Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

UNSD EGES data collection for Climate Change

FAO ESS – 27 October 2022

SDG Indicator 2.4.1

Fundamental building blocks of the indicator – TIER II

Indicator 2.4.1 - Proportion of agricultural area under productive and sustainable agriculture

- Scale of assessment: **Agriculture/farm holding level**
- Scope: **Crops and livestock**
- Dimensions covered: **Economic, social and environmental**
- Themes covered: **11 themes**
- Sub-indicators: **11 sub-indicator (3 economic, 3 social and 5 environment)**
- Sustainability criteria: **Classification of the farms as green, yellow and red**
- Data collection instrument: **Farm survey**
- Periodicity of monitoring : **3 years**
- Modality of reporting : **Dashboard and aggregate indicator**

Target 2.4: By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

Data collection instruments

Farm surveys:

1. Standalone farm survey questionnaire module
2. AGRISurvey programme and 50x2030 initiative

Alternative data sources:

1. EO (GIS / Remote sensing)
2. Administrative records
3. Household surveys
4. Monitoring systems
5. Census

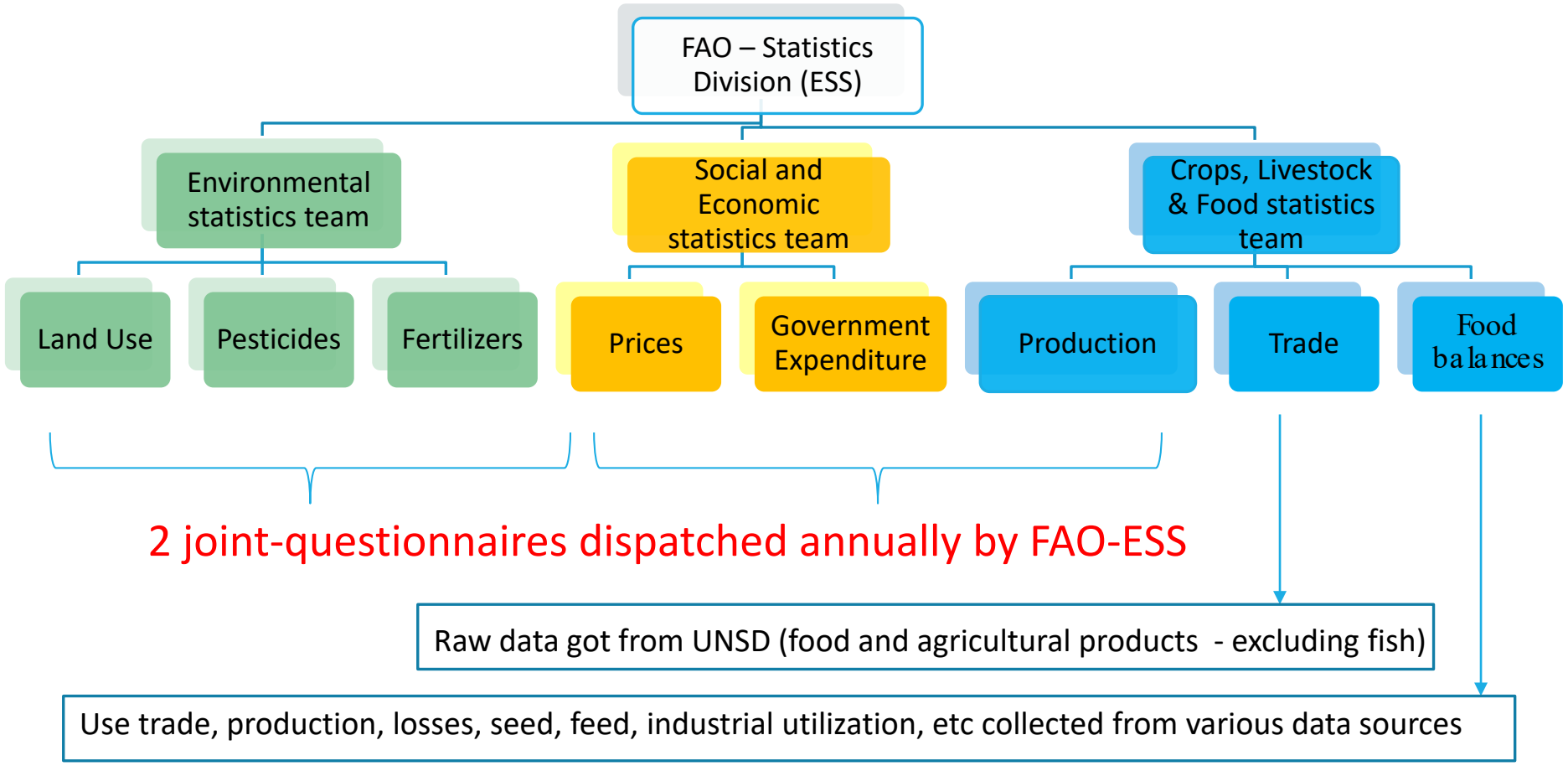
SDG 2.4.1 Indicator's framework

Dimension	Theme	Sub-indicator	Farm type	Reference period
Economic	1. Land productivity	Farm output value per hectare	All types	Last calendar yr.
	2. Profitability	Net farm income	All types	Last 3 calendar yrs.
	3. Resilience	Risk mitigation mechanisms	All types	Last calendar yr.
Environmental	4. Soil health	Prevalence of soil degradation	All types	Last 3 calendar yrs.
	5. Water use	Variation in water availability	All types	Last 3 calendar yrs.
	6. Fertilizer risk	Management of fertilizers	All types	Last calendar yr.
	7. Pesticide risk	Management of pesticides	All types	Last calendar yr.
	8. Biodiversity	Use of agro-biodiversity supportive practices	All types	Last calendar yr.
Social	9. Decent employment	Wage rate in agriculture	Farms hiring unskilled labour	Last calendar yr.
	10. Food security	Food Insecurity Experience Scale (FIES)	Household farms	Last 12 months
	11. Land tenure	Secure tenure rights to land	All types	Last calendar yr.

