



Sustainable Food System Country Profiles for Low- and Middle-Income Countries

Methodology outline

Alliance



Science for a food secure future

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT) delivers research-based solutions that address the global crises of malnutrition, climate change, biodiversity loss, and environmental degradation.

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The Alliance is part of CGIAR, a global research partnership for a food-secure future dedicated to transforming food, land, and water systems in a climate crisis.

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Background and justification of the Project

Until very recently, much work on food systems has relied on, static, fragmented and/or disparate datasets, reducing substantially the abilities of decision-makers at both national and international levels to see the “whole picture” and to take the most effective decisions to improve the sustainability of those food systems.

As a consequence, a flurry of initiatives has emerged in the last few years that propose to address this limitation by constructing some form of multi-indicator “compendiums”, which intend to describe national food systems more holistically. Many of those compendiums, however, are comprised of 50 or more (sometimes up to 140) indicators. As such, they often overwhelm policymakers who they were initially intended to guide, thus defeating their purpose.

There is a need to find a “middle ground” whereby the complexity, dynamic, and multi-sectoral/ multi-actors nature of food systems is captured and boiled down to a handful of key indicators that help prioritize entry points for interventions. Furthermore, the process of identifying those selected indicators needs to follow a clear, transparent, and reproducible protocol/ methodology so that comparison between countries (and over time) is also possible.

The ambition of the “Sustainable Food System Country Profile” project is to design, field-test and demonstrate the feasibility of such a “middle ground” approach, initially in three countries (Bangladesh, Ethiopia and Honduras). The final product, which will include this protocol plus three Food System Country Profiles, will offer a tool to facilitate more informed and evidence-supported decisions around food systems. We envisage that this tool will form part of the “SFS Toolbox” of the One Planet (10YFP) Sustainable Food Systems (SFS) Programme and will then pave the path for the development of similar country profiles in a larger number of low- and middle-income countries (LMICs) in the near future.

The project – implemented by the Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT) – is currently funded by the Swiss Federal Office for Agriculture (FOAG) for a first three-year period (2020-2022).

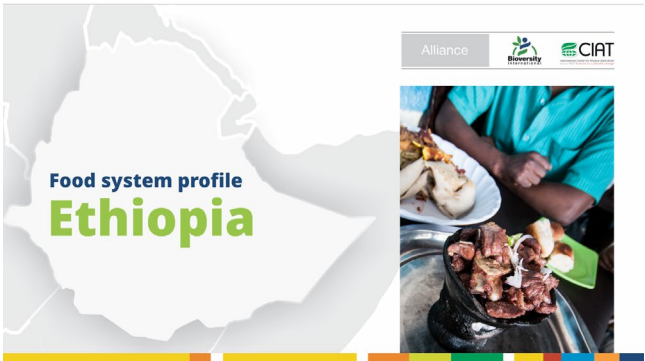


Photo: Simon Reza/Unsplash



What is a country food system profile?

A Sustainable Food System Country Profile is a short document that synthesizes in a clear, concise, and graphic manner the critical information necessary for public and private decision-makers to obtain a holistic/systemic but synthetic overview of the components that are recognized to be critical for the sustainability of countries' food systems. Country profiles are therefore more than a simple compilation of national indicators. They are constructed and designed to identify hotspots of unsustainability in the food systems and prioritize interventions at multiple scales to address these through targeted actions and investments. An important feature of the country profiles is that they are co-produced with key public and private food system stakeholders engaged in both identifying the data and validating results and emerging key messages.



