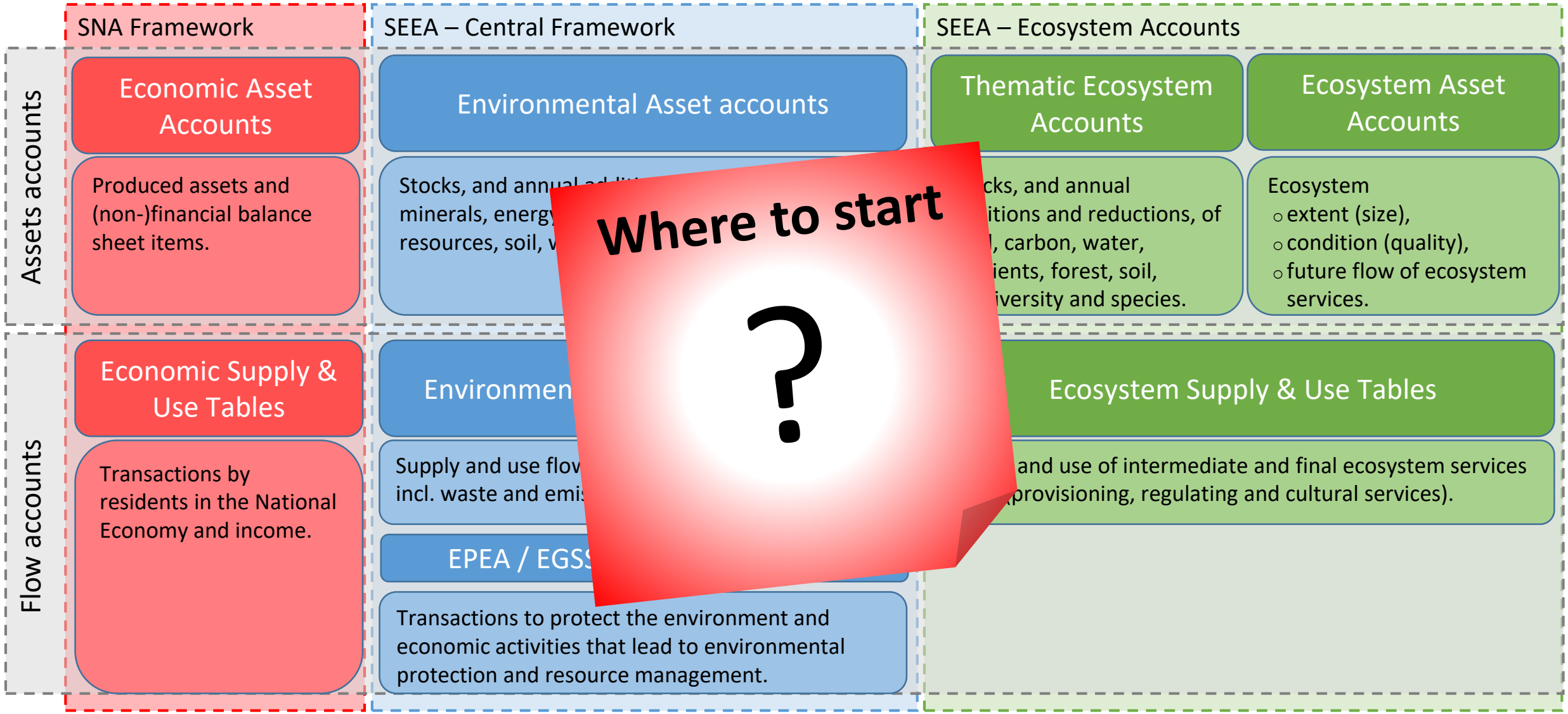
Source: IPCC



How to decide what to do

?

rce: www.pbl.nl


SNA Framework
SEEA – Central Framework
SEEA – Ecosystem Accounts
Assets accounts
Economic Asset Accounts
Environmental Asset accounts
Thematic Ecosystem Accounts
Ecosystem Asset Accounts
Produced assets and (non-)financial balance sheet items.
Stocks, and annual
minerals, energy
resources, soil,
cks, and annual
itions and reductions, of
, carbon, water,
ients, forest, soil,
iversity and species.
Ecosystem
extent (size),
condition (quality),
future flow of ecosystem services.
Where to start
?
Flow accounts
Economic Supply & Use Tables
Environmen
Ecosystem Supply & Use Tables
Transactions by residents in the National Economy and income.
Supply and use flov
incl. waste and emi
and use of intermediate and final ecosystem services
provisioning, regulating and cultural services).
EPEA / EGS
Transactions to protect the environment and economic activities that lead to environmental protection and resource management.

Types

- Trends in greenhouse gas emissions?
- Trends in emissions embodied in trade?
- Trade-offs between LULUCF and emissions?
- Sectoral shifts due to emission policies?
- Synergies between climate and air quality policies?
- Impacts of fiscal greening?
- Impacts of landfill policies?

