Comprehensive indicators for connecting models and communicating results

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Program

- Multi-model indicator framework on Multiple Scales
- Using dashboards for presenting indicators

Multi-model indicator framework on Multiple Scales (KB35)

16 November 2023, Pim Post (WPR) & Marijn Gülpen (WEnR)

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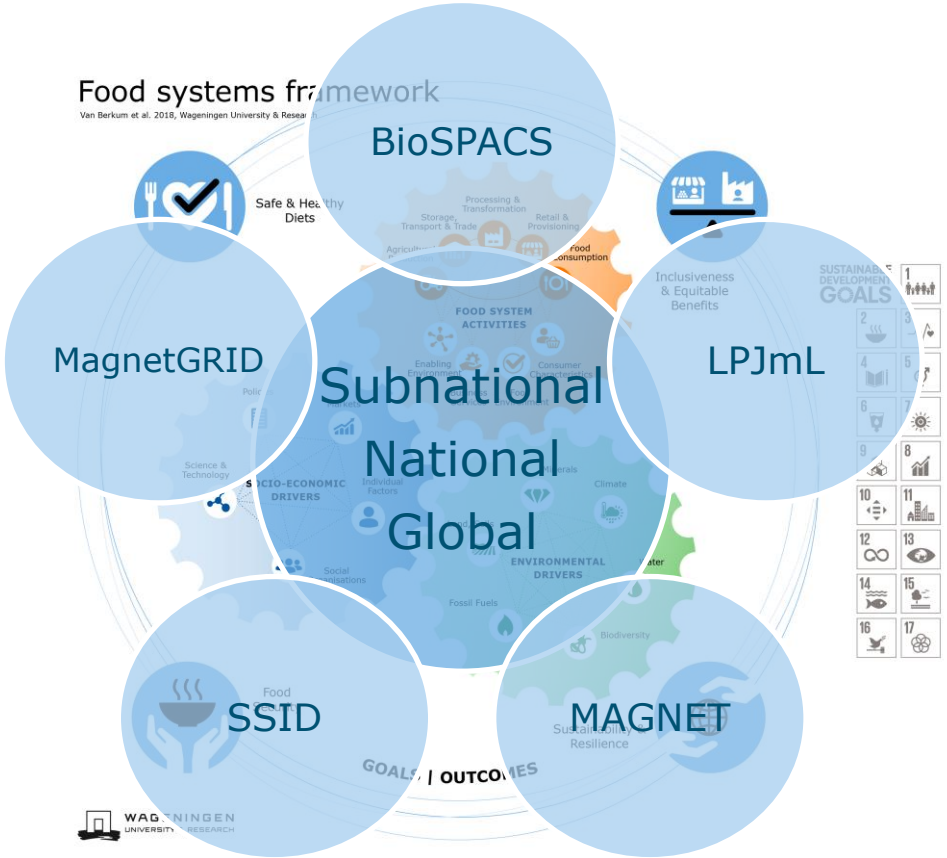
Introduction

