Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

MEASURING AND MONITORING SUSTAINABLE AGRICULTURE

Panel 1: Data sources management
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CHALLENGES IN DEFINING AND MEASURING SUSTAINABLE AGRICULTURE

- One can not measure what one can not define
- The concept of sustainable agriculture itself has been defined in variable ways, adapting the broader definition of sustainable development: need to **"meet the *food and nutrition* needs of present and future generations"** while ensuring **"environmental health, social equity and economic viability"**.
- In absence of globally recognized and endorsed definition, FAO formulated its own definition approved by FAO 25th council in 1988 (Page 6, Para 6: FAO C89/2-Sup.2: August 1989).
  - ***"Such development (in agriculture, forestry and fishing etc.) conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable"***.

CHALLENGES IN DEFINING AND MEASURING SUSTAINABLE AGRICULTURE

- Prior to 2015, there was **no internationally agreed standard** way of measuring sustainable agriculture.
- Measuring sustainable agriculture has been challenging as:
  - It is a multidimensional concept that considers the interlinkages between economic, social, environmental dimensions amongst others;
  - It is context specific, varying overs space and time;
  - It requires a variety of data and statistics that usually goes beyond agriculture surveys;
  - Require a coordination mechanism at a national level as data is collected by different institutions

CHALLENGES IN DEFINING AND MEASURING SUSTAINABLE AGRICULTURE

- There have been numerous attempts to assess agricultural sustainability with a view to constructing a complete set of indicators: SAFA (FAO, 2013), IDEA (Zahm et al, 2008), RISE (Hani et al, 2003).
- Turning point came in 2015, the **2030 Agenda for Sustainable Development** included a new Sustainable Development Goal (SDG) 2, which explicitly aims to eradicate hunger and malnutrition, and ensure sustainable agriculture.
- ECOSOC asked the UN Statistical Commission to developed an indicator framework for all SDG targets.
- FAO was designated as custodian agency for this target and asked to develop a measurement framework for target 2.4

THE SDG AGENDA AND MEASURING SUSTAINABLE AGRICULTURE

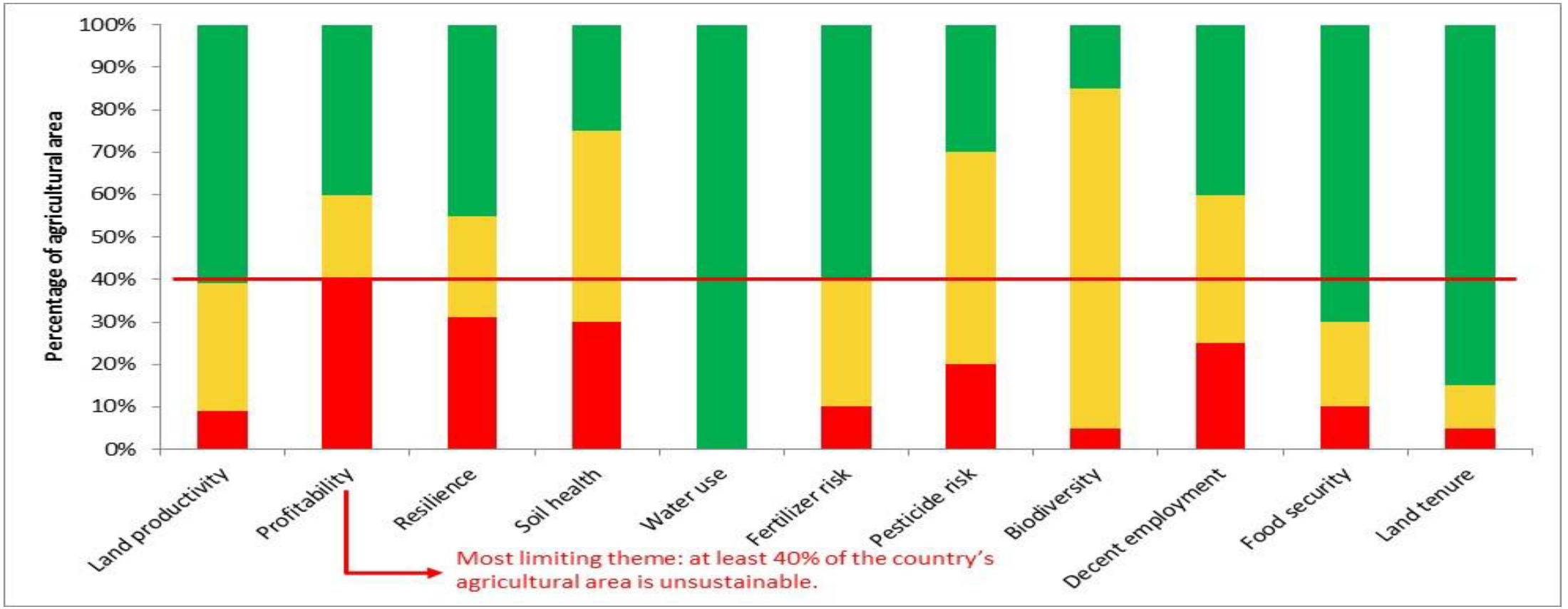
- The key challenge for FAO in 2015 was to develop this framework in a way that:
  A) it would be applicable to and comparable among all countries and;
  B) it would capture the complexity of the concept, primarily in its three dimensions – economic, social and environmental.
- During the period 2016-2018, FAO organized a process that resulted in the indicator **2.4.1*. "Proportion of agricultural land under productive and sustainable agriculture"***.
- The indicator was finally approved by the IAEG-SDG in November 2018 and the UN Statistical Commision in 2019.

