SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK
A GLOBAL INITIATIVE FOR THE UNITED NATIONS

Agriculture in the post-2015 sustainable development agenda

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TG 7 – Sustainable Agriculture and Food Systems

ROTHAMSTED RESEARCH

The key macro-economic driver

<u>Broad material improvement of life</u>:

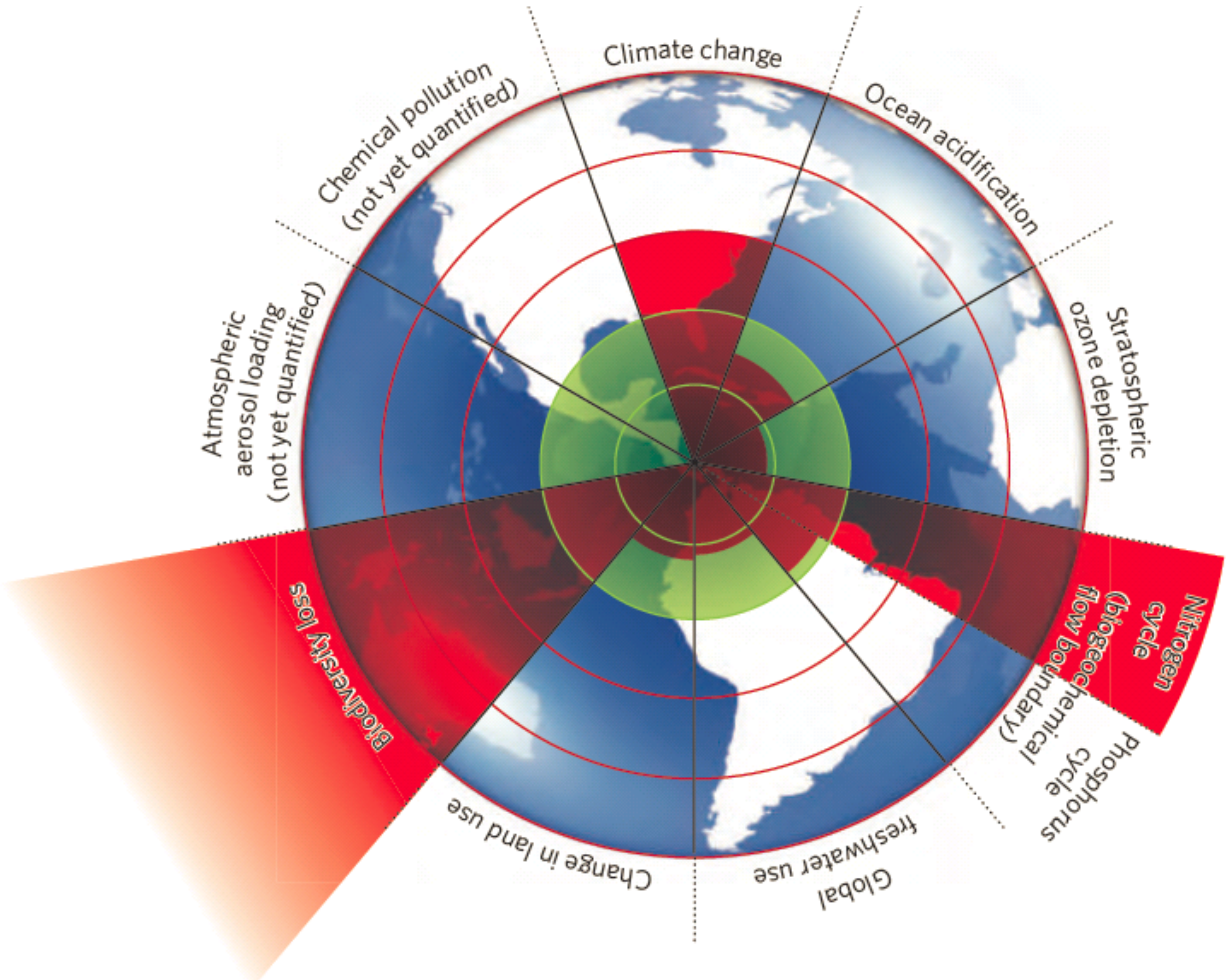
6/7 of the world's population want to catch up with 1/7

By 2030, 5 bln people who will each consume $10-100 per day

Global economy will grow at 3-4% per year = doubling in size every generation

Annual global GDP will rise from $90 trillion (7.2 bln people) to >$300 trillion by 2050 (9-10 bln people)

What are safe planetary boundaries?