- Food systems
- Various models simulating (part of) this system

→ KB35 – Modelling Food Systems across Multiple Scales

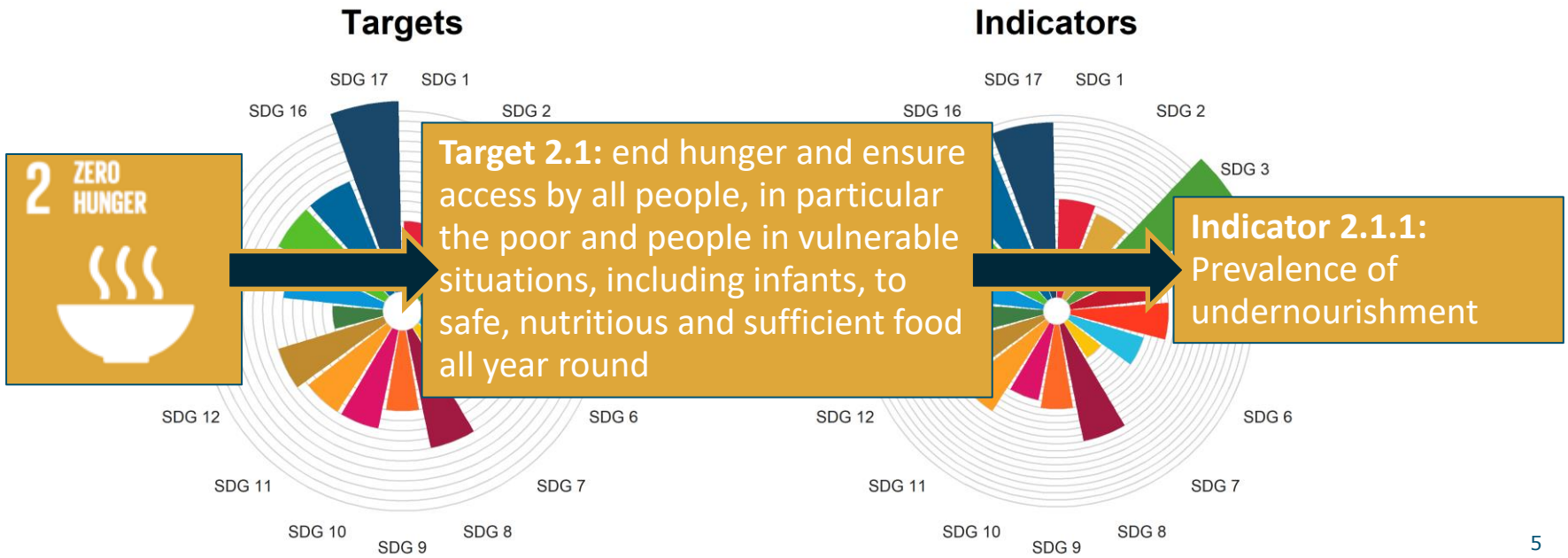


Sustainable Development Goals

A shared blueprint for peace and prosperity for people and the planet, now and in the future

SDG targets and indicators

The **17 SDGs** are defined in a list of **169 targets** and **231 indicators**




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

Indicator Framework - Objectives

1. Showing trade-offs and synergies within the food system;
2. Acknowledge what our models do not assess;
3. Understand the model output of various (WUR) models in the light of SDGs

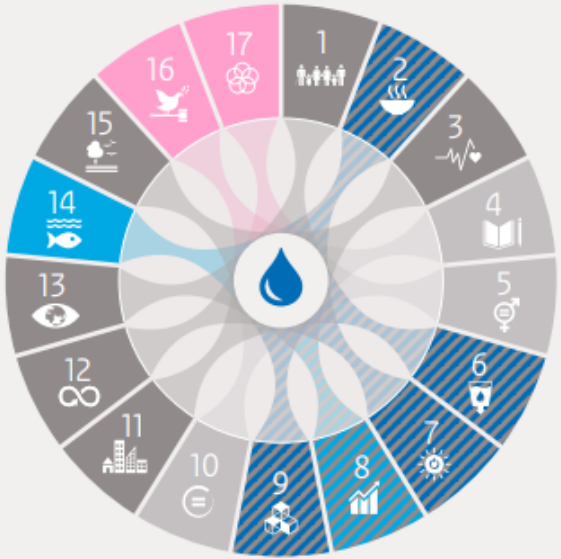
The Geography of Future Water Challenges – Bending the Trend Policy Summary in the Context of the UN 2023 Water Conference

Potential co-benefits for the SDGs

- *Positive (qualitative/quantitative)*
- *Negative (qualitative/quantitative)*
- *Positive and negative (qualitative/quantitative)*
- *Conditional (not fulfilled / fulfilled)*

