SDG Indicators under FAO Custodianship

SDG 2.3.1 – Labour productivity of small-scale food producers
SDG 2.3.2 – Income of small-scale food producers

GOAL 2: END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

Target 2.3: "By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment"

- Indicator 2.3.1: The volume of production per labour unit by classes of farming/pastoral/forestry enterprise size (Tier II)
- Indicator 2.3.2: The average income of small-scale food producers, by sex and indigenous status (Tier II)

OUTLINE

- FAO methodology to identify "small-scale food producers"
  - ✓Frequently adopted criteria, absolute vs relative
  - ✓The criteria proposed by FAO
  - ✓Data required and main sources
  - ✓Small-scale producers in selected countries
- Global consultation on the International Definition of Small-Scale Food Producer with Member Countries
- The computation of the indicators
  - ✓Computing labour productivity to monitor indicator 2.3.1
  - ✓Computing agricultural income to monitor indicator 2.3.2

ON THE DEFINITION OF SMALL-SCALE FOOD PRODUCERS

Numerous ways to identify small-scale food producers are available in the literature. A broad categorization distinguishes among **definitions based on a single criterion** and those based on the **combination of multiple criteria**.

Criteria frequently found in the literature:

1. Criteria based on the **amount of factors of production** (e. g. land, labour);
2. Criteria based on the **share of family workers** in the holding;
3. Criteria based on concepts referring to the **connection between the holding and the market** (e.g. own-consumption, subsistence, market orientation);
4. Criteria based on the **economic size of the holding** (e.g. revenues).

Land size is the most commonly used criterion, as the vast majority of "small-scale food producers" definition are based on the physical size of the farm and the number of livestock heads.

ABSOLUTE VS RELATIVE APPROACHES TO SET A THRESHOLD FOR "SMALL"

Thresholds to separate large from small holdings can be either **absolute** or **relative**:

Absolute thresholds: Assign, for a given criterion, **the same threshold for all countries,** regardless of agro-ecological and socio-economic conditions.

- **Pros:** Enhance comparability across countries. It could be linked to measures of extreme poverty, thus establishing a close relationship between SDG1 and SDG2.
- **Cons:** Disregards differences among national contexts. Furthermore, over time it will generate an adverse selection bias, which would lead to monitor the productivity/income of the worst performers (the best performers will leave the group of small-scale producers).

Relative thresholds: Assign a threshold that corresponds to **a specific percentile of the distribution** of the selected criterion variable in each country.

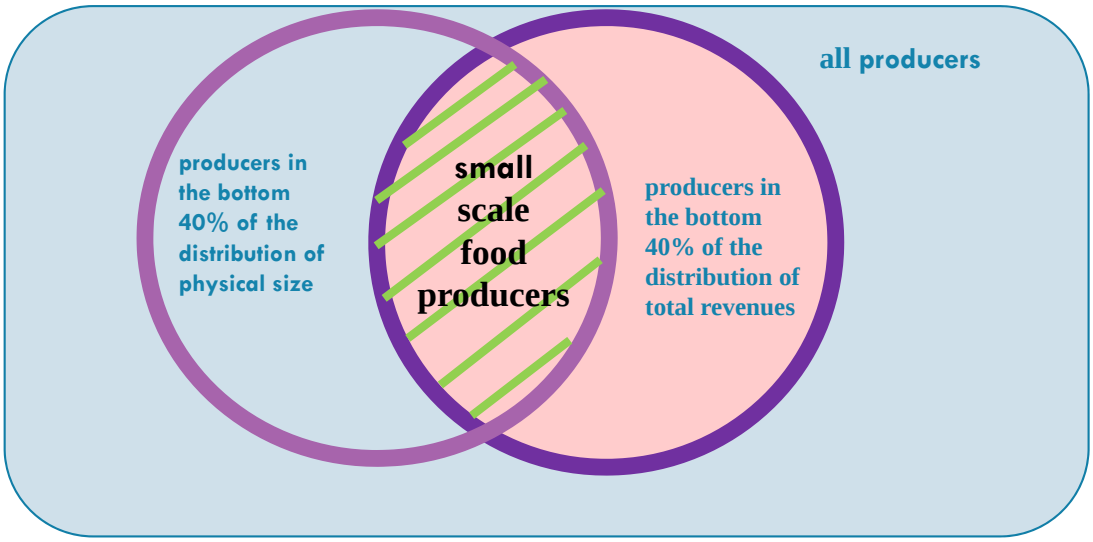
- **Pros:** Identifies in each country producers who are relatively disadvantaged in terms of the selected criteria. Thus, this approach reflects more effectively the country-specific differences among food producers.
- **Cons:** The use of different thresholds reduce the comparability across countries.