SDG 2.4.1 Indicator's linkages with climate change

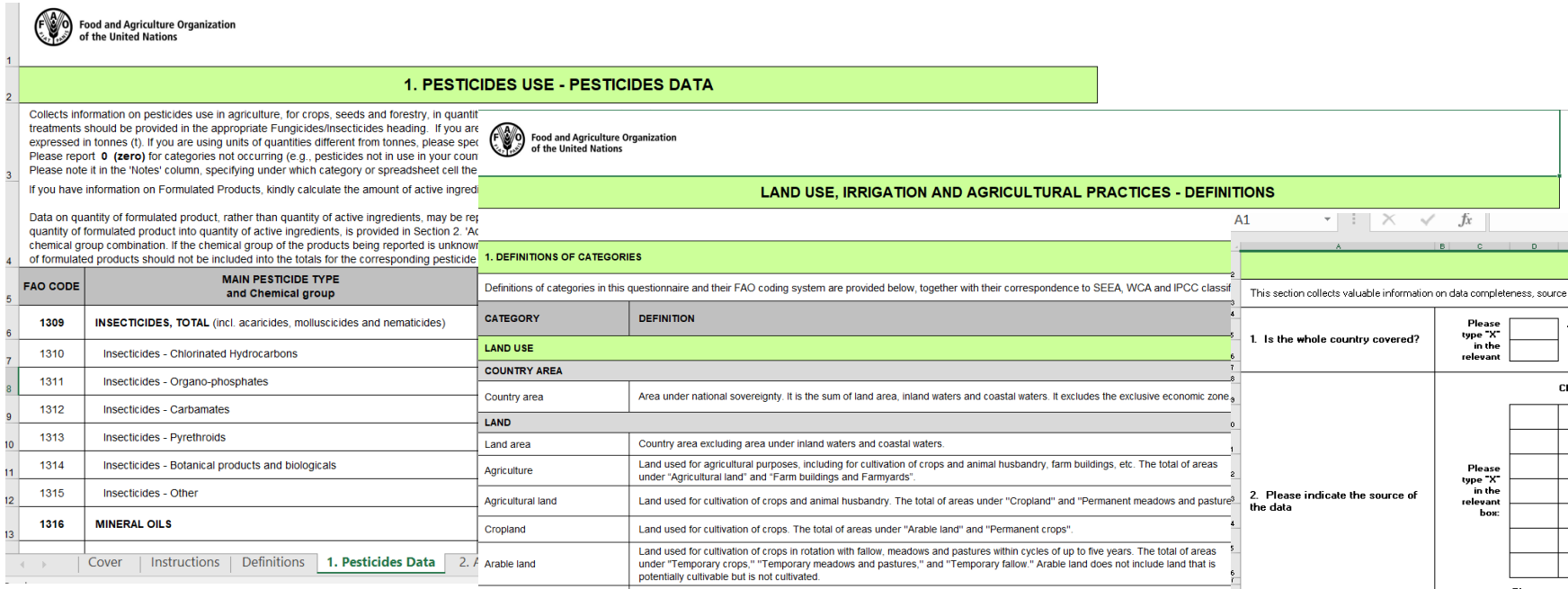
Dimension	Sub-indicator	What does it measure?	Linkages with climate change impacts
Economic	Farm output value per hectare	The farm output value per hectare (crop and livestock). Maintaining or improving the output over time relative to the area of land used is an important aspect in sustainability.	Productivity of crops and livestock
	Net farm income	If the farm is consistently profitable over a 3-year period. The focus of this sub-indicator is on income from farming operations as distinct from the total income of the farming household.	The most exposed (low income)
	Risk mitigation mechanisms	The incidence of the following mitigation mechanisms: access to or availed credit, access to or availed insurance, and on farm diversification. Access to these 3 factors will allow the farm to prevent, resist, adapt and recover from external shocks.	Drought, floods and other extreme weather events
Environmental	Prevalence of soil degradation	The extent to which agriculture activities affects soil health and therefore represents a sustainability issue. The farm survey focuses on the four threats that combine the characteristics more widespread: soil erosion, reduction in soil fertility, salinization of irrigated land, and waterlogging.	Health of planet and of people
	Variation in water availability	The extent to which agriculture contributes to unsustainable patterns of water use. It captures farmers' awareness and behavior in relation with water scarcity.	
	Management of fertilizers	The farmers' use of fertilizer, their awareness about the environmental risks associated with fertilizer and manure applications, and their behavior in terms of plant nutrient management.	
	Management of pesticides	The use of pesticides on the farms, the type of pesticide used and the type of measure(s) taken to mitigate the associated risks.	