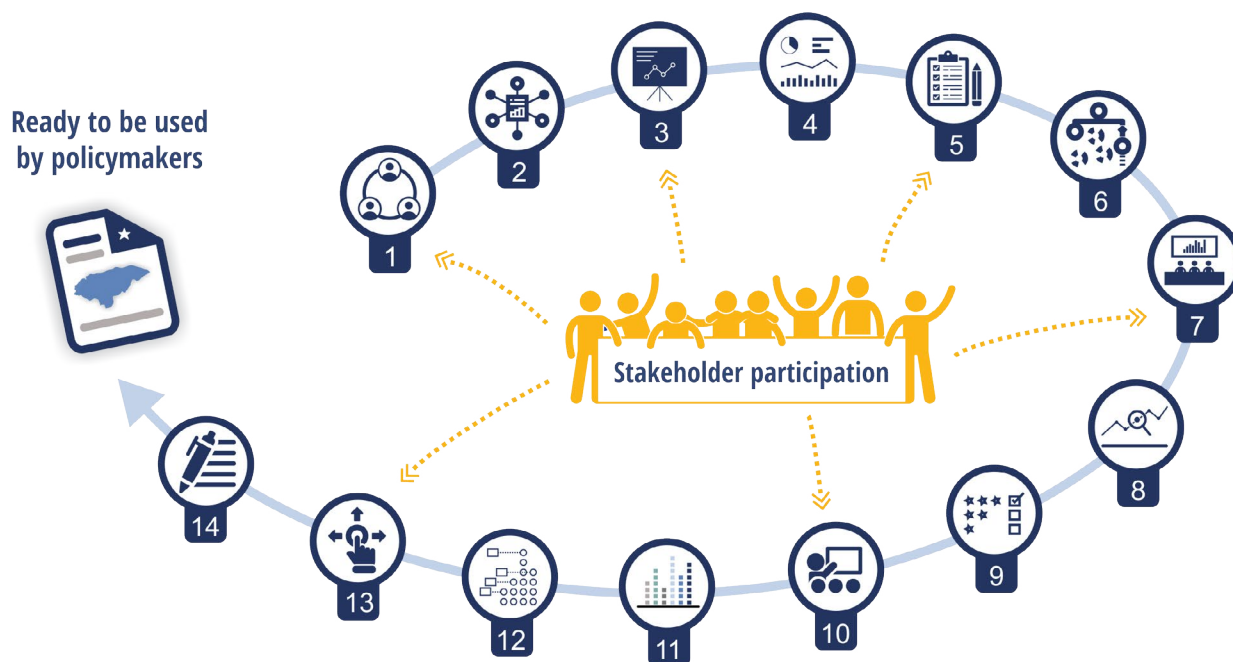
The ambition of the project, however, goes beyond the production of those national country profiles. Through the process, we intend to progressively build the capacities of a large number of decision-makers in different LMICs. The use of a common framework also offers an opportunity for a global comparative analysis on food system transitions and transformations – not just at national but also international level – thus generating insights and lessons for decision-makers. The methodology can also be adapted to develop sub-national food system profiles. The process of developing these profiles contributed to the development of country roadmaps presented at the UN Summit on Food Systems which took place in September, 2021. We anticipate that these profiles will contribute to the development of food system transformation strategies at the sub-national and national level.

CIAT has unparalleled expertise with this type of tool through the successful completion of several similar “country profile” projects including the

Climate Smart Agriculture Profiles and the Kenya County Climate Risk Profiles under the Climate Change, Agriculture and Food Security (CCAFS) research program of CGIAR and the World Bank.

Conceptual framework and general approach

The conceptual framework includes a series of 14 steps considered necessary to develop and implement the country profiles while at the same time building the sense of ownership among relevant national stakeholders. The paragraphs below summarize the protocol and workflow, including activities, objectives, outputs, and expected outcomes, while Figure 1 summarizes the workflow.



- | | |
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| <ul style="list-style-type: none"> Step 1. Consolidating a working group of key stakeholders Step 2. Building the common analytical framework Step 3. Project presentation and framework validation Step 4. Identifying potential indicators for each component of the framework Step 5. Inventorying publicly-available data for the target country Step 6. Populating the components with existing publicly-available indicators Step 7. Finalizing the list of potential indicators by component with national stakeholders and experts | <ul style="list-style-type: none"> Step 8. Assessing the quality and representativeness of the indicators as proxies of the process being assessed Step 9. Trimming down the number of indicators Step 10. Presenting a final list to national stakeholders Step 11. Regional and GDP comparison and ranking Step 12. Inference analysis Step 13. Usability study Step 14. Narrative building. |
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Figure 1. Workflow of steps and activities.

Note: Yellow arrows indicate the steps designed or implemented in collaboration with national stakeholders.

The protocol was adjusted slightly due to COVID19 and the fact that the face-to-face meetings with stakeholders initially included as part of the protocol (steps 2, 6, and 9) had to be replaced by virtual meetings. This included a more detailed desk-based preparation prior to the virtual stakeholder meetings, the division of the planned workshops into short virtual sessions and more intense interaction via phone, video conferences, and email with key stakeholders. No major disruption to the overall process emerged, however.

