

Presentation of Task 3.1: Linking sustainability with economic models

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26 November 2021

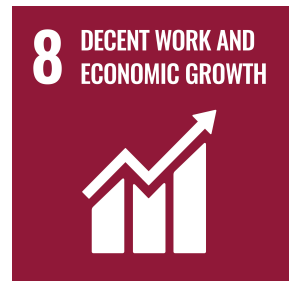
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What is Task 3.1 about?

- Part of WP3: Modeling and quantification
- Linking SDG indicators with models in the Trade4SD toolbox
 - Coverage of SDG indicators in model-based analysis
 - Overview of modelling of SDGs related policy instruments
 - Overview of indicators to measure different SDG

GOAL: Task 3.1

- *Identify quantifiable SDG-indicators and policy instruments*
- *Improve models in representation*
- *Enhance model-based assessment of resilience*



Models in Trade4SD

AGMEMOD

- PE model focusing on agricultural sectors in EU Member States
- Regular application EU Outlook projections
- Various scenario analysis with a focus on EU agricultural policies



AGLINK-COSIMO

- Global PE model connecting main agricultural commodity markets
- Provides a plausible baseline scenario
- Variable structure adapts to project requirements

Models in Trade4SD

CGEBox

- Global multi-region, multi-sector CGE model
- Based on the GTAP database
- Flexible combination of available modules covering agri-related issues



MAGNET



- Global trade model based on the GTAP data base
- Detailed agri-food policy instruments, bio-economy, multi-household module, sustainability indicators, climate policies

Models in Trade4SD

- Combining SDG indicators with modelling work
 - All partners of WP3 involved
 - CASE (CGEBox)
 - FAO (AGLINK – COSIMO)
 - Corvinus University (MAGNET+)
 - Thünen Institute (MAGNET+)
- Selection of relevant SDGs for Trade4SD



SGDs covered in the Trade4SD model family

- First stage: focus on policy instruments related to specific and ad-valorem tariffs, TRQ and subsidies



Export subsidies, import tariffs
on agricultural food products,
food demand



Proportion of tariff lines



Annual GDP growth rate,
material footprint per GDP



Area used under different
crops



Average tariffs, global exports

Models in Trade4SD

Aglink-Cosimo

- 1. No Poverty
 - 1.5.2 Direct economic loss from natural disasters (in agriculture)
- 2. Zero Hunger
 - 2.2.2 Hunger
 - 2.c.1 Food price volatility
- 6. Clean Water and Sanitation
 - 6.4.1 Water use Efficiency (in agriculture together with aquacrop)
- 7. Affordable and clean Energy
 - 7.2.1 Share of renewable energy (biofuels)

Aglink-Cosimo

- 9. Industry Innovation and Infrastructure
 - 9.4.1 CO2 Emissions by added value unit in Agriculture
- 12. Responsible Production and Consumption
 - 12.3.1 Food waste and losses index
 - 12.c.1. Subsidies to biofuels (not fossil fuels)
- 13. Climate Action
 - 13.2.2 GHG emissions (Agriculture)
- 14. Life Below the Water
 - 14.4.1 Fish stocks sustainability
 - 14.7.1 Value added of sustainable fisheries

Achievability of environmental SDGs to be analyzed within the Shared Socioeconomic Pathways (SSPs)



Greenhouse gas emissions



Water pollution by agriculture

SDGs covered in the Trade4SD model family

- The SDG module contribute to 60 indicators of 12 SDGs



Per capita income distributed by income class



GDP per capita, per employed person; footprint per capita, per GDP



Emissions per unit of GDP, per calorie, share of renewables in total energy production



Food access and availability, productive area, import tariffs and export subsidies indicators



Combustion and non-combustion emissions



Fisheries value share of total GDP



Agricultural water use



Income per capita, tariff lines



Share of non-agricultural land, area used under different crops



Share of renewable, primary and final energy in total energy. Share of household spending on energy



Food waste index, fossil-fuel subsidies



Share of global exports per country, worldwide weighted tariff-average, government revenue by source

Social Aspect: Poverty

Poverty and Income inequality: Important socioeconomic indicators related to SDGs

- SDG 1 is labelled as **End poverty in all its forms everywhere**
- SDG 10 is labelled as **'Reduce inequality within and among countries'**.

Both: poverty and inequality have various aspects or 'dimensions'.

- Some of these dimensions will be covered in MAGNET
 - But huge data requirements to compute indicators
 - defining appropriate socio-economic groups

Poverty: Lack of sufficient income or wealth

Deprivation of enough food, household energy, piped water, etc.