	Use of agro-biodiversity supportive practices	The level of adoption of more sustainable agricultural practices that better contribute to biodiversity by the farm at ecosystem, species and genetic levels. This indicator addresses both crops and livestock.	
Social	Food Insecurity Experience Scale (FIES)	The severity of food insecurity experienced by individuals or households, based on direct interviews. The FIES is composed of three domains: uncertainty/anxiety, changes in food quality, and changes in food quantity	Undernutrition

FAOSTAT THEMATIC COVERAGE BY TEAMS



where did you identify the climate change impacts for which you have made the linkages in the presentation

QUESTIONNAIRES



Food and Agriculture Organization of the United Nations

1. PESTICIDES USE - PESTICIDES DATA

Collects information on pesticides use in agriculture, for crops, seeds and forestry, in quantit
treatments should be provided in the appropriate Fungicides/Insecticides heading. If you are
expressed in tonnes (t). If you are using units of quantities different from tonnes, please spec
Please report **0 (zero)** for categories not occurring (e.g., pesticides not in use in your coun
Please note it in the 'Notes' column, specifying under which category or spreadsheet cell the

If you have information on Formulated Products, kindly calculate the amount of active ingredi

Data on quantity of formulated product, rather than quantity of active ingredients, may be re
quantity of formulated product into quantity of active ingredients, is provided in Section 2. 'Ac
chemical group combination. If the chemical group of the products being reported is unknown
of formulated products should not be included into the totals for the corresponding pesticide

FAO CODE	MAIN PESTICIDE TYPE and Chemical group
1309	**INSECTICIDES, TOTAL** (incl. acaricides, molluscicides and nematicides)
1310	Insecticides - Chlorinated Hydrocarbons
1311	Insecticides - Organo-phosphates
1312	Insecticides - Carbamates
1313	Insecticides - Pyrethroids
1314	Insecticides - Botanical products and biologicals
1315	Insecticides - Other
1316	**MINERAL OILS**