Step 1. Consolidating a working group of key stakeholders

Description: We start with the identification of a stakeholder group, paying particular attention to the sectors (agriculture, environment, health, nutrition, agribusiness, food retail, consumers) and organization types (private sector, public sector, NGOs/CSOs, academia/research). For this, we first complete an inventory of relevant organizations operating in country through internet searches and interviews with key informants (public institutions and UN agencies are good resources) by sector and organization type to get a sense of what the ideal composition might look like for the target country. There are two ways of approaching the creation of such stakeholder group – using existing multi-stakeholder platforms or creating a process-specific stakeholder group. Which path is eventually chosen depends on the in-country circumstances. Where a working group exists with sufficient alignment in composition and agenda to the proposed process, this can provide for a very quick and cohesive start (for example, the National Food and Nutrition Security working groups that have become popular and seek to consolidate other food system stakeholders). In some other cases, where identifying a relevant existing stakeholder group is more difficult, stakeholders will need to be recruited through bilateral meetings to a) present the process and level of commitment requested; b) understand what their expectations are about the process; c) solicit information on any ongoing efforts that are similar or relevant to the proposed process, including recommendations of additional stakeholders to consider; and d) request formal confirmation from the head of the organization delegating their representative and alternate to participate in the process.

Objective: To constitute a food system multi-stakeholder working group that is diverse, representative, and committed to discussing, validating, providing feedback and taking ownership throughout the process of developing the food system country profile.



Outputs: A multi-stakeholder working group representing all components of the food system.

Outcomes: N/A

Step 2. Building the analytical framework common to all countries

Description: The framework offers a visual representation of the food system and its components (see Figure 2). It is partially analytical and partially conceptual. The analytical aspect presents the interactions between the different components and possible feedbacks, and different roles in the systems: drivers, outcomes, etc. The

conceptual aspect helps putting boundaries around “what is in and what is out”, i.e. what is internal and what is external to the system and the importance paid to the four dimensions of the concept of sustainability as adopted here (economic, social, environmental, food security & nutrition).

Objective: Ensure the holistic nature of the assessment; identify key components for consideration; ensure the coherence/comparability of the initial framework between countries.

Outputs: A framework common to all countries.

Outcomes: Clear communication (visual illustration) of the holistic nature of the assessment, and the different components considered in the analysis.