SDG INDICATOR 2.4.1 FRAMEWORK

Dimension	Sub-indicator
Economic	1. Farm output value per hectare (Theme: Productivity)
	2. Net farm income (Theme: Profitability)
	3. Risk mitigation mechanisms (Theme: Resilience)
Environmental	4. Prevalence of soil degradation (Theme: Soil Health)
	5. Variation in water availability (Theme: Water Use)
	6. Management of fertilizers (Theme: Fertilizer pollution risk)
	7. Management of pesticides (Theme: Pesticide risk to health and env)
	8. Use of agro-biodiversity supportive practices (Theme: Biodiversity)
Social	9. Wage rate in agriculture (Theme: Decent Employment)
	10. Food Insecurity Experience Scale (FIES) (Theme: Food security)
	11. Secure tenure rights to land (Theme: Land Tenure)

SDG INDICATOR 2.4.1 FRAMEWORK

Example of results for country X in year Y



Note: This dashboard is only a simulation and is not from real data

KEY CHALLENGES IN IMPLEMENTING SDG INDICATOR 2.4.1

Currently the data on the indicator are extremely limited (despite comprehensive capacity development efforts) including due to:

- The inherent complexity of the indicator (comprising 11 sub-indicators);
- Low frequency of agricultural surveys in countries (which took an additional hit with COVID-19);
- Low technical and financial means in countries to run agricultural surveys are to include the 2.4.1 variables in this surveys.
- Developed countries prioritizing indicators that speak about their national priorities based on national or regional legislation and, therefore, not promoting the collection of data for global monitoring.