Source: PBL

Business-as-usual scenario



High ambition pathway

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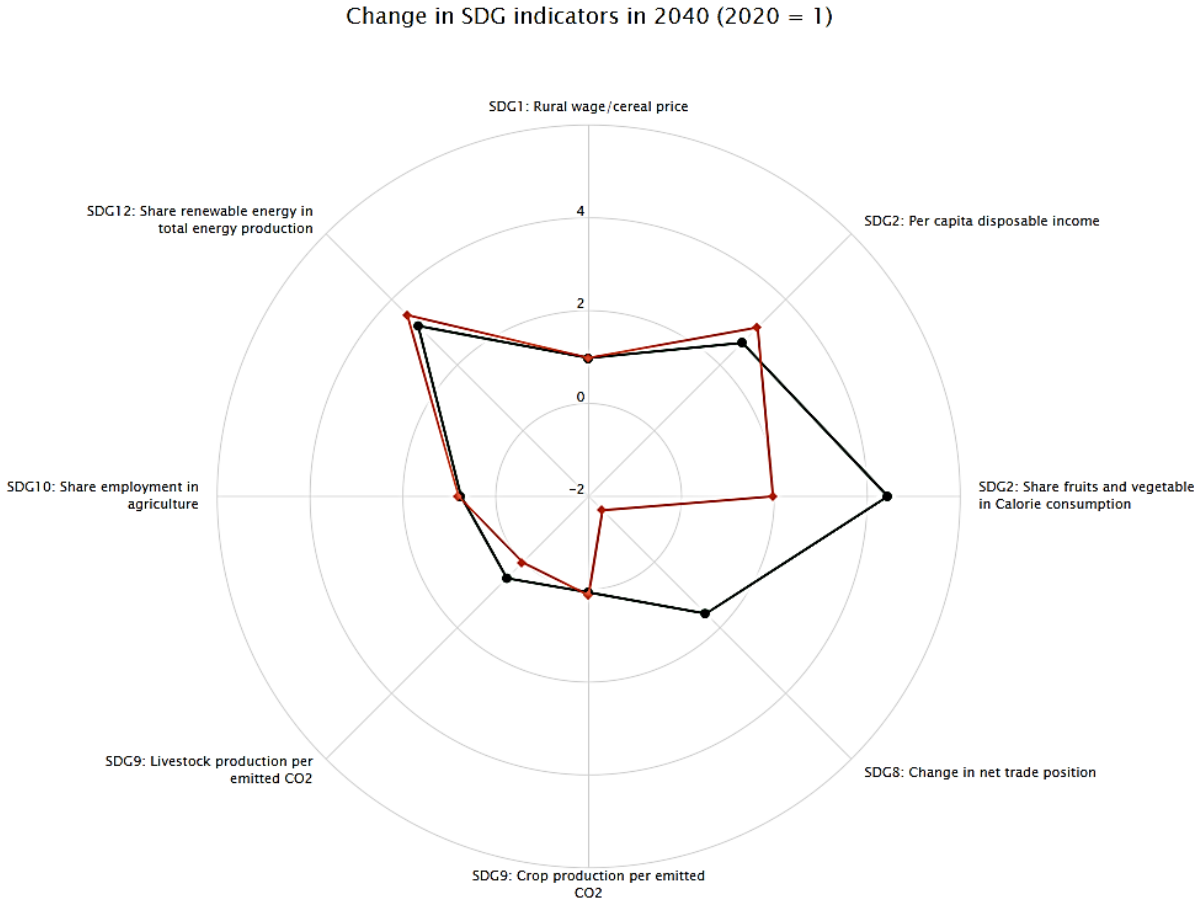
