INFORMATION FOR REVIEWERS

This document was produced as part of an initiative led by the FAO Office of Climate Change, Biodiversity and Environment. As part of this initiative, a survey-based tool for monitoring and evaluation of farm-level sustainability in the context of Climate Smart Agriculture (CSA) projects is being developed.

The tool will assist project developers/managers and other stakeholders in identifying possible gaps in terms of farm sustainability, to define in turn interventions that can help farmers transition towards more sustainable production systems

The present document is a working draft of the guidance manual intended to present the tool and its structure i.e. the sustainability indicators and metrics it includes. The manual is currently undergoing peer review process, and will be finalised in 2021.

If you would like to participate in the review process, please send a brief email to Reuben.Sessa@fao.org, David.Colozza@fao.org, and Julian.Schnetzer@fao.org (please keep all three email addresses in correspondence) to introduce yourself (name, surname, current affiliation, role/expertise) and request a full draft in MS Word format. **Deadline for sharing review comments in 23 April 2021.**

Working title: A practical guide to assessing farm-level sustainability in the context of CSA projects

Summary

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1. INTRODUCTION

Climate change is a major challenge for global food security and agricultural production. Rising temperatures, shifting rainfall patterns, intensifying weather extremes and the like are increasingly affecting food production systems and supply chains. Agriculture continues to drive climate change, contributing substantially to anthropogenic greenhouse gas (GHG) emissions (Mbow *et al.*, 2019). Climate change adaptation and mitigation strategies are therefore indispensable elements in transitioning to sustainable food and agriculture systems. This is the express objective of climate-smart agriculture (CSA) – an integrated approach that supports the development of productive, sustainable, climate-resilient and low-emission food systems with the overarching goal of ensuring food security (FAO, 2017).

Yet, there are many more challenges that need to be addressed in this transition, concerning all three dimensions of sustainability: economic, social and environmental (FAO, 2018; HLPE, 2019). For example, inequalities in the access to land, productive assets, markets, information, financial and other services bar the way out of poverty for many marginalized farmers, often resulting in the persistence of unsustainable farming practices that are harmful for human and environmental health. Continued population growth, urbanization and economic development are increasing the pressure on natural resources and food production, driving water scarcity, land degradation, loss of natural habitats, biodiversity and ecosystem functions. Malnutrition in its different forms is increasing and can be explained in part by a focus of agricultural policies on monocropping and, in consequence, a low supply of diverse foods necessary for a healthy, balanced diet.

As climate-smart agriculture strives to support sustainable transitions in the food and agriculture sector, it must take a holistic approach and keep all dimensions and aspects of sustainability in view, beyond its core objectives. Food producers are the central stakeholder group targeted in most CSA interventions, which makes the measurement of impact at farm-level an important indicator of success. Lasting success of such interventions may also depend on factors like health risks and working conditions for farm workers, the integrity of the natural resource base, transparency and equal participation in governance processes. Therefore, monitoring and evaluation (M&E) tools for CSA should include a broad set of indicators covering economic, social, environmental as well as governance aspects of a farm systems. In this light, the farm sustainability assessment framework for CSA is presented as widely applicable and easy-to-use farm survey tool.

1.1. The CSA concept

Climate-smart agriculture – first introduced in 2010 at the Conference on Agriculture, Food Security and Climate Change in the Hague – is an integrated approach to support sustainable agricultural development and food security in the context of climate change. It aims to identify development pathways towards productive and profitable livelihoods for food producers that are well-adapted to climate change and minimize their greenhouse gas emissions. This is expressed in the main objectives, the so-called three pillars of CSA (FAO, 2017):

1. sustainably increase agricultural productivity and incomes of food producers;
2. strengthen the capacities of agricultural communities to build resilience and adapt to the impacts of climate change;
3. reduce and/or remove greenhouse gas emissions, where possible.

CSA seeks to identify and enhance synergies between the three objectives in order achieve triple wins. Where triple wins cannot be achieved it aims to avoid and reduce trade-offs as much as possible, based on national and local priorities.

Climate-smart agriculture encompasses a broad range of practices that can support the achievement of triple wins, for example increasing the diversity of the agroecosystem and adopting sustainable land and soil management practices. However, it is important to note that CSA does not represent a given set of agricultural practices which are generally recommended as 'climate smart'. The approach rather aims to identify suitable combinations of practices for a given context and create an enabling environment to facilitate the adoption of these practices. The Food and Agriculture Organization of the United Nations (FAO) has identified five key steps in this process: (i) expand the evidence base; (ii) support the enabling policy framework; (iii) strengthen national and local institutions; (iv) enhance financing options; and (v) implement practices in the field (FAO, 2017). A fundamental element of the last step is the monitoring and evaluation of outcomes at farm level, in order to assess the impact on food producers' livelihoods and hence the success of a CSA intervention.

Despite its focus on the three pillars, climate-smart agriculture is a holistic concept. It promotes the use of integrated approaches such as the landscape approach, community- and ecosystem-based adaptation, sustainable soil and land management, integrated watershed management, the water–energy–food nexus approach, and the sustainable food value chain approach. It further builds on principles of sustainable food and agriculture, sustainable intensification, agroecology and resource use efficiency. The *Climate-smart agriculture Sourcebook* provides guidance on a broad range of topics, including gender-sensitive approaches, social protection and decent rural employment, sustainable management of land, water, genetic resources and biodiversity (FAO, 2017). However, there is no formal framework to assess the compliance of CSA initiatives with such principles, nor is there an agreed-upon set of indicators and thresholds that define when agriculture is climate-smart and when it is not.

This has given rise to criticism, first and foremost from civil society organizations (CSOs). Triggered by the launch of the Global Alliance for Climate-Smart Agriculture (GACSA), over 350 CSOs expressed their concerns about the lack of criteria for social and environmental safeguards, as well as the risk of CSA being used for greenwashing conventional industrial farming practices (CSA Concern, 2015). The call for CSA to establish clear criteria and metrics and put stronger emphasis on addressing inclusiveness, social inequalities and poverty if it wants to bring about real transformational change and sustainable development is also echoed in scientific literature (Ellis and Tschakert, 2019; Hellin and Fisher, 2019; Taylor, 2018). Taylor (2018) further argues that the prevailing focus of CSA on technical and market-based solutions to increase food (and biomass) supply sustains climate-damaging consumption patterns, ignores the aspect of access to food, and fails to address trade-offs with resilience in an explicit and balanced way.

The 2030 Agenda for Sustainable Development provides a framework that can guide efforts to strengthen and formalize the alignment of CSA with all dimensions of sustainability, social, economic and environmental. It proposes 17 internationally agreed Sustainable Development Goals (SDGs), each one with a specific set of targets and indicators, covering all aspects of sustainable development. SDG indicator 2.4.1, in particular, was designed to monitor the "area under productive and sustainable agriculture" and provides the basis for unified assessment of the sustainability of agricultural production systems (FAO, 2020a). The present assessment framework builds on this definition and seeks to strengthen a holistic view of sustainability in CSA practice, based on the actual outcomes for its central intended beneficiaries – food producers, and particularly smallholder farmers.

1.2. Why is it important to assess farm-level sustainability in the context of CSA interventions?

Monitoring and evaluation are essential for assessing the success of CSA interventions and the progress on achieving the three CSA pillars. Many frameworks have been proposed for CSA M&E at national, project, community or house-hold level, offering a great choice of process and outcome indicators and reflecting specific requirements of different funding partners and development actors (Jacobs and Al-Azar, 2019). They tend to be complex and, rather than recommending a standardized set of indicators, leave the choice to the

user. Therefore, the results are often not comparable across frameworks or even across projects applying the same framework. Moreover, these M&E frameworks are mostly limited to the three pillars of CSA. Most interventions require indicators to track processes and outcomes at various levels, such as national policies and legislation, allocation of agricultural budgets, environmental or social dynamics at the landscape level or resilience at community level. Common to most interventions is, that food producers are the primary group of ultimate beneficiaries. Therefore, a standardized farm survey could be a central building block for the harmonization of M&E frameworks for CSA.