Mitigation

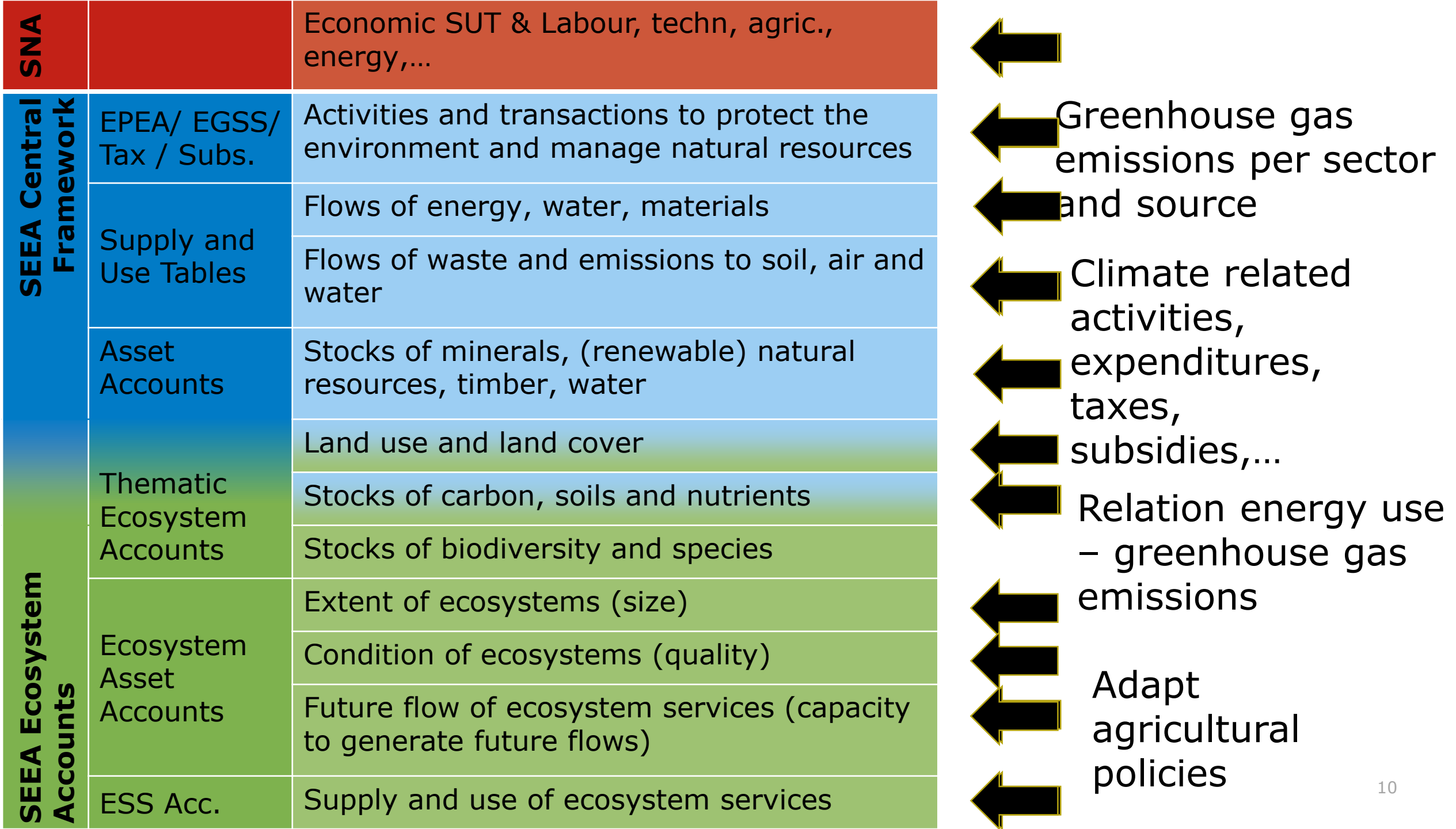
Emboddied

Adaptation

Water management

- Trends in water availability, water use, flooding/drought probabilities?
- Trends in agricultural productivity?
- Relationships between soil erosion and climate change?
- Relationship between water availability and economic development?
- Impacts of water management policies?
- Effectiveness of urban adaptation programmes?

Agricultural productivity


SNA
Economic SUT & Labour, techn, agric., energy,…
SEEA Central Framework
EPEA/ EGSS/ Tax / Subs.
Activities and transactions to protect the environment and manage natural resources
Supply and Use Tables
Flows of energy, water, materials
Flows of waste and emissions to soil, air and water
Asset Accounts
Stocks of minerals, (renewable) natural resources, timber, water
SEEA Ecosystem Accounts
Thematic Ecosystem Accounts
Land use and land cover
Stocks of carbon, soils and nutrients
Stocks of biodiversity and species
Ecosystem Asset Accounts
Extent of ecosystems (size)
Condition of ecosystems (quality)
Future flow of ecosystem services (capacity to generate future flows)
ESS Acc.
Supply and use of ecosystem services
Greenhouse gas emissions per sector and source
Climate related activities, expenditures, taxes, subsidies,…
Relation energy use – greenhouse gas emissions
Adapt agricultural policies

EU

- Air emission account
- Material flow account
- Environmental tax account
- Physical energ
- EPEA
- EGSS

Netherlands

- Air emissi
  forward l
  Energy Ou
- Water acc
  at municipal and river basin level

Zambia

- Water accounts for identi
  and monitoring adaptatio
  needs.

Colombia:

- Air emission accounts, EPEA, ReMEA to monitor emission

Indonesia

- Forward look System Dynamics Model, integrating resource scarcity, ecosystem services and carrying capacity
- Macro-economic model for Midterm Development Plan looking at sustainability

limate

ments.

of

footprint

Lessons

- Current focus is on measuring emissions and energy use.
- Less focus on emissions from LULUCF, agriculture, waste and trade.
- Limited attention for using NCA for adaptation.
  - Is disaggregation sufficiently detailed?
  - Do subnational users have access to the data?
- Accounts also for broader sustainability assessments.

Lessons

- Choose your accounts wisely; for mitigation one normally needs other accounts than for adaptation.
- A snowball effect may lead to increased use. Accounting provides a basis for cooperation.
- Developed and developing economies can learn from each other.

Planbureau voor de Leefomgeving

Thank you

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