Cover | Instructions | Definitions | 1. Pesticides Data | 2. A

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LAND USE, IRRIGATION AND AGRICULTURAL PRACTICES - DEFINITIONS

1. DEFINITIONS OF CATEGORIES

Definitions of categories in this questionnaire and their FAO coding system are provided below, together with their correspondence to SEEA, WCA and IPCC classif

CATEGORY	DEFINITION
LAND USE	
COUNTRY AREA	
Country area	Area under national sovereignty. It is the sum of land area, inland waters and coastal waters. It excludes the exclusive economic zone
LAND	
Land area	Country area excluding area under inland waters and coastal waters.
Agriculture	Land used for agricultural purposes, including for cultivation of crops and animal husbandry, farm buildings, etc. The total of areas under "Agricultural land" and "Farm buildings and Farmyards".
Agricultural land	Land used for cultivation of crops and animal husbandry. The total of areas under "Cropland" and "Permanent meadows and pasture
Cropland	Land used for cultivation of crops. The total of areas under "Arable land" and "Permanent crops".
Arable land	Land used for cultivation of crops in rotation with fallow, meadows and pastures within cycles of up to five years. The total of areas under "Temporary crops," "Temporary meadows and pastures," and "Temporary fallow." Arable land does not include land that is potentially cultivable but is not cultivated.
Temporary crops	Land used for crops with a less-than-one-year growing cycle, which must be newly sown or planted for further production after the harvest. Some crops that remain in the field for more than one year may also be considered as temporary crops e.g., asparagus, strawberries, pineapples, bananas and sugar cane. Multiple-cropped areas are counted only once.
Temporary meadows and pastures	Land temporarily cultivated with herbaceous forage crops for mowing or pasture, as part of crop rotation periods of less than five yea

Cover | Instructions | Definitions | 1. Land Use | 2. Irrigation&Ag. Practices | 3. Aquaculture and Fisheries | 4. Meta

A1

3. FERTILIZERS - METADATA

This section collects valuable information on data completeness, source of data, frequency of data collection and dissemination media.

1. Is the whole country covered?	**Please type "X" in the relevant**	**Yes** / **No**	**If answered "No", please specify:**
2. Please indicate the source of the data	**Please type "X" in the relevant box:**	**Chemical fertilizers Production** / **Chemical fertilizers Agricultural use** / **Organic fertilizers**	Administrative records; Agricultural census; Sample surveys; Estimation through balance; Expert judgement; Other estimation method (please specify); Other (please specify) — Apparent consumption (e.g. production + imports - exports) (Agricultural use)
	Please specify:		
3. Please indicate the frequency of data collection/compilation	**Please type "X" in the relevant**	**Annual** / **Other**	**If answered "Other", please specify:**
4. Please indicate how and when the data are disseminated	**Please type "X" in the relevant box:**	**Production**: Bulletin; Publication; CD-Rom; On line database; Other media	**Please specify title and date of the selected media:** / **Please specify the time lag between data collection and dissemination (e.g. 4 months,** 1

... | Instructions | Definitions | 1. Chemical fertilizers | 2. Organic fertilizers | 3. Metadata | 4. Feedback

GENERAL QUESTIONNAIRES

Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

Questionnaire	Purpose	Climate Change Linkage	Dissemination Platform	Transmission Date	Submission Date	Data Frequency
Land Use, Irrigation and Agricultural Practices	National data on land use (primarily focusing on agriculture, forestry, aquaculture and fisheries), irrigation and agricultural practices.	Land, GHG emissions, Agriculture	FAOSTAT	October	November	Annual
Government Expenditure on Agricultural and Related Categories	Data on the level of expenditures that governments incur on activities related to agriculture, forestry and fishing and environmental protection.	Governance, Expenditures	FAOSTAT	May	June	Annual
Impact of Disasters on Agriculture (Crops, Livestock, Forestry, Aquaculture and Fisheries)	Data on disaster damage and loss data for agriculture, fisheries and forestry	Disasters	FAO publication The impact of disasters on agriculture and food security	February	April	Biennial