Rockström et al. 2009 Nature, 461 (24): 472-475

Our generation needs to make **deep changes** in technologies and policies to **decouple** future economic growth from unsustainable use of:

Fossil fuels

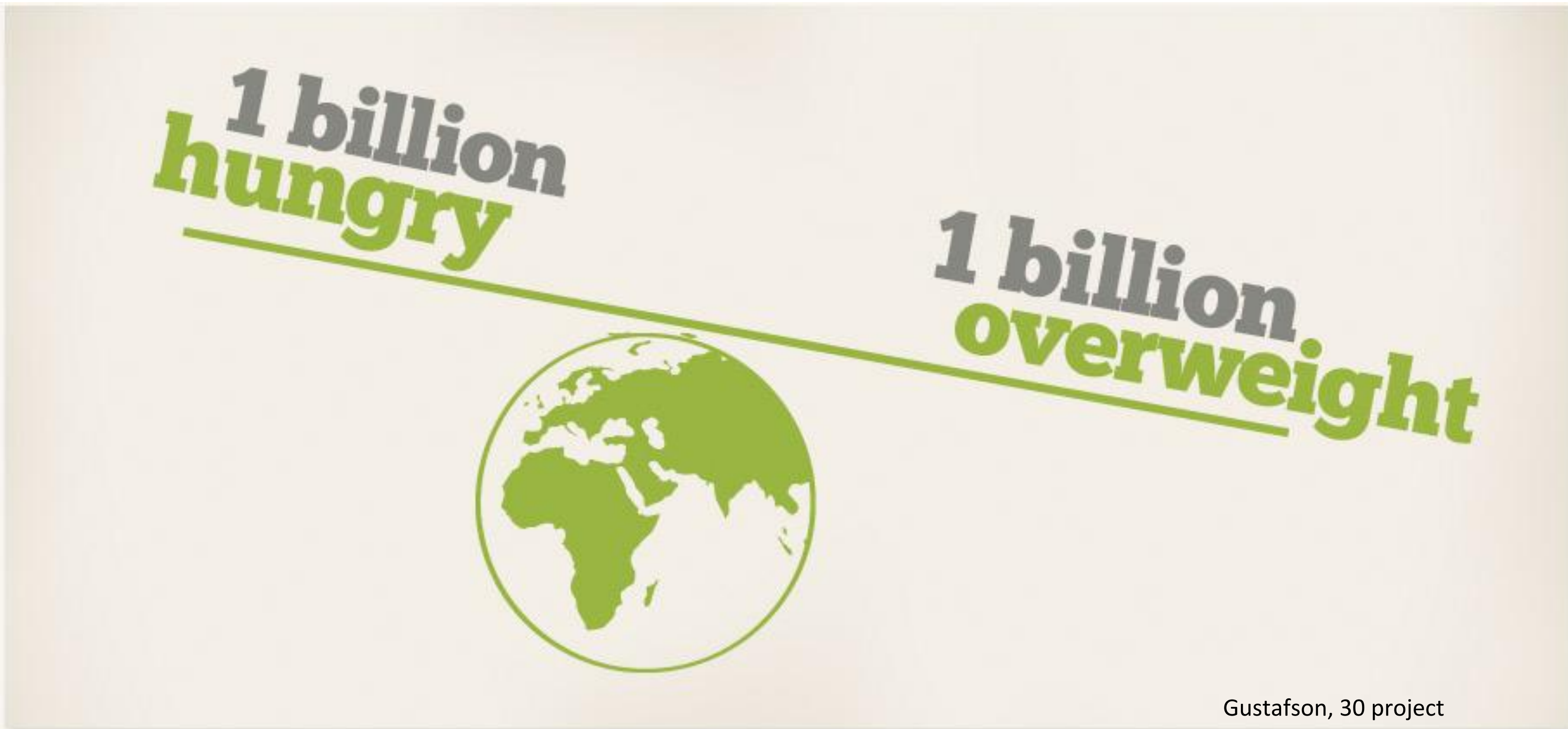
Land

Oceans

Freshwater

Other resources

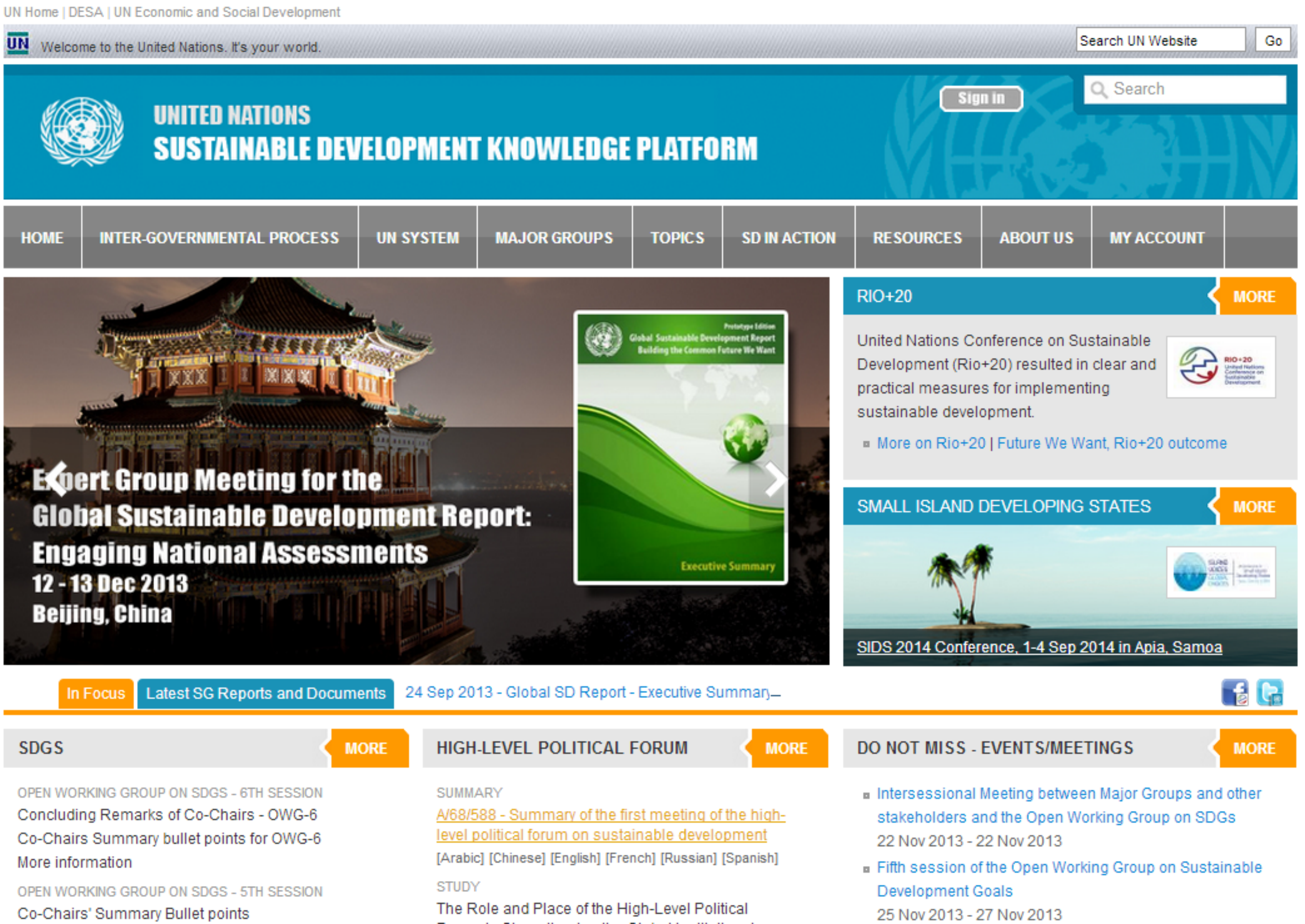
The “Double Burden”