Social exclusion: inadequate access to jobs, information, education, health care



Social Aspect: Inequality

Inequality: Some dimensions of inequality will be reflected the MAGNET model

- Inequality among countries: Since MAGNET is a world model, it can measure the changes in the per capita income by regions (countries) ideally at purchasing power parity (PPP).
- Inequality within countries: So far the following aspects of 'internal' inequality were identified which can be represented in the MAGNET model:
 - Inequality between socio-economic groups (income decile ratio or Gini-indicators)
 - Wage inequality between the unskilled and skilled labor
 - Inequality between the agricultural population and the non-agricultural population



We are looking forward to your feedback and
thanks for your attention!

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1 NO POVERTY



Selected Indicators

- Share of population living below the international poverty line
- Share of population living below the national poverty line
- Share of men, women and children living in poverty according to national definitions
- Share of population groups covered by social protection
- Share of population living in households with access to basic services
- Share of population with secure tenure rights to land
- Number of deaths per 100,000 population
- Economic loss attributed to disasters in relation to global GDP
- Countries adopting disaster risk reduction strategies
- Share of local governments adopting local disaster risk reduction strategies
- Development assistance grants with focus on poverty reduction (% of the recipient GDP)
- Share of government spending on education, health and social protection
- Pro-poor public social spending

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2 ZERO HUNGER



Selected Indicators

- Prevalence of undernourishment
- Prevalence of moderate/severe food insecurity
- Prevalence of stunting among children < 5 yrs
- Prevalence of malnutrition among children < 5 yrs
- Share of anaemia in women (15-49 yrs)
- Volume of production per worker by classes of farming/pastoral/forestry enterprise size
- Avg. income of small-scale food producers
- Share of agric. area under productive and sustainable agriculture
- Number of plant and animal genetic resources secured in conservation facilities
- Share of local breeds classified as being at risk of extinction
- Agriculture orientation index for government expenditures
- Total official assistance to the agriculture sector
- Agricultural export subsidies
- Indicator of food price anomalies

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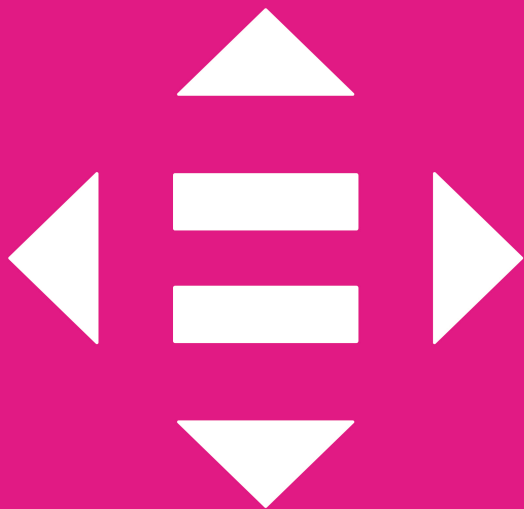
8 DECENT WORK AND ECONOMIC GROWTH



Selected Indicators

- Annual growth rate of real GDP per capita
- Annual growth rate of real GDP per worker
- Share of informal sectoral employment in total employment
- Material footprint, per capita and per GDP
- Domestic material consumption, per capita and per GDP
- Avg. hourly earnings of workers
- Unemployment rates
- Share of youth (15–24 yrs) not in education, employment or training
- Share and number of children (5–17) in child labour
- Occupational injuries per 100,000 workers
- Level of national compliance with labour rights
- Share of tourism in total GDP
- Number of bank branches and ATMs per 100,000 adults
- Share of adults (>15 yrs) with a bank-account
- Aid for Trade commitments
- Existence of a national strategy for youth employment

10 REDUCED INEQUALITIES



Selected Indicators

- Growth rates of income per capita among the bottom 40% of the population and the total population
- Share of people living below 50% of median income, by sex, age and persons with disabilities
- Share of population reporting having personally felt discriminated / harassed
- Labour share of GDP
- Redistributive impact of fiscal policy
- Financial Soundness Indicators
- Share of members and voting rights of developing countries in international organizations
- Recruitment cost borne per worker as share income earned in destination country
- Number of countries with migration policies
- Number of people who died or disappeared in the process of migration towards an international destination
- Share of the population who are refugees, by country of origin
- Share of tariff lines applied to imports from least developed countries and developing countries with zero-tariff
- Resource flows for development, by recipient and donor countries and type of flow
- Remittance costs as a proportion of the amount remitted

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Selected Indicator

- Number of countries with policy instruments aimed at supporting the shift to sustainable consumption and production
- Material footprint, material footprint per capita, and material footprint per GDP
- Domestic consumption, domestic consumption per capita, and domestic consumption per GDP
- Food loss index and food waste index
- Number of parties to international multilateral environmental agreements on hazardous waste
- Hazardous waste generated per capita
- National recycling rate, tons of material recycled
- Number of companies publishing sustainability reports
- Degree of sustainable public procurement policies and action plan implementation
- Extent to which (i) global citizenship education and (ii) education for sustainable development
- Installed renewable energy capacity in developing countries
- Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism sustainability
- Share of amount of fossil-fuel subsidies in GDP