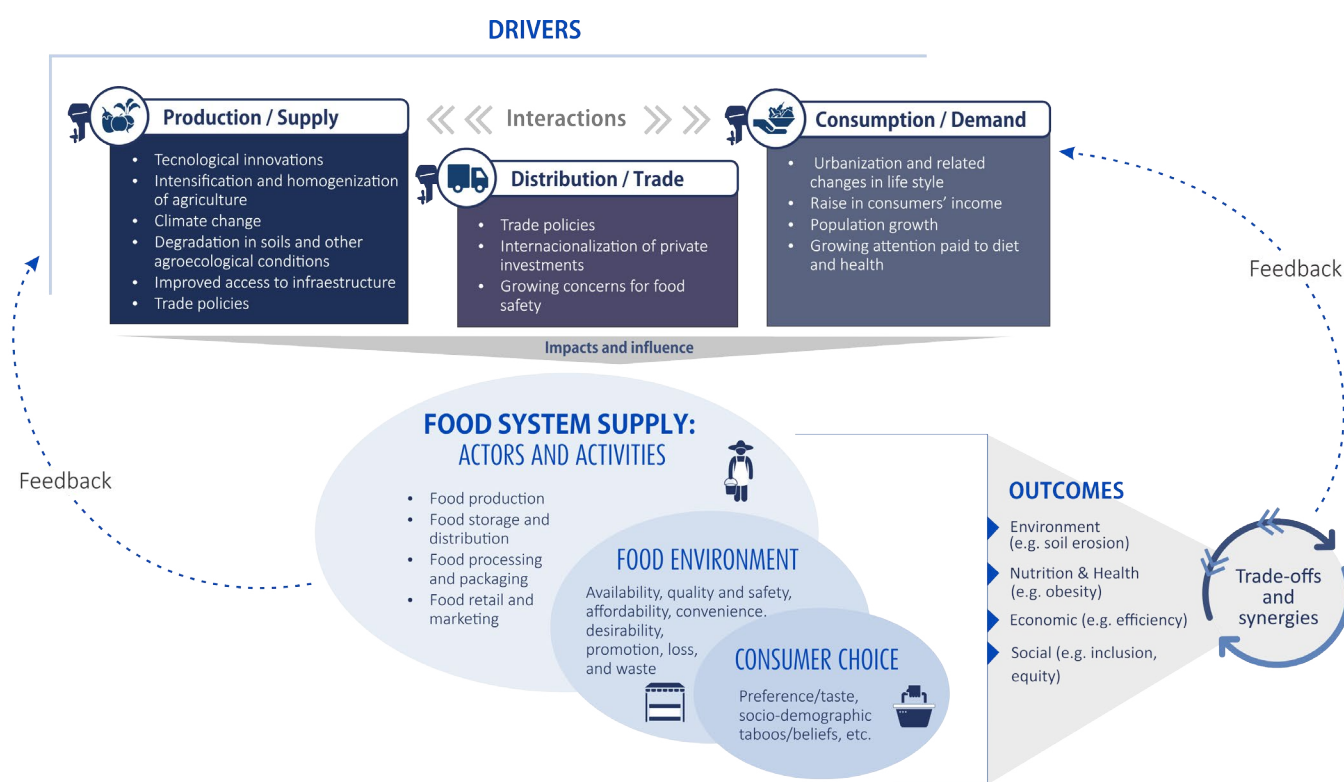


Figure 2. Food system – analytical and conceptual framework used during the various meetings with countries' stakeholders.





Photo: Georgina Smith/CIAT

Step 3. Project presentation and framework validation

Description: Introduction to the process, its objectives, and expectations, as well as presenting the generic framework and its components to representative stakeholders, using simple terms.

Objective: The main objective at this stage is to introduce the process to the main stakeholders, present the framework, the expected outcome, and to introduce the stakeholders to each other

and thus start creating interest/expectations and a sense of ownership (see illustration from Honduras in Figure 3)

Outputs: Characterization framework components consistent with profile needs.

Outcomes: Create interest/expectations and some sense of ownership amongst stakeholders.