The **CSA Farm Sustainability Assessment Framework** (henceforth the "Framework" for brevity) proposes a standard set of indicators to monitor progress on the three pillars of CSA as well as overall sustainability at the farm level. The indicators are determined through a simple farm survey that does not require specific measurements or devices other than a tablet and the survey app. The survey can be easily applied and hence serve as a standard building block for any CSA M&E framework. A major advantage of such a standardized assessment method is the comparability of results across projects, communities and countries, as well as over time. It is important to underline that a farm-level survey does not capture equally important dynamics and outcomes at the community or landscape scale. Therefore, the survey should be complemented by indicators that cover relevant aspects of CSA and sustainability at these scales.

The three pillars of climate-smart agriculture are closely interlinked with several other sustainable development objectives (FAO, 2019a). Actions to support the three pillars may advance other social, economic or environmental goals in synergy, or present trade-offs. For example, more efficient irrigation practices may not only support the adaptation of crop production systems to drought, but also contribute to improved water management for environmental flows and equal access to water. On the other hand, failure to address social inequalities or environmental costs may limit the success and sustainability of CSA interventions. Another example is the introduction of new resilient seeds for climate change adaptation which may only benefit those farmers who can afford to pay a higher price. Poor farmers with limited savings nor access to credit may require targeted social protection measures to benefit from the improved seed. Otherwise the seed initiative could entrench social inequalities rather than alleviating poverty and creating opportunities for poor farmers.

Box 1. Sustainable farming systems

> "The concept of sustainability has three dimensions: economic, environmental and social. A sustainable farming system should be a profitable business that creates mutually beneficial relationships among workers and the surrounding community, and contributes to the sound management of the land and other natural resources." (FAO, 2017)

In this context, farm-level sustainability assessment of CSA interventions has two important functions. First, it allows to monitor effects, positive or negative, on farmers' livelihoods and ensure the overall sustainability of CSA interventions taking all dimensions of sustainability into account (see Box 1). Second, starting from the stage of baseline data collection, it can support the identification of potential risks, e.g. barriers to the adoption of certain practices, that could impair the success of targeted CSA strategies. Risks may include, for example, inadequate access to land, water and other productive resources, limited participation of women in decision making, or advanced degree of land degradation.

Resilience is a central objective of CSA, included in CSA pillar 2, and essential for sustainable development. Progress on eradicating poverty and ending hunger, especially among smallholder food producers, may easily be scotched if they are not able to cope with climate-related and other shocks. Building resilience in farming systems involves economic as well as ecological aspects (see Box 2). The latter, in particular, may present trade-offs with the intensification of production systems and short-term gains in productivity and incomes (FAO, 2017; Taylor, 2018). Moreover, resilience only becomes evident in the event of a shock and is therefore complex to measure. Hence, the assessment of resilience deserves special attention in the context of a CSA

farm sustainability assessment and is accomplished through the inclusion of several proxy indicators that capture the economic and ecological aspects of resilient farming systems.

Data collection can be conducted through printed survey forms. However, the use of tablets (preferred, due to larger but manageable screen size) or smartphones in combination with the dedicated application is recommended. The use of digital applications for data collection through ICT devices is preferred for several reasons: it can lower costs, due to reduced or no need to print paper materials and less labour needs (for example, for manual data entry and transcription), improved data quality and higher speed of data collection and analysis (Barrett and Headey, 2014; King et al., 2013; Leisher, 2014). This enables in turn a more rapid evaluation of a farmer's sustainability levels , and comparison with others in the community as well as with local or national benchmark values. Thereby, enumerators or extension agents who conduct the survey can provide immediate feedback and advice on specific sustainability issues and ensure that emerging issues are addressed in further project implementation through targeted measures. Collection of data through digital applications allows to store data locally, but also to back it up instantly to personal computers, or to cloud storage systems, which dramatically increases data storage safety.

Box 2. Resilient farming systems

> The Intergovernmental Panel on Climate Change (IPCC) defines resilience as follows:
> "Resilience is the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions." (IPCC, 2012)
>
> Accordingly, a farming system can be considered resilient if it enhances the agro-ecosystem's capacity to resist and buffer natural hazards, including climate-related shocks (ecological resilience); if it diversifies production and income sources to spread risk; if it avails of the financial means to cope with the impacts of natural hazards and other shocks such as economic downturn; and if it has access to information and resources to invest in the improvement and adaptation of the system (economic resilience).

1.3. Alignment with international targets

National governments and their development partners must comply with different reporting requirements towards donors as well as international agreements, including the 2030 Agenda for Sustainable Development, Paris Agreement on Climate Change and Sendai Framework on Disaster Risk Reduction. Alignment between these various M&E frameworks could considerably relieve reporting burden (FAO, 2019b). In this spirit, the farm sustainability assessment for CSA provides data for basic impact assessment at project level as well as for SDG reporting. The farm survey complies with the methodology of SDG indicator 2.4.1 "Proportion of agricultural area under productive and sustainable agriculture" and collects all data required for the determination of its 11 sub-indicators. Table 1 presents the sub-indicators and illustrates their linkages with the CSA pillars. SDG 2.4.1 is currently classified as a Tier II indicator, meaning that "an internationally established methodology and standards are available, but data are not regularly produced by countries" (UNSD, 2021). Data collected through CSA projects that can be aggregated at national level could therefore provide much needed support to fulfil SDG reporting obligations of national governments.

The farm survey also collects data on topics related to a series of other SDGs, including land tenure (SDG 1 & SDG 5), food security (SDG 2), youth employment and child labour (SDG 8). Moreover, it captures farm-level data on the adoption of climate change adaptation and mitigation practices. These data could support the monitoring of countries' efforts on agriculture-related adaptation and mitigation towards realizing their nationally determined contributions (NDCs) under the Paris Agreement.

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A study of evaluation capacities in ministries of agriculture (MoAs) in 23 countries has shown limited engagement of MoAs in the monitoring and reporting of SDGs, as well as limited collaboration between MoAs and civil society organizations on M&E of agricultural development initiatives (FAO, 2020b). By building on

the SDG indicator methodology, the farm sustainability assessment framework links project M&E with international reporting processes. In this way, the use of this framework in climate-smart agriculture by public and non-state actors presents an opportunity for strengthening ministries' capacities in data collection as well as civil society engagement in SDG monitoring and reporting.

Table 1.Linkages between SDG indicator 2.4.1 and climate-smart agriculture: SDG 2.4.1 sub-indicators as direct and proxy indicators of different aspects of the three CSA pillars.

	SDG indicator 2.4.1		CSA pillars and aspects			Sustainability dimension
#	Theme	Sub-indicators	1 - Productivity and incomes	2 - Resilience and adaptation	3 - Climate change mitigation	
1	Land productivity	Farm output value per hectare	Productivity			Economic
2	Profitability	Net farm income	Income			
3	Resilience	Risk mitigation mechanisms		Economic resilience to climate shocks		
4	Soil health	Prevalence of soil degradation	Soil productivity	Ecological resilience to climate variability	Carbon sequestration in soil	Environmental
5	Water use	Variation in water availability	Environmental sustainability (water use)	Vulnerability to drought		
6	Fertilizer pollution risk	Management of fertilizers	Resource use efficiency; Environmental sustainability (nutrient management)		GHG emissions (fertilizer application)	
7	Pesticide risk	Management of pesticides	Resource use efficiency; Social & environmental sustainability (human & environmental health)			
8	Biodiversity	Use of agro-biodiversity-supportive practices	Environmental sustainability (biodiversity)	Ecological resilience to climate shocks	Carbon sequestration in biomass (agroforestry)	
9	Decent employment	Wage rate in agriculture	Social sustainability (rural livelihoods)			Social
10	Food security	Food insecurity experience scale (FIES)	Social sustainability (food security)	Economic resilience		
11	Land tenure	Secure tenure rights to land	Enabling factor (productivity measures)	Enabling factor (adaptation measures)	Enabling factor (mitigation measures)	