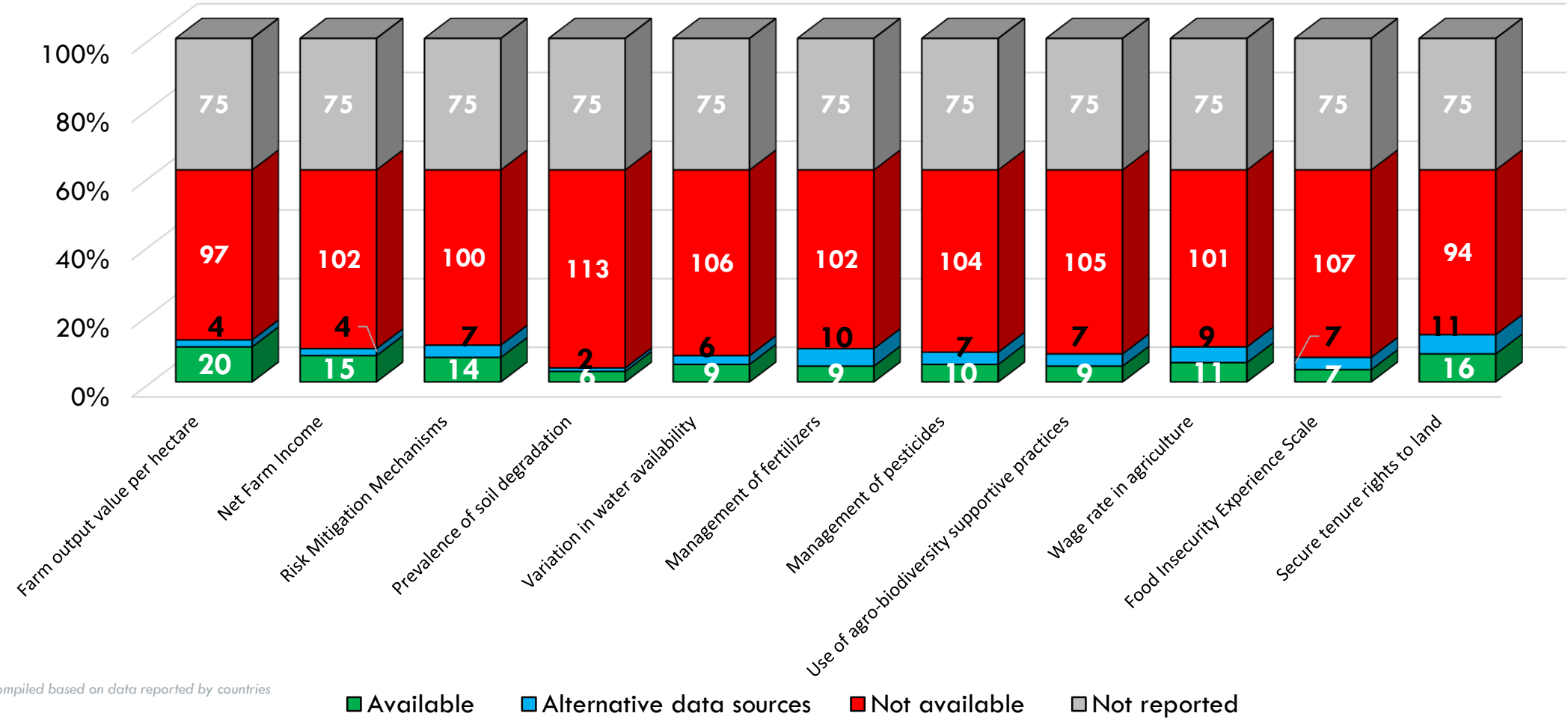
REPORTED DATA ON SDG 241

42 COUNTRIES WORLDWIDE, OF WHICH 13 EU COUNTRIES, HAVE REPORTED ON AT LEAST ONE OF 11 SUB-INDICATORS

SDG 2.4.1 — DATA AVAILABILITY STATUS

Data Availability by Sub-Indicator (196 Countries) - as of 31 Dec. 2022 –

Figures shown within bars represent number of countries



Reference: Compiled based on data reported by countries

LARGE DATA GAPS EXIST IN AGRICULTURAL DATA

- The timeliness, completeness and quality of official statistics on agriculture, fisheries and other sectors of relevance to food security and nutrition, is still largely insufficient in many low- and middle-income countries (LMICs).
  - 92 countries have not conducted an agricultural census in the last ten years
  - Globally, annual agricultural survey data are available approximately for 60 percent of the countries
  - Availability of data to compute indicators of productivity and income of small scale-holders, of food losses, and secure rights to over ag land is currently sufficient for 4% of the countries
  - 30% of countries do not report data of agricultural production (In Africa is 50%) to FAO, 35 % on trade.
- Lack of data hinders expert ability to assess, understand and track progress on sustainability.

ALTERNATIVE/COMPLEMENTARY APPROACHES TO REPORT ON SUSTAINABLE AGRICULTURE: THE EU INDICATORS

- The “EU Voluntary Review of SDGs” (European Union, 2023) and the “Monitoring report on progress towards the SDGs in an EU context” (EUROSTAT, 2023) present the indicators that are used by the EU to report on sustainable agriculture:
  - Sustainable Agricultural Production
    - Agricultural factor income per annual work unit (Productivity indicator).
    - Government support to agricultural R&D (Innovation, adaptability)
    - Area under organic farming (sustainable management of inputs such as fertilizers and pesticides)
  - Environmental impact of Agricultural Production
    - Ammonia emissions from agriculture (pollution of air and water)
    - Nitrate in groundwater (pollution of water)
    - Estimated severe soil erosion by water (Soil health)
    - Common Farmland bird index (Biodiversity)

THE EU INDICATORS VS THE GLOBAL SDG 2.4.1 INDICATORS

Dimension	SDG 2.4.1 Sub-indicator	EU SDG indicators for sustainable agriculture
Economic	Farm output value per hectare	Agricultural factor income per annual work unit
	Net farm income	
	Risk mitigation mechanisms	
		Government support to agricultural R&D
Environmental	Prevalence of soil degradation	Estimated severe soil erosion by water
	Variation in water availability	Nitrate in groundwater
	Management of fertilizers	Ammonia emissions from agriculture
	Management of pesticides	Area under organic farming
	Use of agro-biodiversity supportive practices	Common Farmland bird index
Social	Wage rate in agriculture	
	Food Insecurity Experience Scale (FIES)	
	Secure tenure rights to land	

ALTERNATIVE/COMPLEMENTARY APPROACHES TO REPORT ON SUSTAINABLE AGRICULTURE: FAO'S PROXY FOR SDG 2.4.1 INDICATOR

- The proxy proposal consists of a set of widely available national statistics available for all countries and over a large timeseries, available directly from FAOSTAT or the global SDG indicator database.
- The exact list of constituent proxy measures is still being discussed with countries

Dimensions	Example of provisional proxy measures
Economic	Gross production value per hectare
	Gross output diversification
Environment	Nitrogen Use Efficiency (NUE)
	Agriculture component of water stress (disaggregation of SDG indicator 6.4.2)
	Pesticide use per hectare OR organic agriculture
	Greenhouse gas (GHG) emissions intensity from agriculture
Social	Agricultural value added per worker
	Informal employment in agriculture (disaggregation of SDG indicator 8.3.1)

CONCLUSIONS

- Measuring sustainable agriculture is challenging
- It is characterized by lack of data and the need of investments in data collection
- There are global efforts as well as regional and national efforts. Both of them have their value
- In an ideal scenario, countries need to generate data to feed their national frameworks (consistent with national laws and policies), but also contribute to the effort of global monitoring as they can:
  - Use it as a mean of benchmarking their progress
  - Learn from others experiences or good practices

Thank you

Visit:
https://www.fao.org/sustainable-development-goals-data-portal/data/indicators/Indicator2.4.1-proportion-of-agricultural-area-under-productive-and-sustainable-agriculture/en

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