Gustafson, 30 project

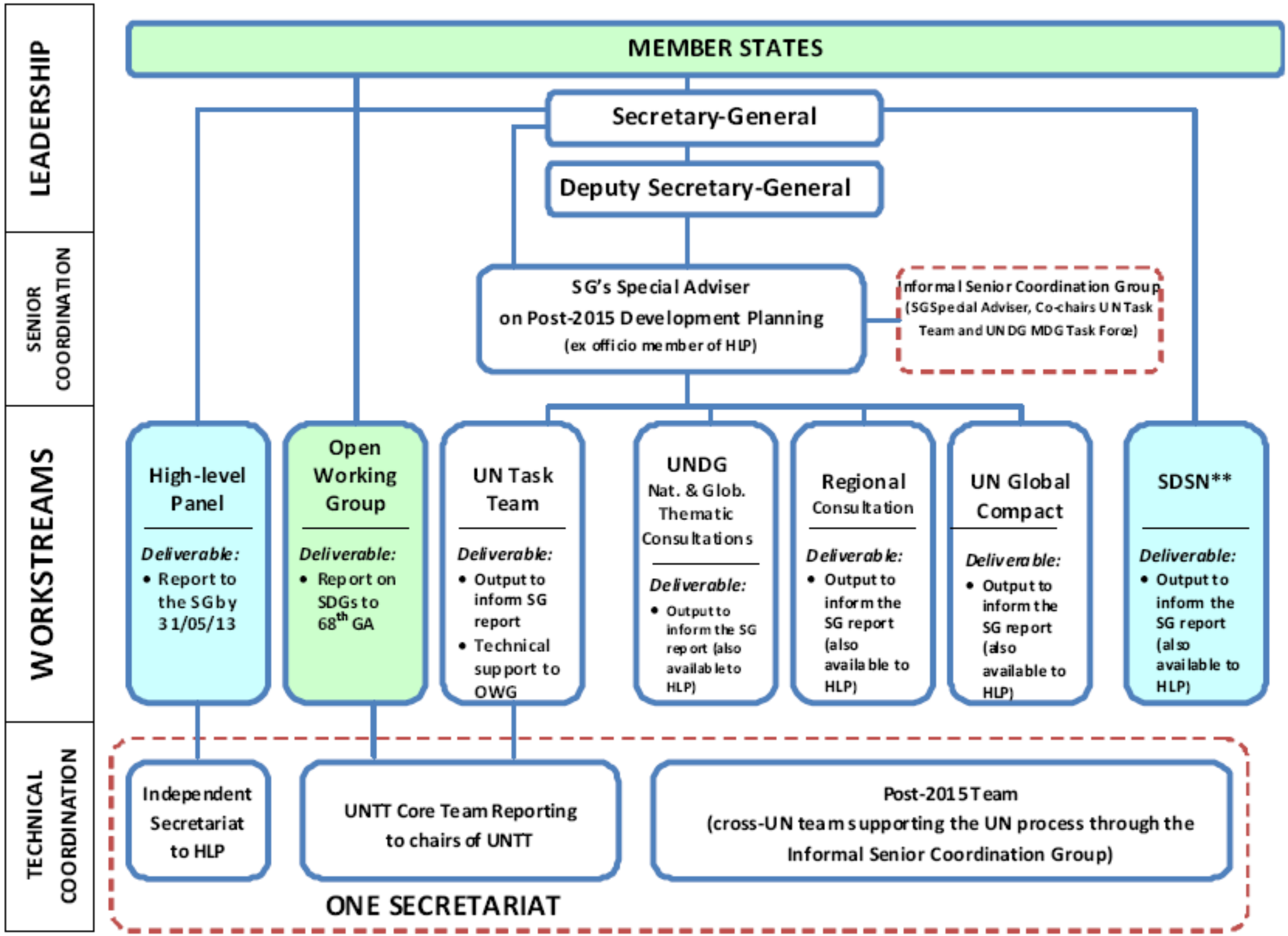
The new food system challenge

- Change behavior towards healthier diets and reduce food loss and waste
- Increase productivity by more than 60% on existing crop and pasture land by 2050
- Preserve the environment through lower resource intensity and sound use of inputs
- Make farming an attractive economic opportunity for (young) people living in rural areas



http://sustainabledevelopment.un.org

POST-2015 UN PROCESS: ACTORS AND COMMUNICATION LINES* 7/11/2012



*no change to existing reporting lines.