FAO PROPOSAL TO DEFINE SMALL-SCALE FOOD PRODUCERS

Using a **relative approach,** the proposed statistical definition by FAO defines small-scale food producers using two criteria:

1. **Physical size of the farm,** as expressed by:
   a. **Land size:** producers falling in the bottom 40 percent of the distribution of land size, in hectares;
   b. **Livestock:** producers falling in the bottom 40 percent of the distribution of total livestock heads
2. **Economic size of the farm,** as expressed by the bottom 40 percent of the distribution of total revenues measured in **PPP,** with a cap at $PPP 34,387

‘SMALL-SCALE FOOD PRODUCERS’ ARE THOSE INCLUDED IN THE INTERSECTION OF THESE THREE CRITERION VARIABLES



DATA REQUIRED AND MAIN DATA SOURCES

Data required to identify small-scale food producers based on the proposed approach:

1. Land
2. Livestock herds
3. Revenues of agricultural production (plus PPPs and national CPIs)

$$R_k^t = \sum_k V_{ik}^t p_{ik}^t$$

V_{ik}^t includes volumes produced of Crop, Livestock, Fisheries and aquaculture and Forestry

p_{ik}^t are farm gate prices

DATA REQUIRED AND MAIN DATA SOURCES

Data on these three variables are found in the following data sources:

- Agricultural Surveys collecting data **at farm level** -- (e.g. the AGRIS project of FAO)
- Household surveys integrated with a module on agricultural activities (e.g. WB LSMS-ISA and similar surveys) -- Rural Livelihoods Information System (RuLIS) project
- Administrative data sources, such as farmers' registries, combined with other data sources.

IMPLEMENTATION OF THE PROPOSED APPROACH: PHYSICAL SIZE OF THE HOLDING

1. The **amount of land** available to an agricultural producer should be considered in terms of **"operated land"**, which is defined as the amount of land effectively used.

Includes	Excludes
Land cultivated with permanent crops (including the land rented in)	Land rented out
Land cultivated with temporary crops (including the land rented in)	Forest land
Fallow land (land left uncropped and not dedicated to grazing)	land abandoned prior to the reference period

2. The **number of livestock** available to a producer must be considered in terms of **Tropical Livestock Units (TLU).** This unit of measurement standardizes different livestock types in a single measure through conversion factors valid for specific livestock varieties in each region of the world.

IMPLEMENTATION OF THE PROPOSED APPROACH: TROPICAL LIVESTOCK UNITS CONVERSION TABLE

Region	Cattle	Buffalo	Sheep	Goats	Pigs	Asses	Horses	Mules	Camels	Chickens
Near East North Africa	**0.7**	**0.7**	**0.1**	**0.1**	**0.2**	**0.5**	**0.4**	**0.6**	**0.75**	**0.01**
North America	1		0.15	0.1	0.25	0.5	0.8	0.6		
Africa South of Sahara	0.5		0.1	0.1	0.2	0.5	0.5	0.6	0.7	0.01
Central America	0.7		0.1	0.1	0.25	0.5	0.5	0.6		0.01
South America	0.7		0.1	0.1	0.25	0.5	0.65	0.6		0.01
South Africa	0.7		0.1	0.1	0.2	0.5	0.65	0.6		0.01
OECD	0.9	0.7	0.1	0.1	0.25	0.5	0.65	0.6	0.9	0.01
East and South East Asia	0.65	0.7	0.1	0.1	0.25	0.5	0.65	0.6	0.8	0.01
South Asia	0.5	0.5	0.1	0.1	0.2	0.5	0.65	0.6		0.01
Transition Markets	0.6	0.7	0.1	0.1	0.25	0.5	0.65	0.6		0.01
Caribbean	0.6	0.6	0.1	0.1	0.2	0.5	0.65	0.6		0.01
Near East	0.55	0.6	0.1	0.1	0.25	0.5	0.65	0.6	0.7	0.01
Other	0.6	0.6	0.1	0.1	0.25	0.5	0.65	0.6		0.01

IMPLEMENTATION OF THE PROPOSED APPROACH: ECONOMIC SIZE OF THE HOLDING

Revenues from agricultural activities include those generated by crop, livestock, fisheries and forestry.