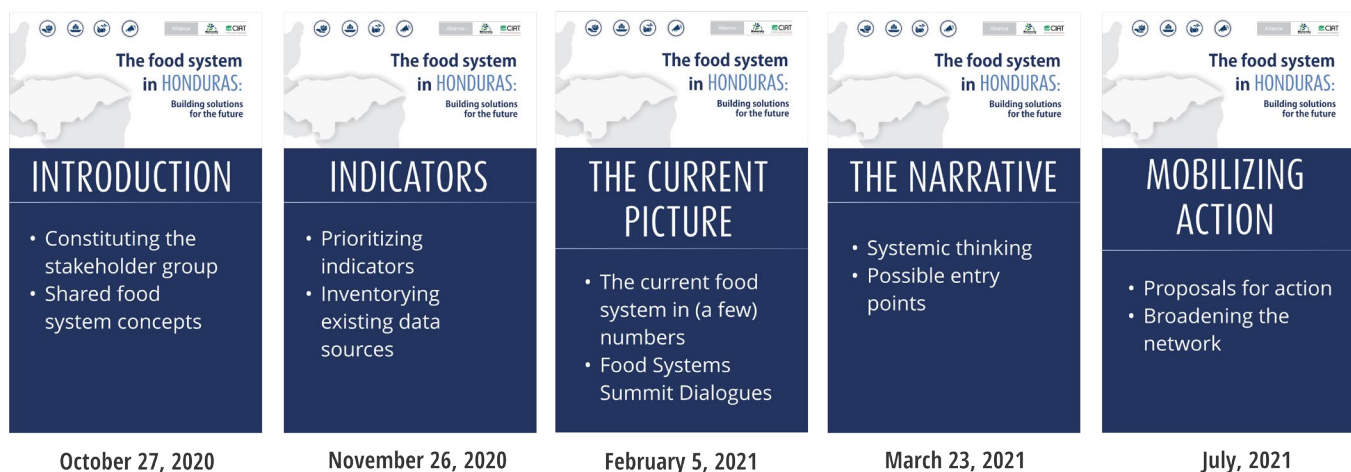


Figure 3. Food system profile process in Honduras

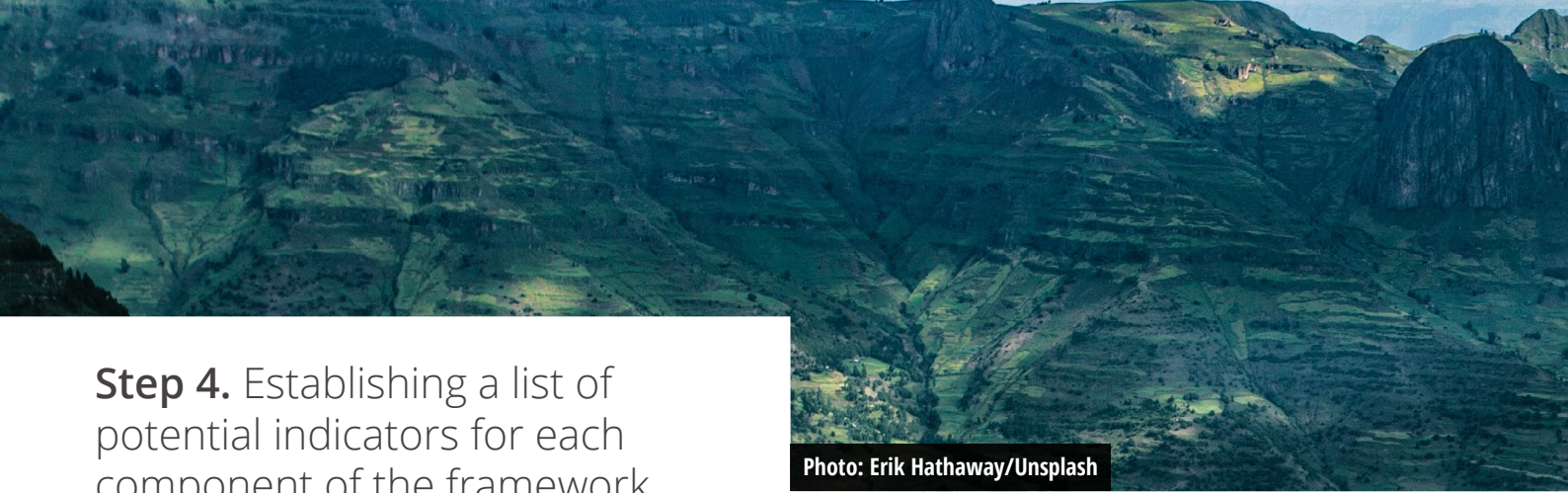


Photo: Erik Hathaway/Unsplash

Step 4. Establishing a list of potential indicators for each component of the framework

Description: Irrespective of whether the data is available or not at country level (step 5), we need to establish a list of “legitimate” indicators that function as appropriate proxies for the states and dynamics of each component of the system, as identified in Figure 2. The choice of indicators needs to be based on transparent exclusion/inclusion criteria (see Table 1). This preliminary process (inclusion/exclusion) is an important step to build the legitimacy and rigorosity of the work/framework. In particular, we need to be able to claim that the choice of indicators is not simply the result of the (un)availability of data or a subjective perspective of which indicators are important to the team, but is the result of a

clear, transparent, and reproducible identification process.

Objective: Contribute to building a common, coherent, defensible/justifiable, and comparable list of potential indicators for each component of the framework – this is the SYSTEMATIC element of the analysis.

Outputs: List of potential indicators.

Outcomes: Clear communication of how the matrix of indicators in the assessment (next steps) results from a systematic (i.e. rigorous, transparent, reproducible, and objective) process.

Table 1: Food system profile process in Honduras

Country specific	Excludes regional/multi-country indicators that cannot be disaggregated into country-specific data.
Methodology	Excludes indicators for which the methodology used to construct the database is not clearly detailed in the original database.
Latent variables	Excludes indicators that are based on latent variables. For instance, indicators of “resilience” or “economic vulnerability” were excluded as there is no agreed measure/unit of resilience or economic vulnerability.
Comparability	Excludes (or amends) indicators that are based on absolute numbers that do not allow for comparison between countries – for instance the total number of km of paved roads would not be included. Instead, the road density is considered, that is, the total number of km of paved road per 100 square km of land area.
Time period	Excludes indicators for which databases only cover period older than 20 years.
Conceptual relevance	Excludes indicators that cannot be clearly linked to one dimension, sub-dimension, or category of one of the five components of food systems, as identified in the analytical framework, irrespective of the “quality” of the indicator.
Scale	Excludes indicators that are considered not “representative” at the national level. Indicator at sub-national levels can be considered, but only if they are clearly representative at the national scale.
Clear expected effect	Excludes indicators that do not have a demonstrated effects on food systems, e.g. “leadership” is not a driver.
Drivers	Indicators for drives should be in line with the definition of drivers - in particular see details below: <ul style="list-style-type: none"> Excludes indicators that do not refer to change, e.g. culture, religion, rituals are not drivers, but change in culture/ taste can be a driver. Land tenure is not a driver, but change in land tenure can be. Excludes indicators that do not alter or influence the system durably and consistently, e.g. price volatility or conflicts are not drivers of food systems, but constant increase (decrease) in food price over a long period of time, or occurrence of protracted conflicts in a region would be drivers





Step 5. Inventorying publicly-available data in the target country

Description: in parallel with Step 4, we conduct an inventory of publicly available data in the target country. The idea is to “cast the net widely” and identify all available datasets which could potentially be included in the food system country profile. The process is country-specific (bottom-up), without any specific attempt to follow or satisfy the common framework designed in Step 2. Inputs and support from stakeholders about data sources available from their sectors are important here in creating the initial inventory as broadly as possible.