1.4. Scope, target audience and how to use the document

This guidance document is intended as a reference guide for project developers and implementers interested in tracking the field-level impact of their project activities in terms of improving farm sustainability and resilience. The document offers:

- A comprehensive yet manageable list of indicators to assess farm sustainability, designed specifically in alignment with the three pillars of CSA.
- Indicators (and a farm survey) that are fully aligned with the methodology of SDG 2.4.1 on sustainable agriculture, i.e. that encompass all the information needed to compute the SDG indicator.
- A 'traffic light' rating system to assess current levels of sustainability, identify gaps and priority areas for intervention, and monitor progress over time.
- A farm survey that users can employ to collect data to populate the indicators. The survey offers a global template defining a standard set of sustainability and resilience indicators. At the same time, guidance is provided for users to tailor those aspects of the survey that can make it relevant to the specific geographical setting of their project.
- A ready-made digitalised version of the survey that can be used to collect data with tablets and smartphones through the FAO Open Foris – Collect Mobile app, and thorough guidance on how to use it. The digital survey is freely accessible at the following link: https://LINK TO BE ADDED WHEN AVAILABLE.
- In-depth guidance on how to use the framework in practice. This includes sample workflows to plan for farm assessments, including suggested activities to tailor the farm survey to different geographical settings, field training schedules, guidance on rolling out data collection activities and make use of the information collected.

2. METHODOLOGY: FRAMEWORK AND INDICATORS BACKGROUND AND DEVELOPMENT

2.1. Process of indicator selection

The selection of indicators that form part of the Framework followed a step-wise approach (Figure 1).

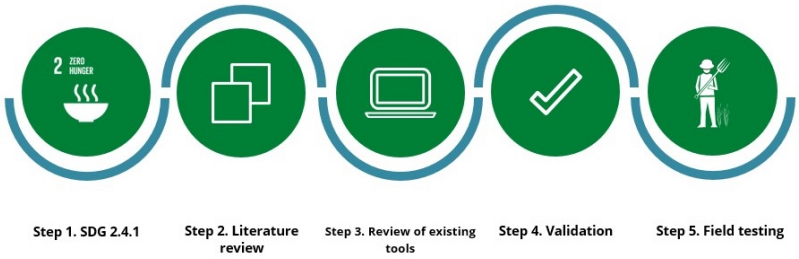

Figure 1. Stepwise approach to the development of the Framework.

The key anchor for the process was the methodology developed to collect data on SDG indicator 2.4.1 on "Proportion of agricultural area under productive and sustainable agriculture" (Box 3). The indicator is multi-dimensional, and it is structured across 11 sub-indicators that capture the three key dimensions of (agricultural) sustainability: economic, environmental and social (Table 1). SDG 2.4.1 represents the working definition of sustainable agriculture employed by FAO, and the internationally-agreed target against which progress towards transitioning to more sustainable agricultural systems is measured globally. Therefore, as a first step, all sub-indicators needed to compute SDG 2.4.1 were included in the Framework.

Box 3. Measuring agricultural sustainability through SDG 2.4.1

FAO is the UN custodian agency for SDG 2.4.1 – "Proportion of agricultural area under productive and sustainable agriculture", which measures progress in achieving more sustainable production systems.

The indicator was developed through a multi-stakeholder consultative process, involving many different experts from national statistical offices, international organisations, civil society and the private sector. SDG 2.4.1 seeks to capture the multidimensional aspects of sustainable agriculture (environmental, economic and social aspects) through 11 sub-indicators that cover: productivity, profitability, resilience, land and water issues, decent work and well-being (see Table 1).

For more information on SDG 2.4.1 please see:
http://www.fao.org/sustainable-development-goals/indicators/241

The second step of the process focused on identifying those aspects of agricultural sustainability that are not captured (at all, or at a sufficient level of depth) by the themes and sub-indicators included in SDG 2.4.1, to enable a more in-depth assessment of sustainable agriculture and strengthen alignment with CSA Pillar 1. As a third step, given their centrality and significance within the CSA concept, particular emphasis was given to strengthen aspects related to farm-level resilience (CSA Pillar 2) and to GHG emissions mitigation (CSA Pillar 3). Measuring agricultural sustainability is not a new endeavour, and several tools, methodologies and frameworks geared towards this purpose have been proposed by academics and practitioners over the past decades. Considering this, the selection process for additional indicators in steps 2 and 3 explicitly sought to

build on well-tested and widely accepted and used farm sustainability assessment tools, and entailed an in-depth review of the existing literature on agricultural sustainability and of existing farm-level sustainability assessment methodologies.

While several frameworks and methodologies for agricultural sustainability assessment were consulted in the process of developing the Framework (a full list is available in Annex X), two methodologies in particular served as the main source of reference. The first one is the Sustainability Assessment of Food and Agriculture systems (SAFA) methodology (FAO, 2014a). SAFA was developed by FAO as a comprehensive repository of straightforward—yet effective—indicators to measure farm-level sustainability across four dimensions (environmental, social, economic and governance). The Framework draws in particular on the SAFA Smallholders version (FAO 2015a). SAFA Smallholders is an adaptation of the original SAFA methodology. It is overall leaner (44 indicators compared to 116 in the original version) and designed to explicitly and effectively target the context of smallholder farmers (as opposed to the original SAFA methodology, which is broader in scope and also covers large-scale farm enterprises).

The second tool which the Framework draws on is the Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists (SHARP) methodology (FAO, 2015b; Hernandez Lagana, Phillips & Poisot, 2021). SHARP, also developed by FAO, provides an effective methodology to assess farm-level sustainability and climate resilience. SHARP is grounded in the academic literature on climate change resilience, but also informed by a participatory farmer-oriented approach, and by several years of practical testing with thousands of smallholder farmers in a wide range of countries in Africa, Asia and Latin America. Given its strong focus on the interconnected dimensions of sustainability and resilience, the usefulness of SHARP as a data collection and M&E tool in the context of the CSA approach has been explicitly recognised (FAO, 2019b).

Through this process, several additional themes, and related indicators and measures, were added to the Framework. In a few instances, specific indicators and/or measures were developed from scratch, to strengthen aspects of particular relevance to the scope of the Framework. The process of selecting additional indicators was guided by the general principle of achieving balance between comprehensiveness and depth of assessment, and practical usability of the Framework. Practical considerations included among others the overall length of the farm survey and related burden on respondents (i.e. farmers), and the ease of use by target end users (e.g. field enumerators). Among the advantages of building on existing and well-tested tools is the fact that the indicators selected for inclusion in the Framework, and the related assessment/scoring method benefit from the extensive development and multi-stakeholder consultation and validation processes that the original tools went through, and from a wealth of practical field testing by multiple different actors (international development practitioners, but also researchers and government agencies) across a diverse range of geographies.

- As a fourth step…
- As a fifth and final step…

Table 2 presents the final list of themes and indicators included in the Framework across the economic, environmental and social dimensions of sustainability.

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Table 2. List of themes and indicators included in the CSA assessment framework across the three dimensions of sustainability. Indicators in blue are those that collect information required to compute SDG 2.4.1 on sustainable agriculture.