CROP REVENUES (PPP)

- Crop sold
- Crop for own consumption
- Crop used for feed
- Crop stored
- Crop used for byproducts
- Crop given as gift
- Crop saved for seed
- Crop used for paying labour
- Crop used for paying rent and/or inputs
- Crop given out and/or received in sharecropping agreement

LIVESTOCK REVENUES (PPP)

- Livestock sold (alive)
- Livestock gifts given away
- Livestock by-/products sold
- Livestock products self-consumed
- Livestock by-products self-used
- Livestock by-/products pay away
- Livestock by-/products credit away

Similar criteria apply for the computation of revenues from tree crops and fishery products

The consultation on the definition of "small scale food producers"

The definition was first **submitted to the (IAEG-AG)** in **May 2017.**

In **August 2017** the definition was **endorsed by the Chairs of the IAEG-SDG.** FAO called **member countries** for a **global consultation** and received **feedback from 58 national and regional institutions.**

Additional refinements of the definition were implemented, based on feedback from member countries and the testing o the definition on national data:

At the 7th IAEG-SDG, the methodologies for the two indicators **were deemed acceptable**, yet a group of countries requested more time to work on two key points of particular concern to developed countries:

1. how to **exclude non-professional farms** from the targeted population; and
2. how to **adapt the definition in countries with relatively homogeneous farm scale** – where large-size farmers might end-up being considered "small scale'.

FURTHER TESTING THE DEFINITION

FAO worked with a number of national institutions, who did not share micro-data but agreed to test the definition and the computation of indicators 2.3.1 and 2.3.2 based on the FAO syntax

These include:

USDA,

Stats Canada,

Eurostat

other European national agencies

Other countries had already applied the FAO proposed methodology to their data: e.g. Morocco, New Zealand, Switzerland

The consultation on the definition of "small scale food producers"

Following in-depth discussions and additional tests between May and July 2018, it was agreed to **small-scale food producers** would be identified by:

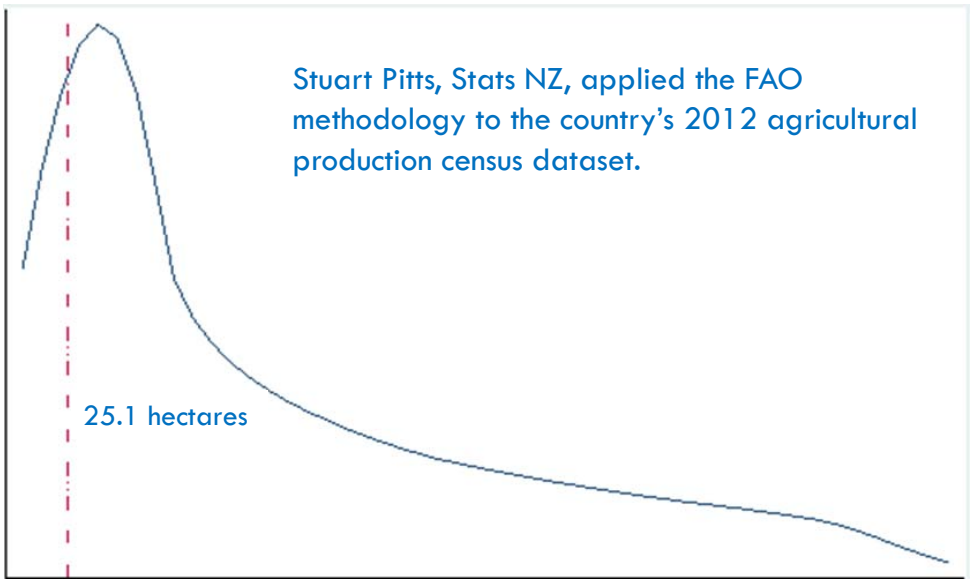
1. Use the FAO combined 40th percentile method;
2. Exclude "hobby" farms based on national diversity using a minimum threshold;
3. Apply a **maximum cap** to exclude farms above 25,000 EUR adjusted using Price level indices ($PPP 34,387).