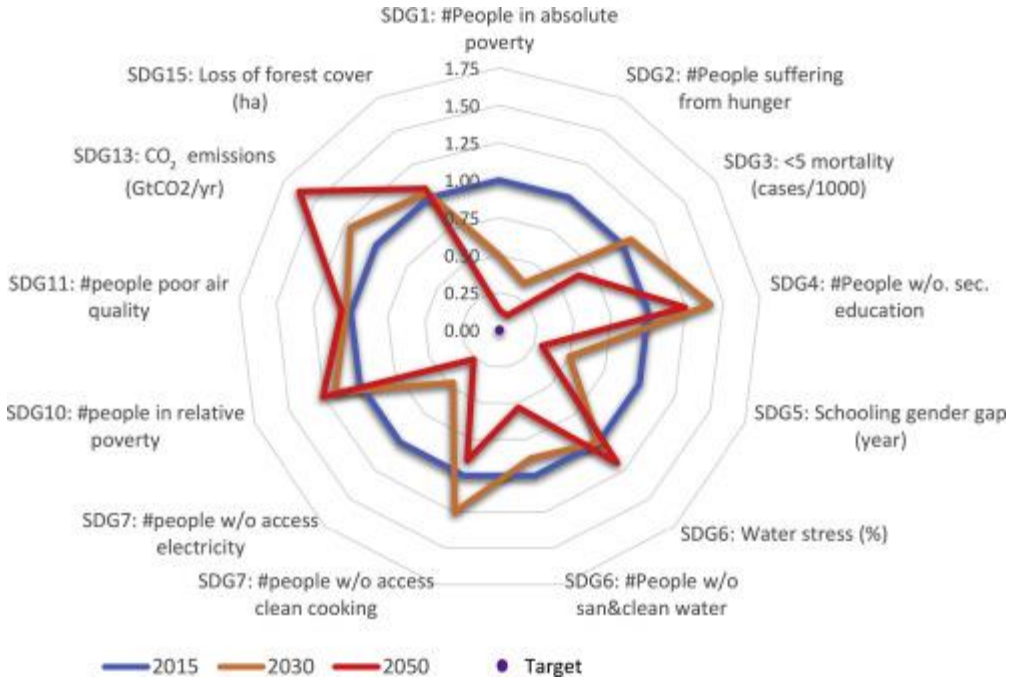
Link to report: [The Geography of Future Water Challenges — Bending the Trend — Policy Summary (pbl.nl)]