Objective: Establish the most comprehensive list of datasets that are publicly available in each country and could potentially be used to build the food system country profile.

Outputs: Comprehensive list of publicly-available datasets on food system.

Outcomes: N/A

Step 6. Populating the components with existing publicly-available indicators

Description: This is where theory meets the reality on the ground. In this step we map the indicators identified in step 5 to the components of the framework guided by the potential indicators identified in step 4. The list of indicators that emerges at this stage corresponds to the overlap between what should be in (step 4) and what is available at the country level (step 5). At this stage, the non-presence of certain indicators would only be the result of the non-availability of those indicators at country level, not the consequence of the (subjective) choice of indicators by the team. This in itself will provide a preliminary assessment

of the data paucity/richness that characterizes the target country. It will also provide some initial indicators of which components are data richer (or poorer) than others across countries.

Objective: Identify from the list of potential indicators which ones are available at country level.

Outputs: List of country-specific, publicly-available, indicators for each component.

Outcomes: An initial (rough) assessment of the data paucity/richness that characterizes the countries' food systems components.

Step 7. Completing and finalizing the list of potential indicators for each component of the framework with national stakeholders and experts

Description: Recognizing that often data/ indicators relevant for countries' profiles is kept within ministries, or in non-published databases, workshops should be organized with national experts, with the main objective of presenting the list of pre-identified indicators and of investigating whether additional ones from those non-published databases are also available. Stakeholders are engaged in workshop format to identify potential data sources, while bilateral follow up is used to obtain access to proposed data.

Objective: to permit country stakeholders to identify other indicators missed during step 5.

Outputs: Finalized list of indicators specific to the country.

Outcomes: Increase the buy-in of the stakeholders in the process.

Step 8. Assessing the quality/representativeness of the indicators as good proxies of the process being assessed

Description: Using a 1-5/1-3 scale rating system (Table 2), the objective is to assess the degree to which each indicator offers a good (5) or poor (1) proxy for the process it seeks to capture. This step will also help in the trimming process (see next step) by identifying those indicators considered as the most “representative/informative” of the food system at the country level.

Objective: Provide a semi-quantitative assessment of the “quality” of the indicators available at country level.



Photo: Simon Reza/Unsplash

Outputs: A 1-5/1-3 score for each of the indicators present in country level.

Outcomes: A clear, semi-quantitative (easy to communicate) assessment of the “quality” of the existing data of food systems at country level.

Table 2: Scoring system used to “assess” the indicators

CRITERIA	SCORING	COMMENTS
<p>Representativeness of the indicator Is the dataset/indicator a good proxy for the process under consideration? For instance, is “Women’s Empowerment in Agriculture Index (WEAI)” a good proxy for “inclusiveness of food systems”? Answer: Yes but only partially as it captures the situation in agriculture but not in the rest of the food system.</p>	<p>Yes, very good = 5 Not good but that’s the only one we have = 1</p>	Can be considered subjective
<p>Contemporariness For what year is the most recent dataset available for this particular indicator?</p>	<p><2 years’ old = 5 2-4 years’ old = 4 5-7 years’ old = 3 8-10 years’ old = 2 >10 years’ old = 1</p>	Objective
<p>Open access Is the data easy (and free) to obtain - so that it would be possible to continue in the future without too much trouble?</p>	<p>Totally publicly-accessible free = 3 Accessible with fees = 1</p>	Objective
<p>Time series Has the indicator been recorded repeatedly over time or do we have only one data-point?</p>	<p>Indicator available annually for more than 10 years = 5 Available for more than 10 with some gaps = 4 Available for less than 10 years = 3 Available for less than 10 years with gap = 2 Available for one or two years only = 1</p>	Objective
<p>Repeatability Was the dataset generated by an institution (public or private) likely to continue recording it, or was it generated through a one-time project - unlikely to obtain more data from this source.</p>	<p>Institution = 3 One-time project = 1</p>	Objective





Step 9. Trimming down the number of indicators

Description: From the original set of 50+ indicators that have been identified through the rigorous process described above, the objective of step 8 is to trim it down to a more “acceptable” number (30 in total, see Table 3 for details of number per food system component, and Figure 4 for criteria). These indicators may not be the exact same ones for every country; but at country level, we anticipate them to be the most representative/informative indicators of the current situation in terms of the food system. To guide the trimming process, we generated an overall score that is the average of normalized scores across the different ratings assigned in step 7 and then selected the

“best” options, based on the distribution, as shown in Table 3 and Figure 4.