These adjustments **do not alter the** FAO methodology, insofar as:

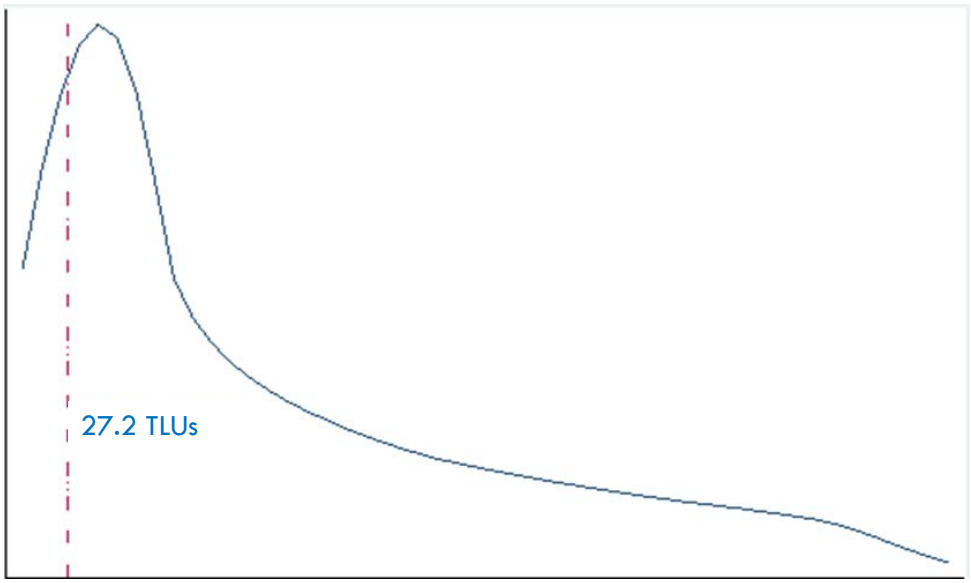
- The maximum threshold of 25,000 EUR expressed in PLI merely **adds a condition that could be applied to all countries**, yet also be especially relevant to certain countries where agricultural revenues are high;
- The exclusion of 'hobby' farms is **already embedded in data sources of several countries** by excluding a large number of very small farms that would be too costly to survey.
  - *The IAEG-SDG approved the methodology on 6 September 2018*