** Sustainable Development Solutions Network

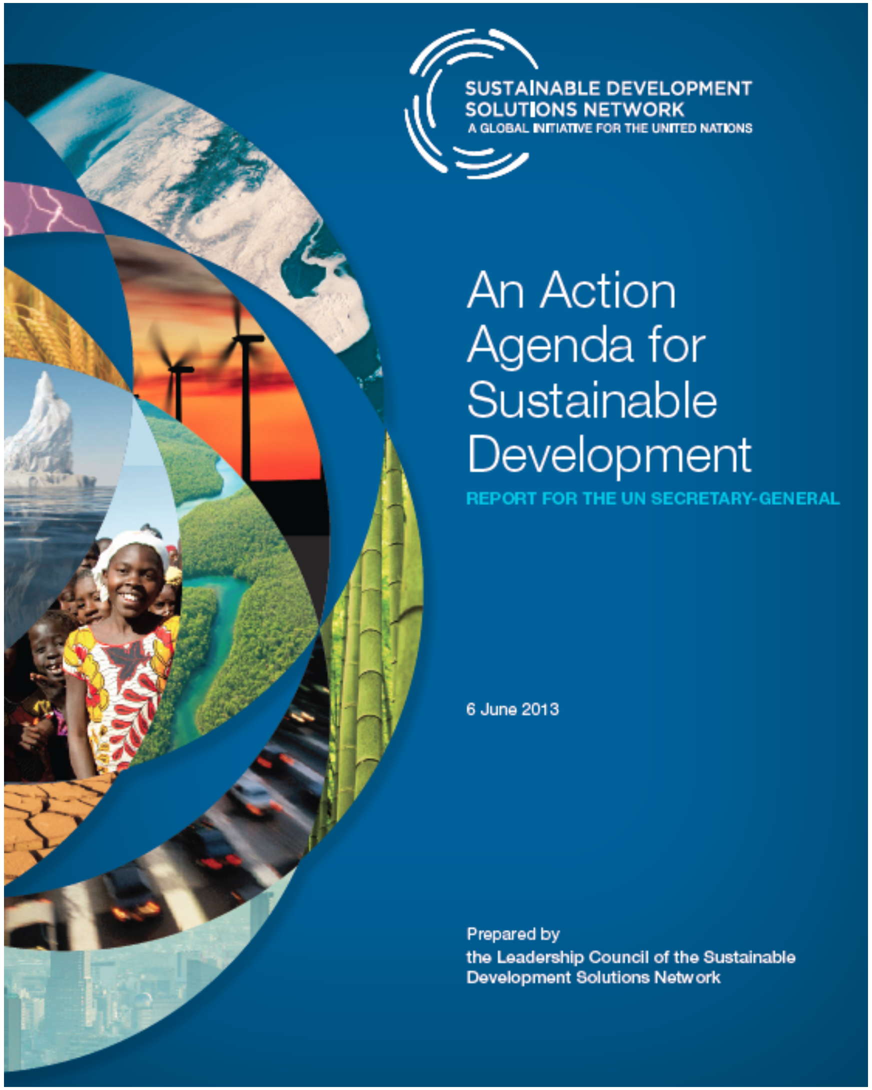
Member States | SG initiative

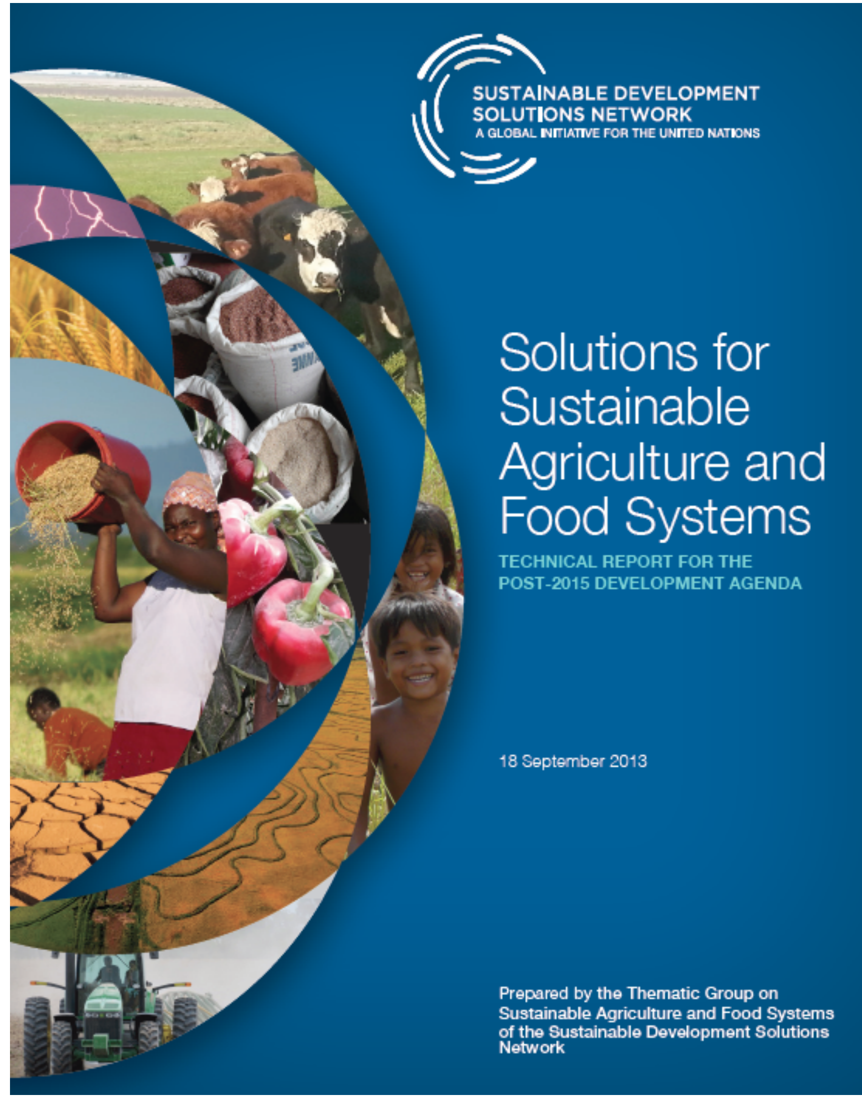
Sustainable Development Solutions Network (SDSN)

- Mandated by SG Ban Ki-Moon to “provide an independent global, open, and inclusive process to support and scale up problem solving at local, national and global levels
- Mobilizing scientific and technical expertise from academia, civil society, and the private sector for solutions-oriented problem solving
- Chaired by Laurence Tubiana (SciencePo/IDDRI) and Xue Lan (Tsinghua University), Directed by Jeffrey Sachs (Columbia University)
- Leadership Council (~75), ExCo, 12 Thematic Groups, Secretariat at CU, (Academic Assembly, Academic Council)

Objectives of the SDSN

1. Support the High-Level Panel, OWG and other post-2015 SDG processes
2. Thematic Groups to identify long-term pathways to sustainable development
3. Promote testing, demonstration, development of promising new “solutions”
4. Build a global Knowledge Center Network for local and regional problem solving
5. Global online university for sustainable development