Objective: Provide a reasonable (“manageable”) sub-set of existing indicators considered as the most informative indicators of the current situation in the food system in a given country.

Outputs: A shorter lists of 30 indicators.

Outcomes: Show that it is possible to identify a manageable subset of indicators through a systematic process capturing the various dimensions of the food system in a holistic way.

Table 3: Number of indicators per food system component

COMPONENT	SUBCOMPONENT	INDICATORS
Drivers	3 “boxes”; 2 indicators per box	6 indicators in total
Supply actors and activities		5 indicators
Food environment		6 indicators
Consumer choice		5 indicators
Outcomes	4 outcomes; 2 indicators per outcome	8 indicators in total
Grand total for indicators across the food system		30 indicators

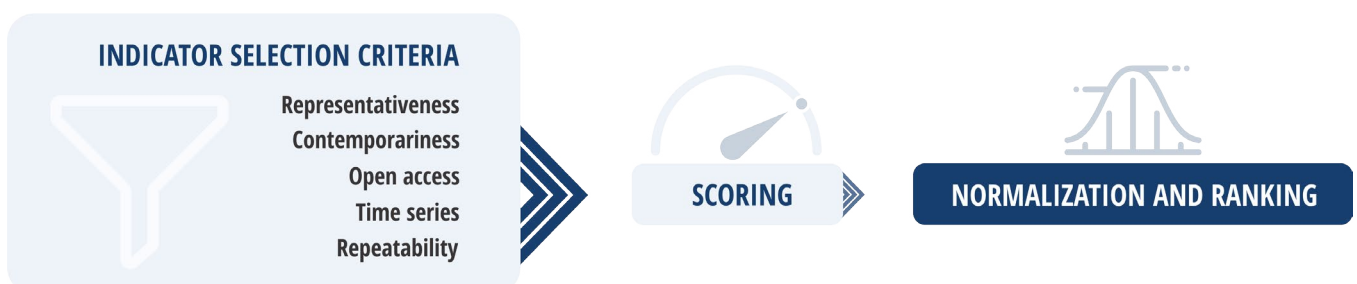


Figure 4. Criteria for trimming the food system indicators to 30



Photo: Neil Palmer/CIAT

Step 10. Presenting a final list of indicators to national stakeholders

Description: Organization of workshop with stakeholders with the objective to present and validate with stakeholders the final short list of indicators specific to their country. We also ask stakeholders to analyze and create some initial narratives for each component based on the trimmed indicators.

Objective: Validate with stakeholders the final list of indicators and obtain their inputs on the country-specific narrative that explains the indicators.

Outputs: as Step 8 above

Outcomes: Stakeholder on-board and informed of the progress of the process.

Step 11. Regional and GDP comparison and ranking

Description: Data for all countries for the 30 selected indicators will be compiled. The exact same list of indicators will also be compiled for geographically neighboring countries (with similar regional characteristics) as well as closest GDP neighboring countries (with comparable economic development levels). At this stage, several visualization options can be envisaged. We could choose to represent each component of the system with a color code (red = bad, green = ok, compared to others). We could do the same using the aggregated score of the entire food system, compared to the neighboring countries, etc. (see example of Figure 5 for one driver and one outcome indicator).

Objective: Each country's food system "performance" is compared to those of geographical and GDP-based neighbors.

Outputs: A quantitative profile of countries' food systems, including component and aggregated scores.

Outcomes: Visual summary of the current performance of countries' food systems and their components, based on a completely transparent and reproducible protocol, and propose some analyses based on a framework that allows comparative analyses.