Dimension		Theme	Code	Indicator
Economic	1	Productivity	Eco.1	Farm output value per hectare
	2	Profitability	Eco.2	Net farm income
			Eco.3	Certification schemes
	3	Economic resilience	Eco.4	Insurance
			Eco.5	Credit
			Eco.6	Savings
			Eco.7	Production diversification
			Eco.8	Income diversification
			Eco.9	Market stability
			Eco.10	Fair pricing
			Eco.11	Access to inputs
			Eco.12	Access to information on climate change and ICTs
			Eco.13	Yield variability
			Eco.14	Income variability
	4	Vulnerability	Eco.15	Impacts from climate and other shocks
			Eco.16	Coping strategies
Environment	5	GHG mitigation	Env.1	Tree cover
			Env.2	Tillage method
			Env.3	Rice cultivation system
			Env.4	Fertiliser use (timing and method of application)
			Env.5	Burning of crop residues
			Env.6	Food loss and waste
			Env.7	Ruminant production
			Env.8	Manure management system
			Env.9	Animal health
	6	Materials and energy	Env.10	Recycled materials
			Env.11	Energy use
	7	Land	Env.12	Soil degradation
			Env.13	Soil improvement practices
			Env.14	Fertiliser use (type and needs assessment)
			Env.15	Land conservation and rehabilitation
	8	Water	Env.16	Water availability
			Env.17	Water conservation
			Env.18	Water pollution prevention
	9	Biodiversity	Env.19	Ecosystem diversity
			Env.20	Land use change
			Env.21	Pest management practices
			Env.22	Saving seeds and breeds
			Env.23	Antibiotics use
Social	10	Labour rights	Soc.1	Wage rate in agriculture
			Soc.2	Freedom of association
			Soc.3	Forced labour
			Soc.4	Child labour
	11	Human health and safety	Soc.5	Access to medical care
			Soc.6	Access to safe water
			Soc.7	Safe pesticide use
			Soc.8	Workplace safety
	12	Gender, youth and education	Soc.9	Gender equality in decision-making
			Soc.10	Gender equality in education
			Soc.11	Training participation
			Soc.12	Youth initiatives
	13	Food security & nutrition	Soc.13	Food insecurity experience scale (FIES)
			Soc.14	Dietary diversity
	14	Rule of law	Soc.15	Secure land tenure rights

2.2. Sustainability measures and rating system

Each of the indicators presented in Table 2 is associated with one or multiple measures of sustainability, which ultimately determines current sustainability levels of the farm holding studied. In keeping with the general approach to the development of the Framework—to build on robust, well-tested and validated methodologies—where possible, the rating system associated with each indicator in the original source was kept either unchanged or with slight modifications that would allow a better alignment with the working definitions of sustainable agriculture, climate change adaptation and resilience employed in the Framework.

The rating system is intended for application at the indicator level (Figure 2). Aggregation is possible at the theme level, if users need a quicker glance at sustainability levels (albeit at the cost of lower nuance); aggregation at the dimension level, while theoretically possible, is not advisable as it would cause significant loss of detail, and in turn limited possibility to identify gaps and implement targeted interventions.

Figure 2. Overview of the rating system for intended use at the indicator level.

Each sustainability measure associated with an indicator is rated on a three scale "traffic light" system, which defines desirable (green), acceptable (yellow) and unsustainable levels of farm holding sustainability performance. In keeping with the SAFA Smallholders methodology (FAO, 2015a), the three sustainability performance ratings are assigned values of 1, 2 and 3 (for red, yellow and green respectively).

In the case of indicators associated with a single sustainability measure, the rating of that measure corresponds to that of the indicator. Specific rules apply instead when aggregating multiple measure-level ratings to compute the indicator level rating (in case of indicators assessed against multiple measures) or the theme level rating (when combining ratings for multiple indicators). In these instances, ratings are averaged and the result is rounded up or down, depending on the closest value.

For example:

- In the case of an indicator with three underlying measures of which one is rated green and two yellow, the final rating would be calculated as follows: (3 + 1 + 1)/3 = 5/3= 1.7 = 2 = yellow
- In the case of an indicator with three underlying measures of which one is rated yellow and two red, the final rating would be calculated as follows: (2 + 1 + 1)/3 = 4/3= 1.4 = 1= red

When the average lies precisely between two ratings, the lower one is considered, in order to flag an aspect of farm sustainability that could potentially require attention.

For example:

- In the case of an indicator with two underlying measures, of which one is rated green and one yellow, the final rating would be calculated as follows: (3 + 2)/2 = 5/2 = 2.5= 2= yellow

In some (limited) instances, measures can be rated as neutral. This is the case when the measure is not applicable to the farm holding that is being studied. For example, questions related to hired labourers will not be relevant to those holdings that rely on family labour alone. In these instances, the measure will not count towards the final rating of the indicator.

The rationale for the rating of each sustainability measure, as well as the applicability rules that render measures neutral are described in the indicator sheets presented in Section 3 of the manual.

2.3. Limitations

As is the case with all existing sustainability assessment methodologies, be it in the agricultural sector or others, the Framework presented in this manual is not exempt from limitations. A general limitation is of conceptual nature, and relates to the challenges encountered when assessing concepts such as sustainability and resilience, which are complex, multi-faceted, and not directly measurable. Selection of indicators included in the Framework builds on existing tools and methodologies, including that for SDG 2.4.1, which in turn benefit from years of extensive testing and expert review. Nevertheless, there will be necessarily some degree of arbitrariness intrinsic to the process of selecting indicators to assess farm sustainability. A similar limitation applies to the decision to allocate selected indicators across the three dimensions of sustainability. The complex nature of sustainable agriculture reflects in the fact that indicators used to measure one specific aspect can often have multiple and overlapping links across the three dimension of sustainability. For example, the indicator for pesticide management, used as a proxy to understand threats to agro-biodiversity on farm, may well have important implications for other themes across the environmental dimension—for example, reduced water pollution threats—and across the other dimensions—for example, improved profitability from reduced input costs, and reduced risk to human health.

Similarly, some concepts underlying our definition of agricultural sustainability, which have thus been included in the Framework, are intrinsically cross-cutting in nature—it is the case, for example, of food security and nutrition, that we include as a theme under the social dimension of sustainability, but that have of course important implications for all sustainability dimensions. Nevertheless, the decisions to allocate themes and indicators to specific sustainability dimensions in order to construct the Framework does not take away from the overall strength and meaning of the assessment. Moreover, users interested in more in-depth assessments of specific areas of sustainability have at their disposal a vast array of dedicated methodologies and tools—some of which are described in Section 6. Additional Resources.

A further limitation relates to the fact that, due to the conceptualisation of a Framework as a farm survey-based assessment tool targeting resource-constrained users and smallholder settings, many of the indicators used represent semi-quantitative or qualitative proxies for what are in reality quantifiable phenomena. For example, amounts of GHG emissions released or sequestered, and agro-biodiversity levels on farm could be measured quantitatively through GHG accounting tools and biodiversity indices respectively. This would however be challenging for many of the target end users in such settings. In this sense, while the Framework does not allow for precise quantitative estimation, it represents a straightforward and relatively easy to implement tool to assess sustainability levels and draw attention to priority areas for project intervention. A similar rationale was employed in the development of the SDG 2.4.1 methodology, which also relies on farm survey data (FAO, 2020b).

3. THE THREE DIMENSION OF AGRICULTURAL SUSTAINABILITY

The 2030 Agenda explicitly recognises that sustainable development encompasses three integrated and indivisible dimensions—the economic, social and environmental (UN, 2015). The three dimensions, and the interconnectedness between them reflect in the three "P-s" outlined in the Agenda—people, planet and prosperity—that serve as the foundation to the Sustainable Development Goals, and summarise the international commitment to put an end to poverty, inequality and social exclusion, and ensure that human systems can prosper while preserving and enhancing the natural resources base that sustain them (UN, 2015).

Food and agricultural systems represent a major challenge to achieving sustainable development objectives. Agricultural production is a prominent user of natural resources such as land and water, and a major source of GHG emissions (FAO, 2018). At the same time, food and agriculture are central to sustainable development. They represent the founding connection between human and natural systems, and can help achieve multiple Sustainable Development Goals across the three dimensions of sustainability—for example, by sustaining livelihoods (economic) and improving food security and nutrition (social), while at the same time restoring the natural ecosystems and biodiversity on which they depend (environmental).

This multidimensional nature of sustainability is in fact reflected in food and agricultural systems, down to the level of the farm. From the economic point of view, a farm holding can be considered sustainable if it can ensure long-term productivity, and thus profitability, and in turn sustain and improve the livelihoods of those who depend on it, as well as of the broader local communities. From an environmental sustainability perspective, it is key that on-farm productivity does not come at the expenses of natural ecosystems and of the biodiversity they support. In this sense, farm sustainability reflects in the adoption of sustainable farm management practices—practices that improve soil health, reduce damage to land and water resources from misuse of agrochemicals, sustain habitat for beneficial agro-biodiversity on farm and in the wider landscape. Finally, the social dimension of sustainability reflects in the uptake of practices, within the farm holding, that ensure fair and safe employment conditions, promote gender equality in access to resources and opportunities, and improve food security and nutritional status of those sustain by the system.