Website: www.unsdsn.org
Email: info@unsdsn.org

The pillars of the new sustainable development agenda

Economic development

Social inclusion

Environmental sustainability

Good governance

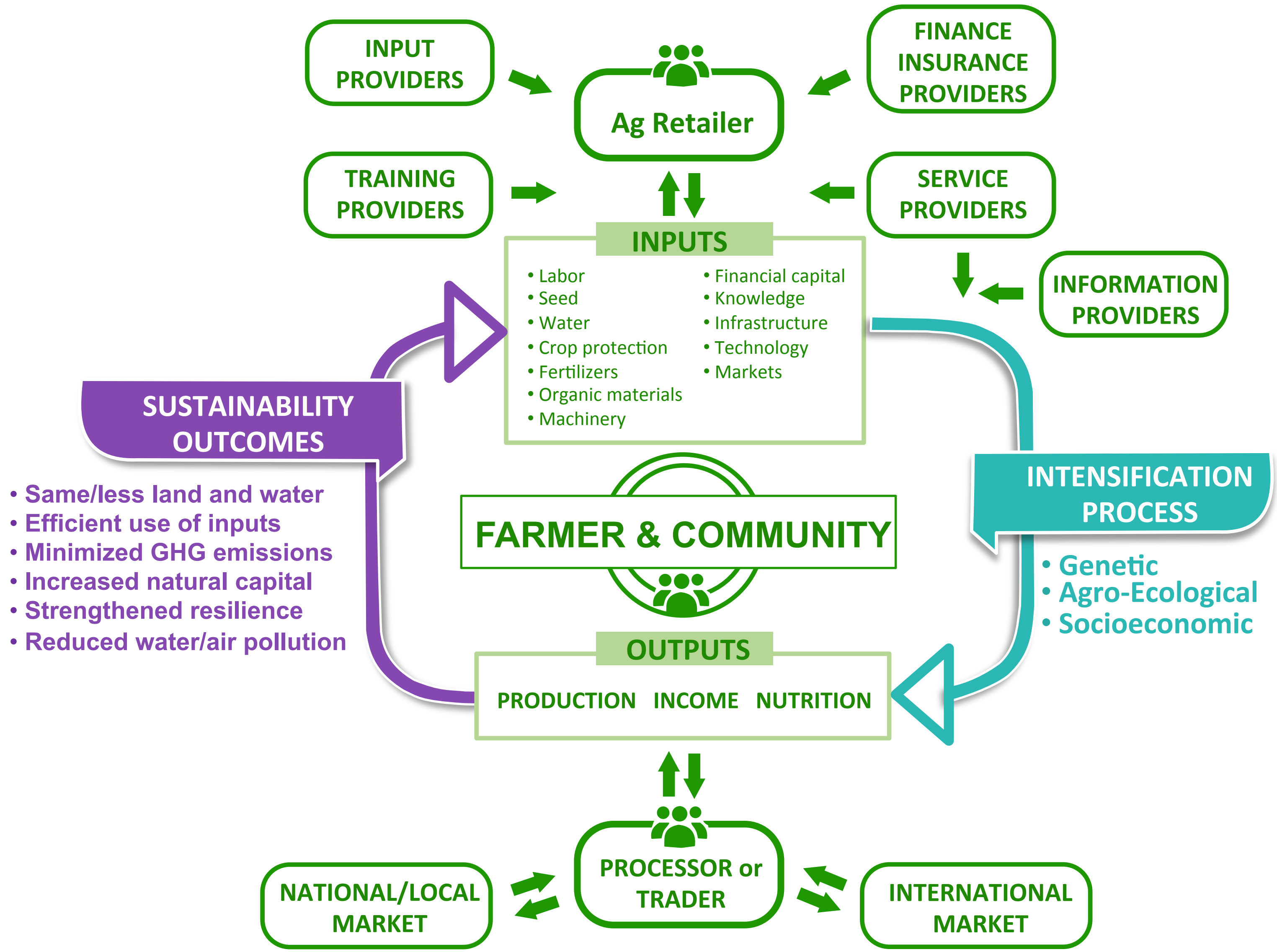
10 SDGs proposed by the SDSN

1. End Extreme Poverty Including Hunger*
2. Achieve Development within Planetary Boundaries*
3. Ensure Effective Learning for All Children and Youth for Life and Livelihood
4. Achieve Gender Equality, Social Inclusion, and Human Rights for All
5. Achieve Health and Wellbeing at All Ages*
6. Improve Agricultural Systems and Raise Rural Prosperity*
7. Empower Inclusive, Productive and Resilient Cities
8. Curb Human-Induced Climate Change and Ensure Sustainable Energy*
9. Secure Ecosystem Services, Biodiversity and Good Management of Natural Resources*
10. Transform Governance for Sustainable Development*

* Goals that could include targets and indicators for agriculture

http://unsdsn.org

Sustainable Agricultural Intensification (SAI)



Source: The Montpellier Panel, 2013 (modified)

Goal 6: Improve Agriculture Systems and Raise Rural Prosperity

Targets:

- 6a. Ensure sustainable food production systems that achieve high yields with high efficiency of water, nutrients, and energy, and have low food losses and waste.
- 6b. Halt forest and wetland conversion to agriculture, protect soil resources, and ensure that farming systems are resilient to climatic change and disasters.
- 6c. Ensure universal access in rural areas to basic resources and infrastructure services (land, water, sanitation, modern energy, transport, mobile and broadband communication, agricultural inputs, and advisory services).