Questionnaire	Purpose	Climate Change Linkage	Dissemination Platform	Transmission Date	Submission Date	Data Frequency
Crop and Livestock Production and Utilization	Statistical information related to crop and livestock production and utilization.	Agriculture, Biodiversity, Food	FAOSTAT	May	June	Annual
Food Losses from Production to the Retail Stages	Data on food losses, collected or estimated within countries, in order to increase the information base on SDG 12.3 and on food losses along the supply chain.	Food, Losses	FAOSTAT	May	June	Annual
Fertilizers	Data on production, agricultural use and other uses of fertilizers (both chemical and organic)	Agriculture, GHG emissions, Soil	FAOSTAT	October	November	Annual
Pesticides Use	Data on pesticides use in the agricultural sector for crops, seeds and forestry	Food, Agriculture, Soil	FAOSTAT	October	November	Annual
Prices Received by Farmers: Primary Crop and Livestock Products	National data on agricultural producer prices for primary crops and livestock	Prices	FAOSTAT	May	June	Annual
Global Data on Livestock Breeds	DAD-IS is the Domestic Animal Diversity Information System hosted by FAO. It is a communication and information tool	Biodiversity	Report on Status and trends of animal genetic resources.	January	December	Annual
Plant Genetic Resources for Food and Agriculture – SDG 2.5.1a and Second GPA	Data from countries and regional/international centres on the implementation of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture and SDG 2.5.1a.	Biodiversity	FAO WIEWS and FAO SDG data portal.	May	December	Every 3/5 years and every year for SDG 2.5.1a

Questionnaire	Purpose	Climate Change Linkage	Dissemination Platform	Transmission Date	Submission Date	Data Frequency
Global Forest Resources Assessment	Data for roughly 60 variables covering all seven thematic elements of Sustainable Forest Management, as well as SDG indicators 15.1.1 and 15.2.1.	Forests, Land, GHG emissions	FRA dedicated website	March	May	Annual
Global and Regional Aquaculture Capture and Production,	Data on capture fisheries production by countries or areas, species items, and FAO Major Fishing Area.	Fisheries, Food	FishStatJ	June	August	Annual
Trade of Fishery and Aquaculture Commodities	Data on imports, exports and re-exports of fishery and aquaculture commodities by countries or areas, commodities and trade flows both in terms of volume and value	Fisheries, Food	FishStatJ	June	August	Annual
Fishers and Fish Farmers (FISHSTAT-FM)	Data on primary employment in fisheries and aquaculture, in particular the number of people employed annually in commercial and subsistence fishing, by sector, working time status, and gender, by countries or areas	Fisheries, Food	FAO Yearbook Fishery and Aquaculture Statistics	June	August	Annual

WORLD PROGRAMME FOR THE CENSUS OF AGRICULTURE 2020

Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

	Theme	Item	Climate Change Linkage
Essential Items	Agricultural practices	Use of agricultural pesticides	Food, Agriculture, Soil
		Use of fertilizers	Agriculture, GHG emissions, Soil
	Environment / Green House Gas Emissions	Type of livestock system	GHG emissions
		Number of animals: age and sex	GHG emissions
		Number of animals according to purpose	GHG emissions
		Use of each type of fertilizer	GHG emissions
		Area fertilized for each type of fertilizer and major crop type	GHG emissions
Additional Items	Agricultural practices	Types of tillage practices	Waste
		Presence of conservation agriculture	Land
		Presence of soil conservation practices	Land, Soil
		Type of animal grazing practices	Agriculture
		Use of genetically modified (GM) seeds	Agriculture
		Use of genetically modified (GM) seeds according to crop type	Agriculture
		Selected machinery and equipment used on the holding by source	Agriculture
		Percentage of each major agricultural product sold	Agriculture
		Use of organic agricultural practices	Agriculture
		Type of seed for each major crop type	Agriculture
		Source of seed inputs for each major crop type	Agriculture
	Environment / Green House Gas Emissions	Rice cultivation: irrigation and water regimes	GHG emissions
		Organic amendments to soils used for rice cultivation	GHG emissions
		Crop residues	GHG emissions
		Permanent crops: age of plantations	GHG emissions