The following sections provide detailed background on themes and indicators across the three sustainability dimensions, and information on the sustainability measures (and related "traffic light" rating) against which each indicator is assessed.

3.1. Assessing the economic dimension of agricultural sustainability

Theme 1. Productivity

Survey module: 2. Agricultural production activities

Besides the obvious importance of productivity of the farm system for the farmer in financial terms, higher levels of productivity are also relevant to sustainability. Land productivity reflects technology and production processes for given agro-ecological conditions. In a broader sense, an increase in the level of land productivity enables higher production while reducing pressure on increasingly scarce land resources, commonly linked to deforestation and associated losses of ecosystem services and biodiversity (FAO, 2020b).

Farm output value per hectare is a measure of land productivity. It is one of the 11 sub-indicators included in SDG 2.4.1. In terms of sustainability, maintaining or improving the crop output from the same area of land can suggest that sustained or higher production is being achieved without putting further pressure, or by reducing the pressure on land resources (FAO, 2020b). This in turn has positive implications in terms of reduced likelihood of implementing unsustainable practices, such as deforestation and other forms of land use change that contribute to degradation of natural ecosystems and biodiversity loss.

Indicator	**Farm output value per hectare**		*Eco.1*
Source	**SDG 2.4.1**		
Sustainability measure	**Rating**		
How the total value by land area of the five major crops, five major livestock, other on-farm activities and by-products from these activities of the farm holding compares to a set reference level		The value is ≥ 2/3 of the corresponding 90th percentile	
		The value is ≥ 1/3 and < 2/3 of the corresponding 90th percentile	
		The value is < 1/3 of the corresponding 90th percentile	
Notes			
- While SDG 2.4.1 assesses farm output value per hectare against the national distribution, for the purpose of the CSA indicator framework it is suggested that the comparison is made at the smaller unit of interest, e.g. the community of farming household targeted by the project or intervention. Data gathered can nonetheless be extrapolated for use in accordance with the SDG 2.4.1 methodology. - Total value is expressed in monetary terms, in the local currency of reference - Other on-farm activities may include e.g. aquaculture, agroforestry, beekeeping etc.			

Theme 2. Profitability

Survey modules: 2. Agricultural production activities; 5. Economic resilience

The main measure of farm operations profitability is the net income derived from the main productive activities carried out on farm. It gives an indication of the economic viability of the farm—an important component of sustainability. Considering the scope of the sustainability assessment framework presented in this manual, which is geared towards smallholder farmers rather than larger-scale operations, two options are listed below for assessing net farm income. These follow the 'simplified options' suggested in the SDG 2.4.1 methodology (FAO, 2020b). While likely less accurate than a full analysis of detailed farm financial records, these options are more suitable in contexts where these detailed records may not be available—which is often the case for many smallholder and family farm holdings (FAO, 2020b). Of the two measures to assess net farm income detailed below, *Option 1* will provide a quantifiable and more accurate estimate of the viability of farm operations compared to *Option 2* (albeit subject to the information self-reported by the farmer, in the absence of financial records). However, this method will also take up more time, as the farmer is asked to recall the total expenditures sustained by the holding for different types of inputs over the previous three years.

In addition to net farm income, profitability of farm operations is assessed based on whether the farm holding produces or not crops that are certified to a recognised standard. Certified production can translate into multiple types of benefits in terms of economic viability and sustainability of the farm system. Certified produce can generally fetch higher prices on agricultural markets and/or have better access to them (FAO 2014, 2015a) thereby contributing to overall profitability of farm operations. This indicator also captures the specific role of certified organic production in promoting the uptake of practices that are beneficial to agro-biodiversity on and around the farm—one of the elements used in SDG 2.4.1 – Theme 8 on agro-biodiversity supportive practices (FAO, 2020b). Absence of a certification does not necessarily indicate that farm production is unsustainable. However, if a certification granted was subsequently rescinded, this can indicate a shift towards unsustainable farming practices.

Indicator	**Net farm income**		*Eco.2*
Source	**SDG 2.4.1**		
Sustainability measure	**Rating**		
Whether the farm was profitable over the previous three years of operations.			
Option 1. Net farm income (NFI) is calculated as the total return (based on quantities produced and farm gate prices) from the five major crop, five major livestock, other on-farm activities, and by-products from all these, minus the operating expenditures incurred by the farm household.		NFI >0 for the past three years.	
		NFI >0 for at least one of the past three years	
		NFI <0 for the past three years.	

Option 2. Farmer's qualitative response on whether agricultural activities were profitable over the past three years.		Yes
		Sometimes, but not always
		No

Notes
- Expenditure categories include: seeds, fertilisers, feed, veterinary services, livestock purchase, machinery and equipment (including maintenance), fuel, energy, transport, land rental fees. - Depending on farm operations type, not all the expenditure categories may apply. - Expenditures not covered by the above categories can be reported under "other expenditures". - Calculations are based on activities carried out on farm, and do not account for off-farm sources of income. These are captured by a separate sub-indicator in the 'economic resilience' theme.

Indicator	**Certification schemes**	*Eco.3*
Source	**SDG 2.4.1; SAFA Smallholders**	
Sustainability measure	**Rating**	
1. Whether the farm produces certified products (organic or other standard) or not, or whether a certification previously awarded was rescinded		The farm produces certified products
		The farm does not produce certified products
		The farm used to produce certified products, but the certification was rescinded
2. Share of production that is certified		Most or all (>80%)
		Some (40-80%)
		Not much or none (<40%)

Theme 3. Economic resilience

Survey modules:
2. Agricultural production activities; 4. Information transfer and exchange; 5. Economic resilience

Economic resilience reflects the extent to which the viability and profitability of farm operations are protected by buffer mechanisms against shocks—for example, of socio-economic (e.g. economic downturns) or environmental nature (e.g. climate shocks) (FAO, 2014a).

A first set of economic resilience indicators refers to whether the farm holding has access to mechanisms designed specifically to mitigate possible risk to the farm systems (and to the farmer's livelihood more generally). These mechanisms include crop and livestock insurance, which directly protects the farmer from losses to its productive assets due to e.g. unfavourable weather events; access to credit from multiple formal and informal sources, and to savings, which can help to cover the costs from damage experience, and to invest in specific aspects of the farm systems that can build further resilience and long-term sustainability.

A second set of indicators encompasses farm management practices and strategies that can help build long-term resilience to shocks and stresses. A higher degree of diversification in on-farm production activities helps avoiding reliance on one single commodity or product, thus reducing overall risk for the fam holding. Production diversification can be achieved through the production of multiple crops or the rearing of multiple animal species, and by engaging in multiple different activities (e.g. crop production alongside animal rearing, aquaculture and/or forestry). On-farm cultivation of perennial crops, which can offer benefits in terms of increased marketable produce beyond the single cropping season is also an effective diversification strategy. Similarly, having multiple sources of income, from different on- and off-farm activities, can be an effective way to mitigate risk.

A third set of indicators includes aspects of the local economic environment that the farmer can control less directly, but that can give an important indication of possible risks to the resilience of the farm holding. These include access to a wide range of reliable buyers and input providers, which protects the farm holding against risk compared to relying only on one or few buyers/suppliers, and the availability of market information and clear, fair price setting mechanisms for farmers to sell their produce.

A fourth set of indicators reflects the capacity of the farm holding to anticipate risk originating specifically from climatic shocks. Access to reliable and good quality information on weather and climate indicators from multiple sources, and on farming practices that have proven useful in mitigating and adapting to impacts of climate change can help farmers to reduce climate-related uncertainty, and thus to protect the farm holding's productive capacity against adverse shocks. Information and communication technologies (ICTs) such as mobile phones can help make this information available to farmers more quickly and effectively, further enhancing their capacity to anticipate climate risk.