Target 6a: Sustainable food production systems

Core Indicators:

- Crop yield gap (actual yield as % of yield potential)
- Crop nitrogen use efficiency (%)
- Crop water productivity (tons of harvested product per unit irrigation water)
- Share of agricultural produce loss and food waste (% of food production)

Tier 2 Indicators, e.g.:

- Cereal yield growth rate (% p.a.)
- Indicator on livestock and fish productivity
- Full-chain nitrogen [phosphorus] use efficiency (%)
- ……

Target 6a: Sustainable food production systems

<u>Aspirational outcomes:</u>

- The majority of farms achieve [80]% of the attainable water-limited yield potential by 2030.
- Nitrogen efficiency of crop production increased by [30]% in countries with sub-optimal [low] nitrogen use efficiency.
- Water productivity of crop production increased by [30]% in countries with high water use for irrigation.
- Post-harvest losses and food waste have been reduced by [30]% in 2030 relative to current levels.

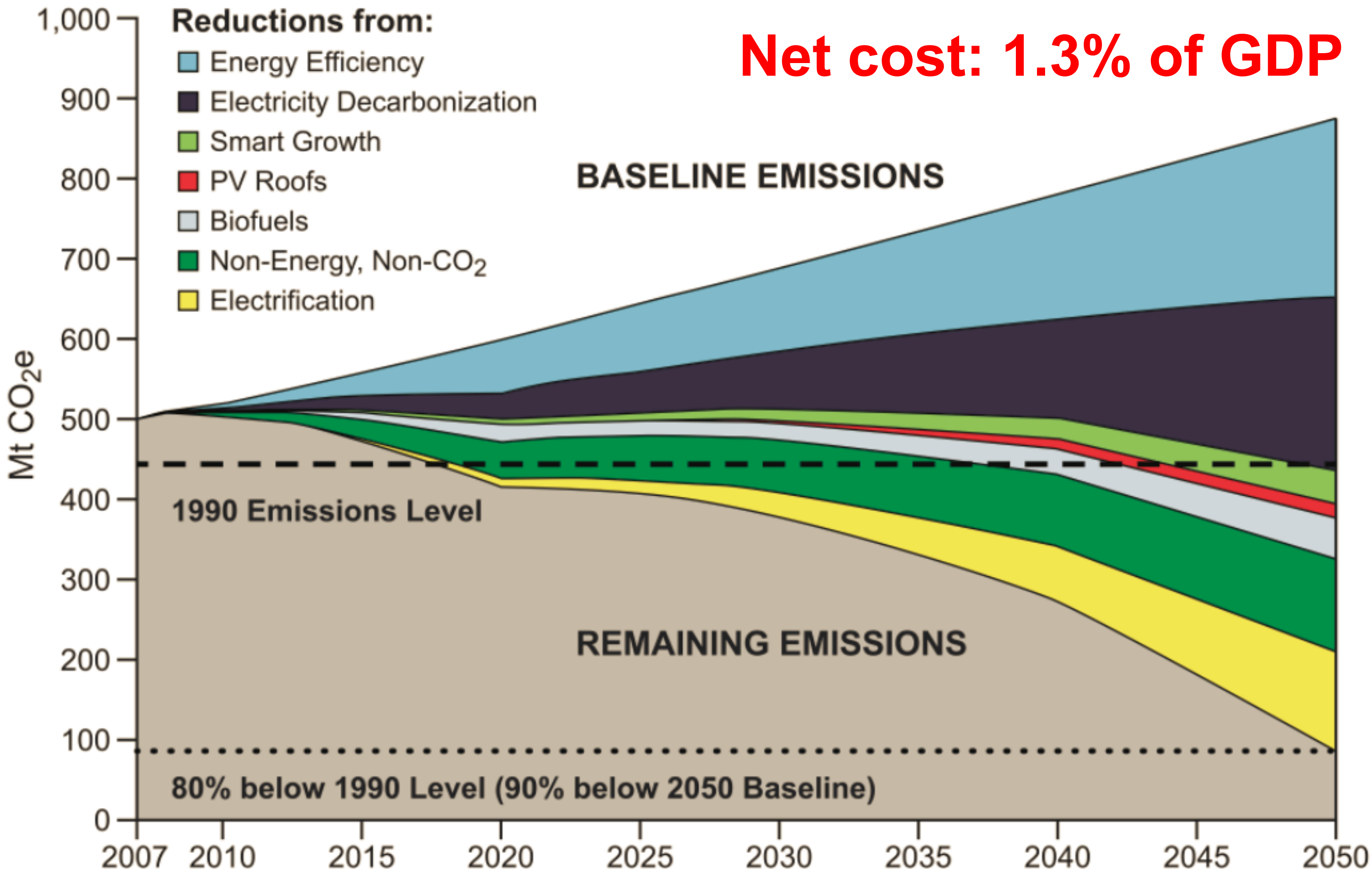
SDSN Solutions Initiatives

- **National Pathways for Sustainable Agricultural Intensification**
  - Backcasting: set context-specific targets, model policy and technology roadmaps at national and sub-national levels
  - Monitoring the performance of agriculture and food systems
- Nutrient management and stewardship
- Farmer research networks
- Healthier diets
- …