NEW ZEALAND EXAMPLE

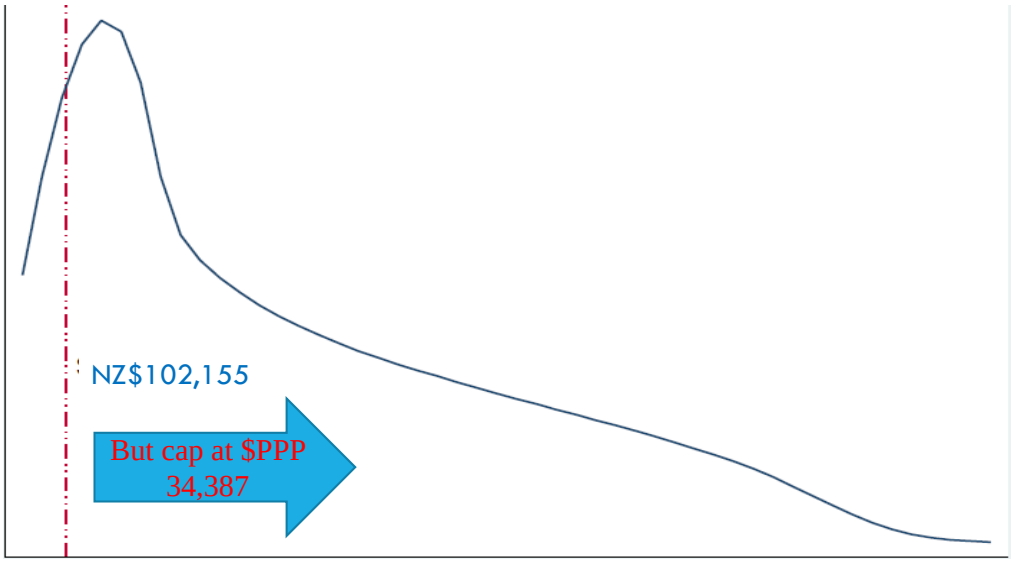
DISTRIBUTION OF LAND HOLDINGS



DISTRIBUTION OF TROPICAL LIVESTOCK UNITS – NEW ZEALAND



DISTRIBUTION OF TOTAL REVENUES – NEW ZEALAND



IDENTIFYING SMALL-SCALE FOOD PRODUCERS – SIMULATED DATA FOR NEW ZEALAND

Household Number	Operated Land Area (ha)	TLUs (number)	Revenues from crops ($ PPP constant prices)	Revenues from Livestock ($ PPP constant prices)	Revenues from fisheries ($ PPP constant prices)	Revenues from forestry ($ PPP constant prices)	Total Revenues ($ PPP constant prices)	small-scale
HH1	27.91	50.4	2912	2261	321	-	50,493	
HH2	11.12	16.6	746	442	-	-	19,188	
HH3	28.89	52.7	3292	2566	-	523	60,380	
HH4	40.07	42.4	3885	2257	-	-	60,141	
HH5	12.2	21.2	2586	3715	-	265	60,565	
HH6	13.73	50	813	1279	-	-	20,091	
HH7	14.2	120	463	4743	-	-	50,205	
HH8	7.51	12.5	195	342	-	-	25,036	
HH9	60.5	26.5	1103	223	-	-	1,325	

NEW ZEALAND RESULTS

11,699 units (out of 45,900 in total, or just over 25%) were in the bottom 40th percentile for **all three** measures, and would therefore be considered small scale food producers.

However, the **maximum cap** for the distribution of total revenues was not applied in this case as the test was done before its introduction

SMALL-SCALE FOOD PRODUCERS IN SELECTED COUNTRIES

THRESHOLDS FOR IDENTIFYING SMALL-SCALE FOOD PRODUCERS IN SELECTED COUNTRIES

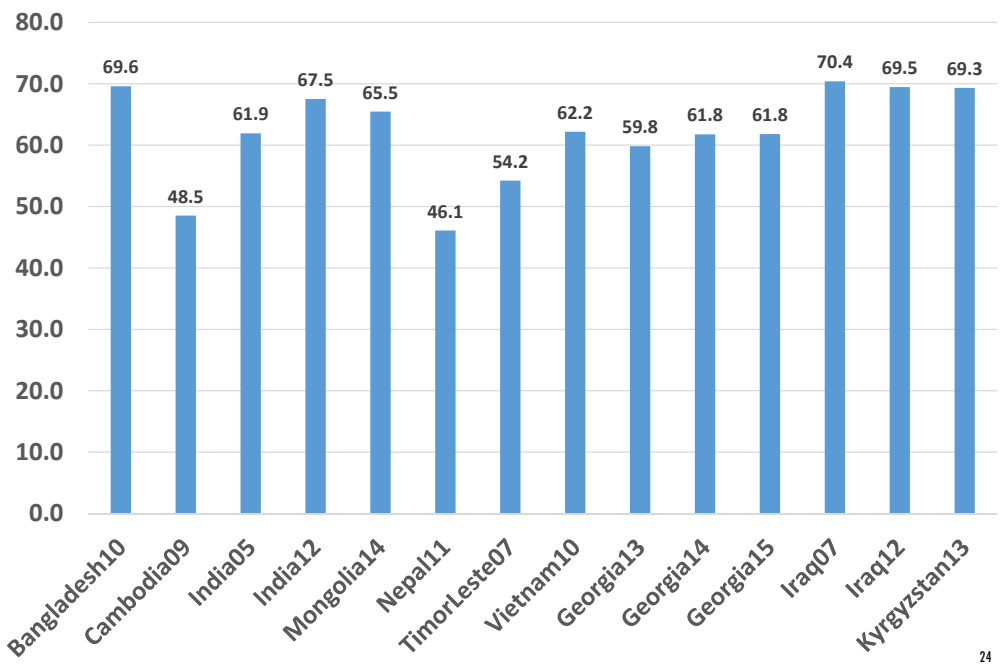
	Land size (ha)	Tropical Livestock Units (number)	Revenues (PPP $)
Armenia 2013	2.00	3.10	7397
Bangladesh 2010	1.03	1.61	2622
Bolivia 2008	3.04	5.93	4815
Burkina Faso 2014	4.00	N.A.	1319
Cambodia 2009	2.10	N.A.	2812
Cote d'Ivoire 2008	11.00	3.72	6120
Ecuador 2006	6.40	9.22	4268
Ecuador 2014	5.00	8.35	4690
Ethiopia 2013	1.40	3.05	1078
Ethiopia 2015	1.63	3.72	1448
Georgia 2013	0.91	N.A.	2225
Georgia 2015	1.00	N.A.	2738
Ghana 2013	3.04	2.88	5826
Guatemala 2014	1.41	0.98	2547
India 2012	1.62	1.05	4411
Iraq 2012	5.00	N.A.	12914
Kenya 2005	1.01	2.81	5398
Kyrgyzstan 2013	2.10	3.60	7205
Malawi 2004	1.02	1.07	1550
Malawi 2011	0.83	1.18	648
Malawi 2013	0.81	1.15	833
Mali 2014	7.29	7.00	3353