Finally, the extent to which farm yields and income are stable, or vary over time (assessed over the previous three years of activity), can give an indirect indication of the historical resilience of the system to shocks and stresses.

Indicator	Insurance	*Eco.4*
Source	**SDG 2.4.1; SAFA Smallholders**	
Sustainability measure	**Rating**	
Whether the farmer has access to crop and/or livestock insurance		Yes
		Insurance is not available
		No

Indicator	Credit	*Eco.5*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
1. Number and type of credit sources that the farmer can access		The farmer has access to two or more of the following sources: • Informal sources (friends, relatives, religious groups…) • Banks, government lending institutions • Directly from buyers (exporter, importer, roaster, trader) • NGOs, cooperatives, farmer associations or microfinance groups
		The farmer can access only one of the above sources OR the farmer's only option to access credit is a loan shark.
2. Amount of loan received versus that requested *Only applicable if the farmer requested a loan in the previous year*		All or most
		Some
		None

Indicator	Savings	*Eco.6*
Source	**SHARP**	
Sustainability measure	**Rating**	
Whether the farmer has savings, and whether these have increased over the past year.		The farmer has savings and these have increased over the past year.
		The farmer has savings, and these have remained the same over the past year OR have decreased due to an investment in productive assets (e.g. equipment, machinery).
		The farmer has savings, and these have decreased for another reason OR the farmer has no savings

Indicator	Production diversification	*Eco.7*
Source	**SDG 2.4.1; SHARP**	
Sustainability measure	**Rating**	
1. Whether the farm engages in multiple productive activities *Options include:* *Crop production* *Animal production* *Agroforestry* *Aquaculture* *Beekeeping* *Fishing* *Other agricultural activities (specify)*		The farmer engages in three or more activities
		The farmer engages in two activities
		The farmer only engages in one activity
2. Whether the farmer grows perennial crops		Yes
		No
3. Number of different crop species grown on farm.		The farmer grows four or more crop species
		The farmer grows two or three crop species
		The farmer only grows one crop species
4. Number of different animal species reared on farm.		The farmer rears three or more animal species
		The farmer rears two animal species.
		The farmer only rears one animal species.

Indicator	Income diversification	*Eco.8*
Source	**SHARP**	
Sustainability measure	**Rating**	
Whether the farmer has multiple income sources (from on and off-farm activities)		The farmer has three or more income sources
		The farmer has two income sources
		The farmer has only one income source

Indicator	Market access and stability	*Eco.9*
Source	**SAFA Smallholders; SHARP**	
Sustainability measure	**Rating**	
1. Whether the farmer is able to sell his/her products when desired		Able to sell all or most products
		Able to sell only some products
		Unable to sell products
2. Number of buyers/places available to the farmer to sell products		Multiple buyers/places
		One or two buyers/places
		No regular buyer/place
3. Stability of farmer's relationship with the main buyer		Very reliable relationship
		Somewhat reliable relationship
		Unreliable relationship
4. Whether the farmer thinks he/she has a choice of where to sell products		Yes
		No

Indicator	Fair pricing	*Eco.10*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
1. Farmer's knowledge of price setting mechanisms		The farmer always or often understands how buyers set prices for the products sold
		The farmer sometimes understands how buyers set prices for the products sold
		The farmer rarely or never understands how buyers set prices for the products sold
2. Farmer's knowledge of market prices		Over the past year, the farmer had access to one or more of the following market prices information: • Prices paid by others in the region for the same products • Price received by the buyer for the product sold • Retail price of the product
		The farmer did not have access to any of the above information.

Indicator	Access to inputs	*Eco.11*
Source	**SHARP**	
Sustainability measure	**Rating**	
1. Farmer's ease of access to different farm inputs *Final rating is the average across all inputs.*		Easy to access inputs
		Somewhat difficult to access inputs
		Very difficult to access inputs
2. Whether the farmer has access to more than one supplier for farm inputs *Final rating is the average across all inputs.*		Yes
		No

Indicator	Capacity to anticipate climate risk	*Eco.12*
Source	**SHARP**	
Sustainability measure	**Rating**	
1. Whether the farmer has access to information on weather and/or climate change adaptation practices *Final rating is the average across the two information types*		Yes
		No
2. Farmer's perception of whether the information sources available are helpful		Very helpful
		Somewhat helpful
		Not very helpful
3. Whether the farmer uses IT devices to access information on weather and farming practices		The farmer uses two or more devices
		The farmer uses one device
		The farmer does not use any device

Indicator	Yield variability	*Eco.13*
Source	-	
Sustainability measure	**Rating**	
Whether the farm holding's yield has remained stable over the previous three years		Yields have remained stable or have increased
		Yields have decreased

Indicator	Income variability	*Eco.14*
Sustainability measure	**Rating**	
Whether the farm holding's income has remained stable over the previous three years		Income has remained stable or has increased
		Income has decreased

Theme 4. Vulnerability

Survey module: 6. Shocks and coping strategies

Vulnerability refers to the extent to which the farm holding is exposed to risk from shocks and stresses of climatic nature, or originating from other natural or man-made causes. Some limited exposure to shocks can have beneficial long-term effects, as it helps strengthen the socio-economic and natural farm systems and thus increases resilience to future adverse events (FAO, 2015b). However, repeated exposure to unexpected shocks and stresses, and significant damaging impact resulting from these can jeopardize the sustainability of the system.

An additional and complementary aspect of vulnerability is the extent to which the farm system is able to respond and cope with shocks. Of particular interest from the perspective of long-term sustainability of the system is the type of response, or coping strategy that the farm holding adopts in response to shocks and stresses. Some coping strategies—for example, experimenting with new methods of production, self-improvement in the form of educational or vocational training—can provide increased long-term resilience to adverse events. On the other hand, some coping strategies can have long-lasting negative impacts on the farm holding—for instance when reducing expenditure on primary needs such as healthcare, pulling children in the family out of school to support work on- or off-farm, selling productive assets or using up savings.

Indicator	**Impacts from climate and other shocks**	*Eco.15*
Source	**SHARP**	
Sustainability measure	**Rating**	
1. Whether the farmer has experienced shocks (e.g. extreme climatic events, disease outbreaks etc.)	The farm holding has experienced two shocks over the previous three years	
	The farm holding has experienced one shock over the previous three years	
	The farm holding has not experienced shocks over the previous three years	
2. Impact from the most significant shock	No impact	
	Any impact from the list of options: Loss of productivity Crop failure Need for greater inputs Landslides Spread of pests Fire Land Erosion Coastal erosion Declining water availability Reduced food security Crop damage Salinization Other (specify)	

Indicator	Coping strategies	*Eco.16*
Source	**SHARP**	
Sustainability measure	**Rating**	
Sustainability of the coping strategy adopted by the farmer in response to the most significant shock experienced *Only applicable if the farmer reports negative impacts from the shocks experienced*		The farmer adopted one of the following strategies: • Shifted to crop or animal production • Changed crop varieties or animal breeds • Tested different land or water management practices • Engaged in off-farm employment • Started an education programme (in/outside agriculture) • Started a business • Borrowed money from cooperative or village fund
		The farmer relied on aid organizations or government support
		The farmer adopted one of the following strategies: • Migration • Asked children to help more than usual with household work • Sent children to work outside the household • Reduced healthcare spending • Sold agricultural assets (e.g. livestock, farmland, seeds) • Sold/left home • Used savings or sold goods (e.g. TV, jewellery) • Sold farmland • Did not do anything

3.2. Assessing the environmental dimension of agricultural sustainability

Theme 5. GHG mitigation

Survey modules: 2. Agricultural production activities; 3. Environment

Agricultural production is key to global food security and central to the livelihoods of many, particularly in low and middle-income countries. At same time, the agricultural sector is a major contributor to greenhouse gases (GHG) emissions globally, which in turn are a key driver of anthropogenic climate change. (Smith et al., 2014). Assessing emission levels from farm operations, and identifying options to mitigate these is thus key. However, in smallholder settings it is often difficult to estimate quantitatively farm GHG emissions, for example due to the lack of detailed accounting information (FAO, 2014a). Financial resources and time constraints may also limit the possibility to proceed with quantitative estimations in the framework of project monitoring and evaluation activities. Based on these considerations, the sustainability measures included in the framework to assess GHG mitigation are based on proxies, i.e. they evaluate the extent to which practices that are known to mitigate emissions are adopted by the farm holding.