National Pathways for Sustainable Agricultural Intensification

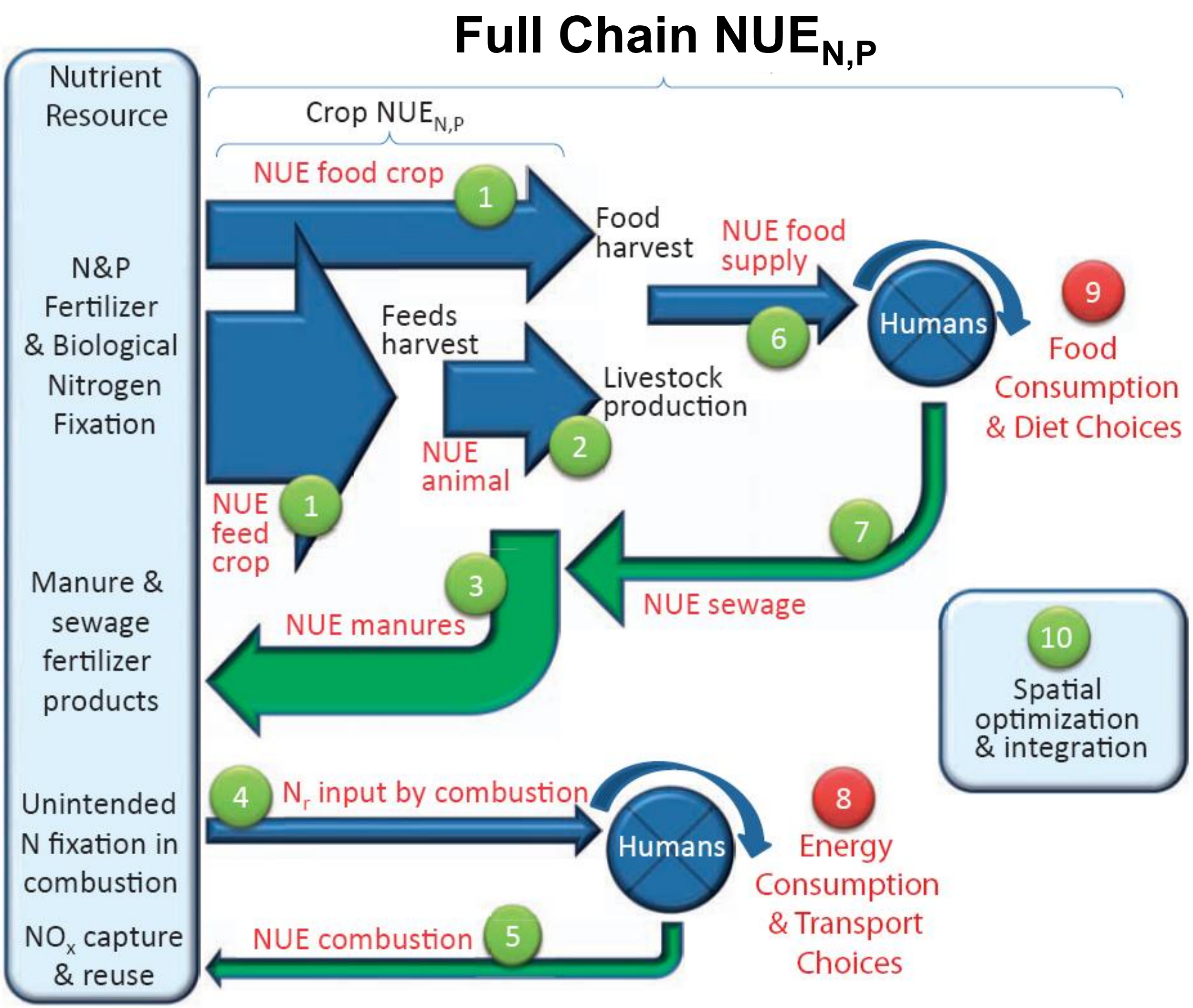
- Transformative and sustainable changes along the whole food production to consumption chain
- Specific targets, technology and policy pathways will be country-specific, but consistent with the post-2015 Sustainable Development Goals
- A scientifically and economically sound, transparent and inclusive process for target setting and modeling or roadmaps
- The national and sub-national pathways will be practical and their impacts measurable

Technology path to cutting GHG emissions in California's energy supply



Williams, J.H. *et al.* The technology path to deep greenhouse gas emissions cuts by 2050: The pivotal role of electricity. *Science* **335**, 53-59 (2012)

10 actions for improving Nutrient Use Efficiency



Source: Sutton, M.A. *et al.* 2012).

National Pathways for Sustainable Agricultural Intensification

Project organization

- National modeling teams and forums
- Working groups (specific issues/technologies)
- International project coordination group

Funding

- SDSN (initial development and intl. coordination)
- International/regional donors for intl. coordination and selected national teams
- National sources (direct and indirect) for national teams

What’s next?

- SDSN report on indicators
- Launch of SDSN China
- Solutions Initiative on national roadmaps for SAI: focus on methodology and linked to SDSN project “The world in 2050”
- Could China become a leader for an international platform on science and practice of SAI, together with a few other countries?