Source: RuLIS initiative, provisional data. Own calculation on data from surveys listed in Annex 1

THRESHOLDS FOR IDENTIFYING SMALL-SCALE FOOD PRODUCERS IN SELECTED COUNTRIES

	Land size (ha)	Tropical Livestock Units (number)	Revenues (PPP $)
Mexico 2014	N.A.	N.A.	10006
Mozambique 2009	1.80	1.56	5563
Nepal 2011	2.70	3.10	2474
Niger 2011	6.50	3.38	1848
Niger 2014	6.40	3.30	1700
Nigeria 2016	1.49	3.90	1898
Pakistan1 2014	2.43	N.A.	10911
Peru 2010	3.30	7.55	6796
Peru 2014	2.62	7.25	5227
Peru 2015	2.00	7.12	4602
Rwanda 2013	1.85	1.00	773
Sierra Leone 2011	1.94	2.70	2372
Tanzania 2009	2.20	4.91	1628
Tanzania 2011	2.98	6.10	1546
Tanzania 2013	2.40	7.80	1833
Timor Leste 2007	0.90	3.16	4535
Uganda 2009	3.20	3.20	2880
Uganda 2012	2.83	2.90	1939
Uganda 2013	2.26	2.00	1551

Source: RuLIS initiative, provisional data. Own calculation on data from surveys listed in Annex 1



SDG INDICATOR 2.3.1:

LABOUR PRODUCTIVITY OF SMALL-SCALE FOOD PRODUCERS

SDG INDICATOR 2.3.1 - METHODOLOGY

Indicator 2.3.1 monitors productivity as "*The volume of production per labour unit by classes of farming, pastoral, forestry enterprise size.*"

This results in the following formula:

$$Agricultural\ Labour\ Productivity = \frac{Volume\ of\ Production}{Labour\ input}$$

In order to standardize and aggregate different agricultural activities, **FAO proposes to quantify the volume of production by taking the monetary value of the agricultural output (revenues) expressed in constant PPPs.**

SDG INDICATOR 2.3.1 - METHODOLOGY

Computation of the volume of production: According to the International Standard Industrial Classification (ISIC), revision 4, it comprises

1. **crop activities;**
2. **livestock activities;**
3. **fisheries;**
4. **forestry.**

Revenues can be computed using the same formula adopted to identify the economic size of agricultural holdings.

$$R_k^t = \sum_k V_{ik}^t p_{ik}^t$$

Important: Monetary variables need to be deflated and standardized using PPP conversion factors

SDG INDICATOR 2.3.1 - METHODOLOGY

Computation of the labour input: different approaches are available to measure this denominator:

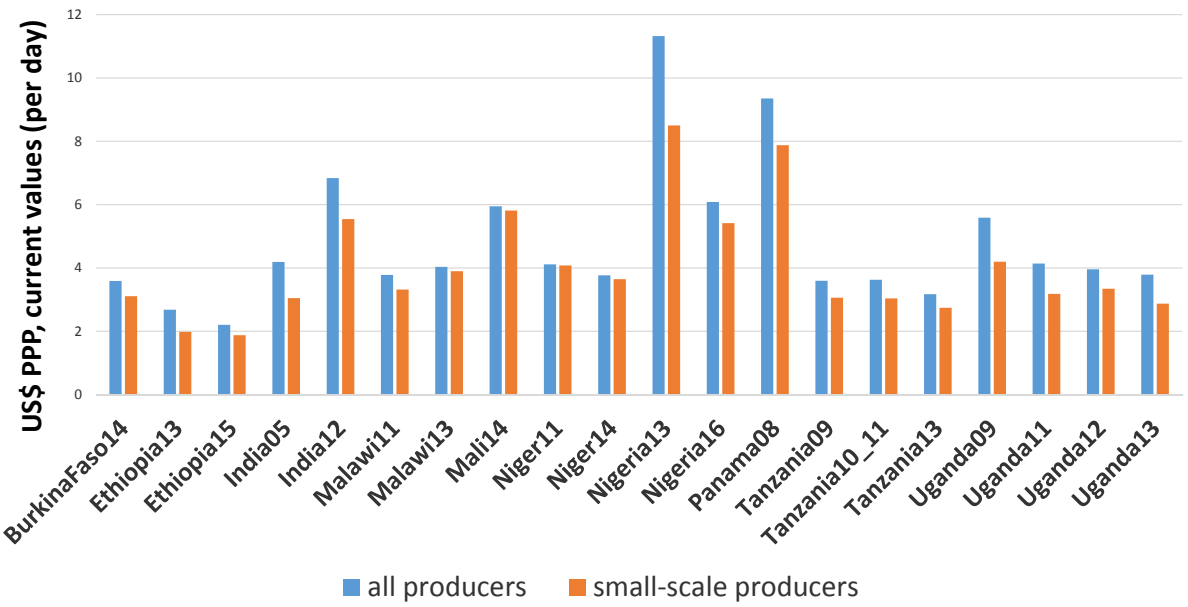
Number of workers,
Number of days worked,
Number of hours worked.

Although the most accurate measure of labour volume seems to be the **number of hours worked in a year,** problems of data availability make **the annual number of working days** the most viable option.

What type of labour to be considered: all forms of paid and unpaid labour, including family labour, hired labour and exchange labour.

Indicator 2.3.1: Output per labour input

(PPP$ per year/number of days worked per year)



Source: RuLIS, provisional data.

SDG INDICATOR 2.3.2:

INCOME OF SMALL-SCALE FOOD PRODUCERS

SDG INDICATOR 2.3.2 - METHODOLOGY

Indicator 2.3.2 refers to*"the average income of small-scale food producers, by sex and indigenous status."*

The computation of on-farm income of the agricultural holding adopted by FAO Statistics Division includes:

- Income from cropping activities;
- Income from livestock;
- Income from forestry;
- Income from fishery.

SDG INDICATOR 2.3.2 - METHODOLOGY

These income components refer to ***gross income*** that is defined as the **operating surplus** (i.e. revenues minus operating costs) without taking into account the depreciation of assets as such information is usually not available from most data sources. In formula:

$$\boldsymbol{Y = R - C + \Delta S}$$

i.e.

Gross Income = *Revenues – Costs + (Stock Variation, when available)*

All the monetary variables should be **expressed in constant PPP** and **deflated,** in order to take into account the inflation occurred during the data collection period.

CROP INCOME

Revenues (+)	Costs(-)
A. Crop production	
Crop sold	Inputs paid in cash
Crop for own consumption	Land Rent
Crop used as feed	Technical assistance/extension costs
Crop stored	Crop saved for seed
Crop used for byproducts	Crop used for paying labour
Crop given as gift	Crop used for paying rent
Crop saved for seed	Crop used for paying inputs
Crop used for paying labour	Crop given out in sharecropping agreement (sharecrop out)
Crop used for paying rent	Crop wasted
Crop used for paying inputs	
Crop given out in sharecropping agreement (sharecrop out)	
Crop wasted	
B. By-products production	
By-product sold	Crop used for by-products
By-product used for barter or used for payment in kind	Total value of input purchased, comprise those reimbursed in kind
By-product used for own consumption	
By-product given as gift	
C. Sharecropping activities	
Crop received in sharecropping agreements	

LIVESTOCK INCOME

Revenues (+)	Costs(-)
A. Livestock activities: change in the cash value of the stock at the average price	
Livestock sold (alive)	Livestock bought
Livestock gifts given away	Livestock additional expenditures
	Crop used as feed
	Technical assistance/extension costs
B. Livestock products and by-products production	
Livestock by-/products sold	Livestock by-/products additional expenditures
Livestock products self-consumed	Livestock by-/products pay away
Livestock by-products self-used [also a cost in crop, e.g. dung used as fertilisers]	Livestock by-/products credit away
Livestock by-products pay away	
Livestock by-/products credit away	
C. Livestock stock variation = Closing/End-of-Year value – Initial/Beginning-of-Year value (if available)	