Practices assessed include maintaining trees on farm and adopting reduced or no-till, which preserve existing carbon pools in the soil; timing and method of fertiliser application, which can affect efficiency in nutrient uptake and thus influence overall input needs; and burning of crop residues, which contribute directly to releasing GHG to the atmosphere. Other practices assessed refer to specific production systems. For farm holdings that produce rice the water management system used (continuously flooded versus other more efficient methods) can reflect different levels of GHG emissions. For those holdings that rear animals, practices assessed include whether the focus of production is only or mainly on ruminant production, and the type of manure management practices used, particularly if manure is reused in the productive cycle or discarded. Animal health, which refers to the state of physical well-being and appropriateness of the local environment for animals raised on farms (FAO, 2014a; FAO, 2015a) can also impact GHG emissions. Improved animal health contributes to greater efficiency and productivity gains, and can thus indirectly help reduce greenhouse gas emissions (GHG) from livestock farming. Adopting preventive disease management practices—particularly relying on qualified veterinarians and specialists—rather than administering medicaments routinely is an important aspect of ensuring the health and well-being of farm animals. A final aspect considered under this theme is the amount of food losses that the farm holding experiences (pre- and post-harvest), and whether any measure is put in place to deal with these.

- Add information on the option to use EX-ACT.)

Commented [CD5]: Note for reviewers: the possibility is being explored to align the information collected through the Framework with that needed for a GHG accounting estimation using the FAO EX-Ante Carbon Balance Tool (EX-ACT) – for those users that have more resources (time, money) and for settings where detailed information from farm records is available.

http://www.fao.org/in-action/epic/ex-act-tool/overview/en/

Indicator	**Tree cover**	*Env.1*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
1. Size of the farm area covered by trees		Half or more
		Less than half
		None
2. Change in on-farm tree area over the previous year		The area has increased or remained the same
		The area has decreased

Indicator	Tillage method	Env.2
Source	SAFA Smallholders	
Sustainability measure	Rating	
Main tillage method used on farm		No-till
		Reduced tillage
		Conventional tillage

Indicator	Rice cultivation system	Env.3
Source	-	
Sustainability measure	Rating	
Type of rice cultivation system employed on farm (if rice is selected as one of the crops cultivated by the farm holding).		Any of the following: • Rainfed (drought prone) • Deep water rice • Upland dry rice
		Any of the following: • Irrigated intermittently flooded • Rainfed flood prone
		Irrigated continuously flooded

Indicator	Fertiliser use (timing and method of application)	Env.4
Source	-	
Sustainability measure	Rating	
1. Method of fertilizer application		Injection or direct placement
		Band application or "other" option
		Broadcast
2. Timing of fertilizer application		The farmer uses three/all of the following practices: • Avoid application before and after rainfall event • Split fertilizer application according to crop uptake • Avoid application on steep slopes or flood-prone areas • Use urease inhibitor (enhanced efficiency fertilizer)
		The farmer adopts two of these practices
		The farmer adopts one/none of these practices

Indicator	Burning of crop residue	*Env.5*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
Whether the farmer burns his/her fields		No
		Yes

Indicator	Food loss and waste	*Env.6*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
1. Amount of pre- and post-harvest losses experienced by the farmer		Minimal losses (<10%)
		Some losses (10-30%)
		Substantial losses (>30%)
2. Whether the farmer takes any measure to reduce pre- and post-harvest losses		Yes
		No

Indicator	Ruminant production	*Env.7*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
Whether the farm holding is mainly dedicated to the production of ruminants		No
		Yes

Indicator	Manure management system	*Env.8*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
Type of manure management system used on the farm		Compost or bio-digestion
		Direct use
		Open-air lagoon, or discharge in water bodies

Indicator	Animal health	*Env.9*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
1. Access and quality of veterinary care available to the farmer		The farmer has access to good quality veterinary care
		The farmer has access to veterinary care, but there are issues with its quality
		The farmer does not have access to veterinary care
2. Whether the farmer uses appropriate disease management practices		The farmer consults a veterinary or expert and follows the advice received
		The farmer does not consult a veterinary or expert
		The farmer uses medications routinely as a prevention, or does not provide care to animals.

Theme 6. Materials and energy

Survey module: 3. Environment

Indicators included in the materials and energy theme assess the extent to which the farm holding makes efficient use of renewable resources on farm, and replaces non-renewable sources of energy with renewable and energy efficient ones, thereby contributing to minimising negative impacts on natural ecosystems from resources extraction. Measures of sustainable materials use include whether the residues from crop production on farm are reintroduced into the productive cycle rather than discarded, and whether materials such as paper, metal and plastic (with the exception of agrochemical containers) are reused or recycled. Measures of sustainable energy use assess whether the farm holding uses energy efficient practices (for example, fuel efficient stoves, solar drying, well maintained machinery), whether it relies on sustainable sources of wood and charcoal (for example, tree pruning rather than unlimited use of forest resources), and whether it uses renewable sources of energy.

Indicator	Recycled materials		Env.10
Source	**SAFA Smallholders**		
Sustainability measure	**Rating**		
1. How residues from farming activities are managed		Reused	
		Left in piles or taken off-farm	
		Burned or discharged into waterways	
2. Whether recycling is practiced on the farm *Recycled materials could include e.g. metal, plastic containers (other than agrochemical containers), paper, cardboard, etc.*		Yes	
		No	

Indicator	Energy use		Env.11
Source	**SAFA Smallholders**		
Sustainability measure	**Rating**		
1. Whether the farmer uses energy efficient practices *Only applicable if the farmer uses one of the following energy sources:* *Electricity* *Charcoal* *Wood* *Fossil fuel sources*		The farmer uses energy efficient practices For example, using fuel efficient stoves, solar drains, proper machinery maintenance, using gas rather than wood	
		The farmer has made some attempts at using energy efficient practices, but these are not applied to the whole farm yet	
		The farmer has made no attempts at using energy efficient practices.	
2. Whether the farmer uses sustainable sources of charcoal and wood *Only applicable if the farmer uses wood and/or charcoal as an energy source*		The farmer sources wood/charcoal from managed natural forests, plantations, tree pruning	
		The farmer purchases wood/charcoal OR does not know the source	
		The farmer makes unlimited use of forests to source wood/charcoal	
3. Whether the farmer uses renewable sources of energy		The farmer uses one of the following sources: • Solar • Hydropower/geothermal • Wind • Biofuel	
		The farmer does not use any of the sources listed	

Theme 7. Land

Survey modules: 2. Agricultural production activities; 3. Environment

Healthy soils provide food crops with the essential nutrients, water and oxygen they need to thrive, and support a rich variety of organisms that contribute to control pests and diseases (FAO, 2020c). Healthy soils provide also numerous key ecosystem services, such as carbon storage, water purification and nutrient cycling (FAO, 2014a; FAO, 2020c). Healthy soils represent thus the foundation of sustainable and productive agricultural systems—as recognised by the inclusion of soil health indicators in SDG 2.4.1 on sustainable agriculture.

Yet, agricultural activities represent a major threat to soil health. Unsustainable farm management practices can result in soil degradation issues such as soil erosion and loss of fertility. For example, while appropriate use of fertilizers, based on a careful assessment of the needs of soils and crops on farm can be beneficial to soil health, their misuse can result in long-term decline in soil fertility, increased GHG emissions, and pollution of waterways. Conversely, farmers can adopt a number of practices that have proven beneficial effects on soil health—for example, growing cover crops, applying crop rotation and mulching. Broader scale land and landscape management practices can also contribute to maintaining and enhancing soil health. Examples of such practices include the establishment of terraces and hedgerows, agroforestry systems, and gully control.