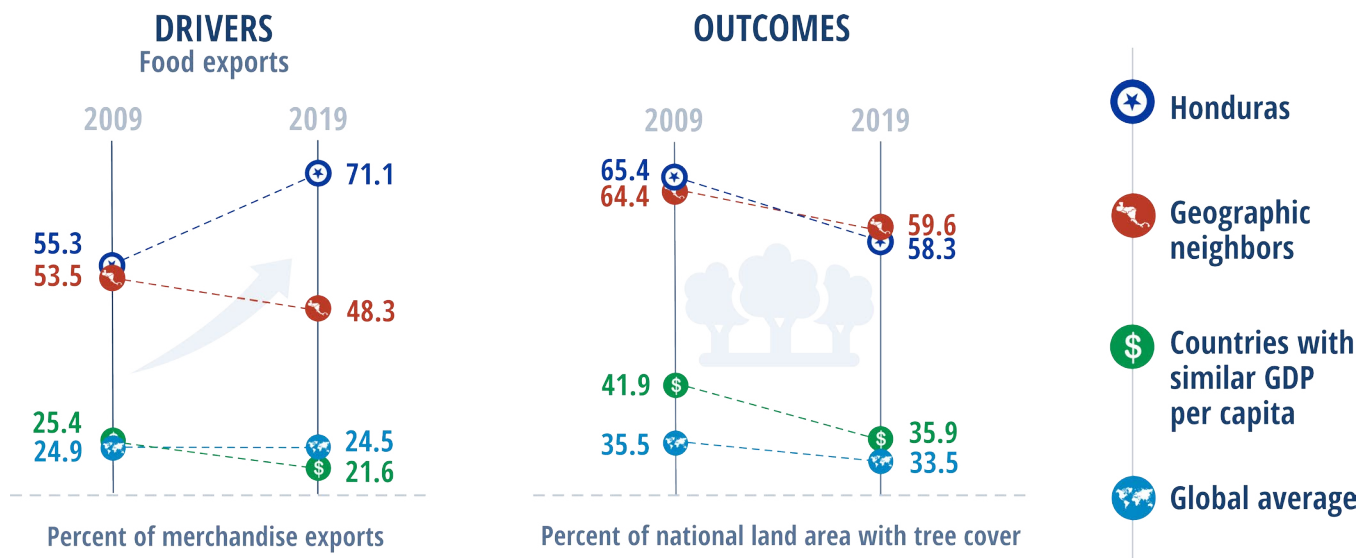


Figure 5. Illustration of possible visualization (case of Honduras) for one driver (food export – as the proxy for trade policy) and one outcome (tree loss as one proxy for environment outcome)

Step 12. Inference analysis

Description: With a limited number of countries, the potential for a proper inference analysis based on econometric tools is quite limited. We propose to look for patterns in the findings by bringing in the neighbor countries and for potential association between some upstream indicators (drivers) and downstream outcomes, but those analyses would remain somewhat descriptive and basic. With more funds, similar assessments can be conducted in other countries which will help in conducting cross-countries analysis.

Objective: Conduct a minimalist inference analysis by exploring potential emerging patterns between causal factors (drivers) and outcomes.

Outputs: A short report synthesizing the key-findings of the inference analysis.

Outcomes: Initial identification of patterns across countries in the association between indicators.



Photo: Aaron Burden/Unsplash

Step 13. Usability study

Description: Once the indicators are in place, their meaning/relevance established, and the corresponding visualization is produced, we need a user experience assessment to evaluate which presentations of results are most usable and relevant to the stakeholders. This can be done remotely, with a usability study and assessment if next users (stakeholders) are properly interpreting each of the information pieces. Note that this could come just after the inference piece or after the comparison step.

Objective: Understand which approaches are most effective at conveying the needed information to typical users.

Outputs: Prioritized set of graphical approaches for reporting results.

Outcomes: User-oriented graphics established to effectively convey information to end users.

Step 14. Narrative building

Description: Using the direct results of the 30 short-listed indicators (step 8) in concert with the cross-country comparative analysis (step 11) and the key-findings of the minimalist inference (step 12), we will build a narrative of the current status of the food system for each of the three countries considered. We anticipate documents of under 20 pages for each report. These reports are presented to and discussed with stakeholders to ensure narratives are true to the data and to the country specific context that explains the current data and trends behind them.

Objective: Produce a very clear and synthetic visual summary of the three countries' food system profile; strengthen stakeholder ownership of and capacity for communicating and using the findings to inform decision-making.

Outputs: Individual country food system profiles of 20 pages (max).

Outcomes: Food system data become useful and actionable for key stakeholders. More countries/donors support similar efforts. The cross-country analysis provides insightful information extremely relevant for policy makers at both national and international levels.



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