FISHERIES AND FORESTRY INCOME

Fisheries income

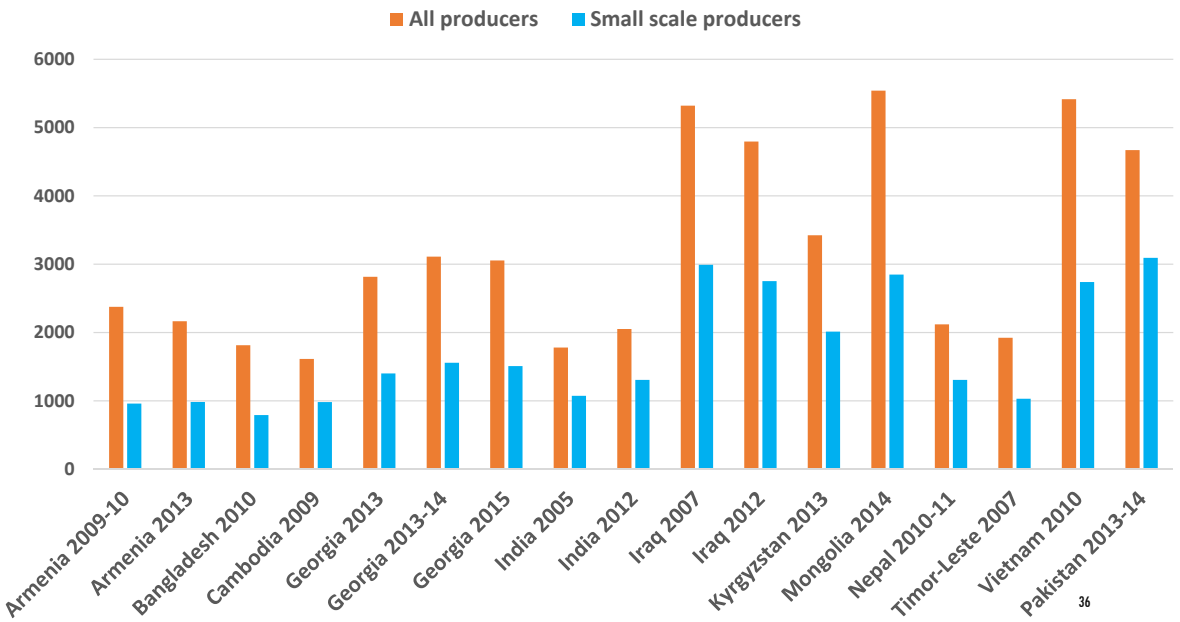
Revenues (+)	Costs (-)
A. Fish-catching and processing activities	
Captured fresh fish sold	Fishing gear expenditures
Captured processed fish sold	Hired labour expenditures
Captured fresh fish for own consumption	
Captured processed fish for own consumption	
B. Trading activities	
Traded fresh fish sold	Fresh fish purchases
Traded processed fish sold	Processed fish purchases
	Other related costs
C. Rental of fishery gears	

Forestry income

Revenues (+)	Costs (-)
Income from forestry production	Input costs (seedlings, fertilisers, hired
Income from forestry services	labour, etc.)
	Machine rental costs
	Land rental costs
	Other related costs

Indicator 2.3.2: Average Income of Small-scale Producers

(PPP$ per year)



DATA SITUATION – SIAP TRAINING COUNTRIES

- For 2.3.1, FAO has compiled data for India for 2012, with a indicator value of **4.84** (PPP$ per year/number of days worked per year). Data is retrieved from the *India Human Development Survey*, conducted by National Council of Applied Economic Research.
- For 2.3.2. FAO has compiled estimates for India (2012) and Pakistan (2014).

Indicator Value for 2.3.2 (PPP$ per year):

- India (2012): **1097.2** (India Human Development Survey);
- Pakistan (2014): **2842.2**, (Pakistan Social and Living Standards Measurement Survey), although threshold for small-scale food producers has not taken TLUs into account

CAPACITY DEVELOPMENT

- A global training workshop on 2.3.1/2.3.2 was organized in March 2018, with 17 participating countries from different regions
- A new regional workshop for African countries will be organized in January 2019

THANK YOU

For more detailed information on Indicators 2.3.1 and 2.3.2 please see:

http://www.fao.org/sustainable-development-goals/indicators/231/en/

http://www.fao.org/sustainable-development-goals/indicators/232/en/