MAGNET model SDG insights: healthy and unhealthy diet in Bangladesh



Sustainable development target space for 2030 and 2050 (van Vuuren et al., 2022)



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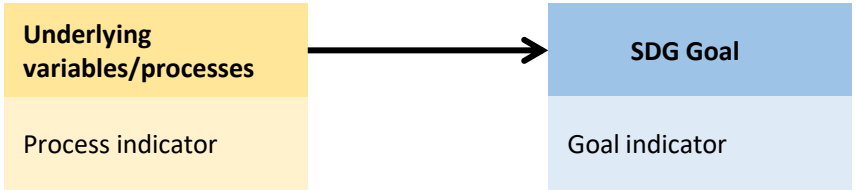
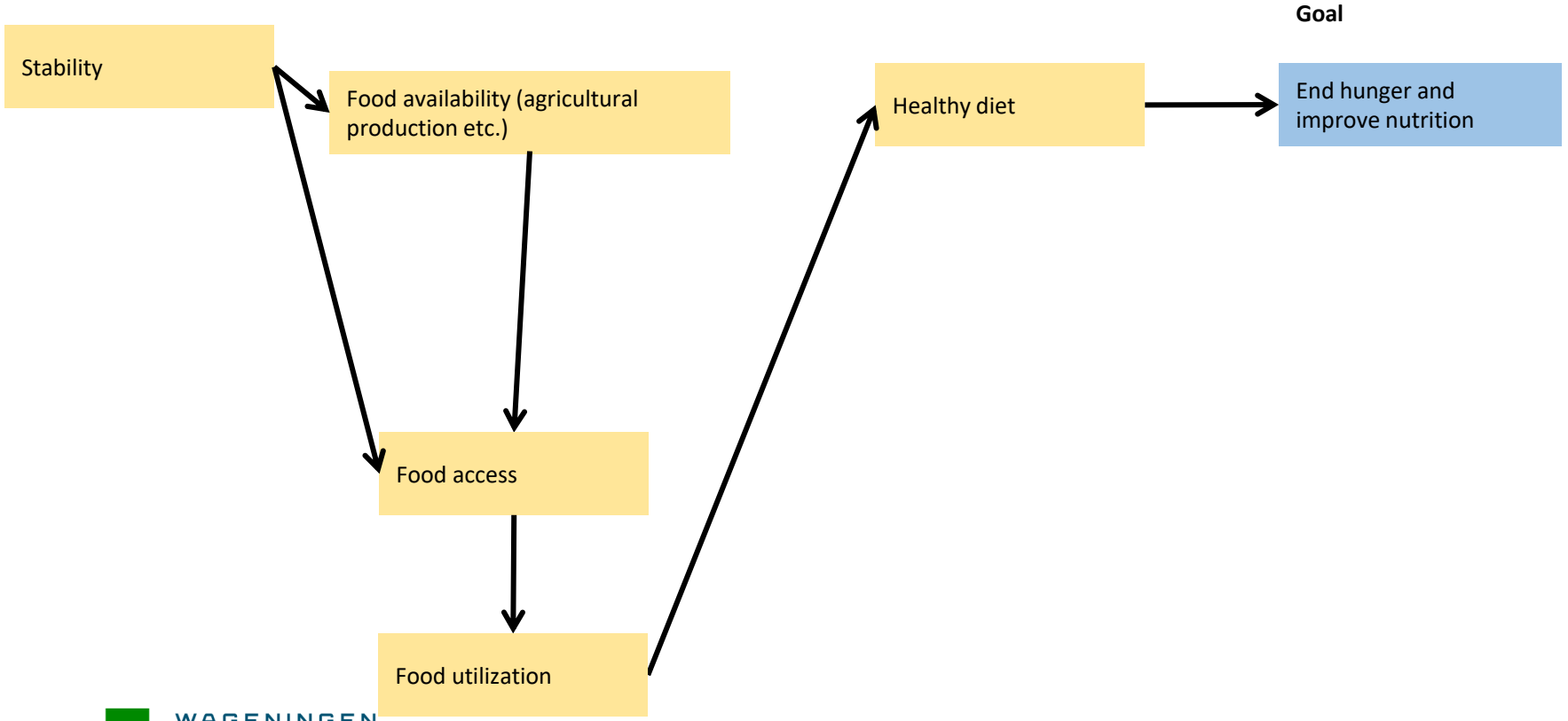
Link to paper: Defining a sustainable development target space for 2030 and 2050 - ScienceDirect

Approach

- Selection of indicators based on:
  - Official indicators from UN
  - Literature about SDG frameworks
  - Model output within KB35 project
- Structure the indicators by dividing them into **goal indicator** and **process indicator**



SDG2: Zero hunger



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SDG2: Zero hunger

Stability

Indicator:
- Interannual variability in production
- Dependence on imports

Food availability (agricultural production etc.)

Indicators:
- Crop production (kg per capita)[L]
- Cereal yield (ton/ha)[L]
- Calories per capita per day from primary agriculture excluding fish[B,M]
- Trade[M]
- Food waste index[B]

Food access

Indicator:
- Price of food

Food utilization

Healthy diet

Indicators:
- Protein availability (gram per capita per day)[B,M]
- Energy availability (Calories per capita per day)[B,M]
- Share of calories from fruit and vetegables[B,M]
- Share of calories from cereals[B,M]

Goal

End hunger and improve nutrition

Indicators:
- **Prevalence of Undernourishment** [B; M; S]
- **Number of people with Obesity**[B]
- Dietary Nutrient Gap [B]

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B: Biospacs; L: LPJmL; M: Magnet

Interactive part

- Do you have an indicator related to SDG2?

  → Form groups of two and use a printed scheme.

- Do you have another SDG related indicator?

  → Find someone (max 4 people) with the same SDG and create a causal diagram with the indicators.

Thank you!

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Discussion questions

- Is this approach clear?
- What can be added to this?
- Do you have any other models in mind that can be added to this framework?

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