Indicator	**Soil degradation**	*Env.12*
Source	**SDG 2.4.1**	
Sustainability measure	**Rating**	
Whether the farm holding has experienced the following soil degradation issues, and the extent of their impact: • soil erosion • soil fertility reduction • salinization of irrigated land • waterlogging		The area affected by soil degradation is <10%.
		The area affected by soil degradation is 10-50%.
		The area affected by soil degradation is >50%.

Indicator	Fertiliser use (type and needs assessment)		Env.13
Source	SDG 2.4.1; SAFA Smallholders		
Sustainability measure	Rating		
1. Type of fertilizer used on farm		Natural fertilizers	
		Both natural/organic and synthetic fertilizers	
		Synthetic fertilizers OR no fertilizer	
2. How fertilizer needs are determined		Based on a careful assessment of soil/crop needs (including farmer's own observation, professional tests and analyses)	
		Based on general advice for the crop or region OR following instructions on packaging OR the farmer does not apply enough fertilizer but as much as he/she can afford	
		The farmer is not able to fertilize OR the farmer applies fertilizer in excess of dosage recommended on packaging	

Indicator	Soil improvement practices		Env.14
Source	SAFA Smallholders		
Sustainability measure	Rating		
Whether the farmer uses soil improvement practices		The farmer uses two or more of the following practices: • Cover crops • Nitrogen-fixing plants • Intercropping • Crop rotation • Composting • Mulching	
		The farmer uses one of the practices listed	
		The farmer does not use any of the practices listed	

Indicator	Land conservation and rehabilitation		Env.15
Source	**SAFA Smallholders**		
Sustainability measure	**Rating**		
Whether the farmer uses land conservation and rehabilitation practices		The farmer uses two or more of the following practices: • Terracing • Soil cover • Gully control • Hedgerows • Agroforestry • Rotational grazing	
		The farmer uses one of the practices listed	
		The farmer does not use any of the practices listed OR reports that soils on farm are often bare between cropping cycles	

Theme 8. Water

Survey module: 3. Environment

Agricultural production is a major source of freshwater use. Unsustainable levels of freshwater use can lead to reduction in groundwater reserves and water bodies, thus affecting the long-term availability of water for crop production and generating conflicts over the use of water resources (FAO, 2020b). Several practices can contribute to increasing the efficiency of water resources use on farm—for example, establishing rainwater harvesting infrastructure, watering at appropriate times of the day, using drip irrigation techniques and mulching. In addition, agricultural activities can contribute to the pollution of waterways and underground water streams. For example, runoff from excessive use of agrochemicals can contaminate water bodies and infiltrate underground streams. In turn, this can have detrimental effects on aquatic ecosystems and human health. By establishing crop production and animal rearing activities away from the immediate vicinity of natural waterways, and avoiding cleaning pesticide application equipment and discharging wastewater in water bodies, farmers can significantly mitigate water pollution risk from their activities.

Indicator	Water availability		Env.16
Source	SDG 2.4.1		
Sustainability measure	Rating		
Amount of irrigation water used, and whether water availability on the farm is stable over time		The farmer irrigates less than 10% of the farm area OR water availability remained stable over the past three years	
		The farmer does not know whether water availability has remained stable	
		The farmer reports declining water availability (from either natural waterways or wells).	

Indicator	Water conservation		Env.17
Source	SHARP		
Sustainability measure	Rating		
Number of water conservation practices adopted by the farmer		The farmer employs three or more of the following practices: • Planting pits and semi-circular bunds • Water retention ditches • Stone bunds • Vegetation strips • Contour lines and trenches (furrows) • Watering early in the morning or late at night • Water harvesting techniques (tanks/small dams) • Terracing • Mulching • Cover crops • Localized irrigation	
		The farmer employs one or two of the practices listed	
		The farmer does not employ any of the practices listed	

Indicator	Water pollution prevention	*Env.18*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
Whether the farmer employs practices that could pollute waterways		The farmer does not employ practices that could pollute waterways
		The farmer reports any of the following: • Agricultural or pasture land directly adjacent to natural waterways • Pesticide equipment cleaning in natural waterways • Untreated water discharge in natural waterways

Theme 9. Biodiversity

Survey modules: 2. Agricultural production activities; 3. Environment

Biodiversity found in agricultural systems (agro-biodiversity) is essential to the production of abundant and healthy food crops, and to strengthening their resilience to climate change (FAO, 2019c). Agro-biodiversity includes domesticated and wild plants and animals in agricultural systems, as well as the vast range of organisms that live in and around them (FAO, 2019c). The decline in agro-biodiversity recorded globally poses thus significant threats to food security and livelihoods. Sustainable agricultural systems safeguard the agro-biodiversity they host, and increase it over time.

Rather than measuring directly biodiversity, indicators included in this theme assess on-farm adoption of practices that have proven effective in conserving and enhancing biodiversity. The presence of natural vegetation areas on and around the farm can reflect higher capacity to support agro-biodiversity—while their conversion to productive uses can threaten natural ecosystems. Improper pesticide management practices and use of highly hazardous pesticides have recognised noxious effects on agro-biodiversity. Use of integrated pest management practices on-farm and of other land management practices such as crop rotation and mixed cropping can help reduce overall pesticides needs. Finally, using local seed and breed varieties, engaging in seed/breeds saving and exchange practices, and refraining from the use of antibiotics to manage animal disease can contribute positively to safeguarding local agro-biodiversity resources.

Indicator	Ecosystem diversity	*Env.19*
Source	**SDG 2.4.1**	
Sustainability measure	**Rating**	
Share of the farm area covered by natural or diverse vegetation, including: • natural pasture/grassland • wildflower strips • stone and wood heaps • trees or hedgerows • natural ponds or wetlands		>10%.
		<10%
		There is no natural/diverse vegetation on farm

Indicator	Land use change	*Env.20*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
Whether the farmer has converted natural areas to agricultural production (over the past five years). *Only applicable if there is natural or diverse vegetation on the farm.*		No
		Yes

Indicator	Pest management practices	*Env.21*
Source	**SDG 2.4.1; SAFA Smallholders**	

Sustainability measure	Rating	
1. Whether the farmer uses synthetic pesticides; and if so, whether these are used appropriately		The farmer does not use synthetic pesticides
		The farmer uses synthetic pesticides specific to the crop/pest, with proper dosage and timing
		The farmer uses synthetic pesticides preventatively, regardless of pest and disease presence
2. Whether the farmer uses highly hazardous pesticides (HHPs) *Only applicable if the farmer uses synthetic pesticides*		Yes
		No
3. Whether the farmer takes measures to minimise environmental risk from pesticides, and whether s/he uses non-chemical pest management practices		The farmer uses four or more of the following practices: • Adherence to pesticides labels • Adjustment of planting time • Application of crop spacing • Application of crop/pasture rotation • Application of mixed or inter-cropping • Biological pest control and/or biopesticides • Systematic removal of plant parts attacked by pests • Maintenance and cleansing of spray equipment after use • Use one pesticide no more than two times or in mixture in a season to avoid pesticide resistance.
		The farmer uses two/three of the practices listed
		The farmer uses one or none of the practices listed

Indicator	Saving seeds and breeds	*Env.22*
Source	**SDG 2.4.1; SAFA Smallholders**	
Sustainability measure	**Rating**	
1. Whether the farmer uses local seed and breed varieties		Yes
		No
2. Whether the farmer uses local sources of seeds and breeds		The farmer saves seeds and breeds, obtains them from neighbours, or from a local source
		The farmer uses both local and non-local sources
		The farmer relies completely on non-local sources

Indicator	Antibiotics use	*Env.23*
Source	**SDG 2.4.1**	
Sustainability measure	**Rating**	
Whether the farmer uses antibiotics as animal growth promoters		No
		Yes

3.3. Assessing the social dimension of agricultural sustainability

Theme 10. Labour rights

Survey module(s): 5. Economic resilience; 8. Working conditions

Labour rights and standards are a central component of sustainable development, reflected by their inclusion in the Sustainable Development Goals, and particularly under SDG 8 on decent work and economic growth and its sub-indicators 8.7 on eradicating child and forced labour and 8.8 on protecting labour rights and ensuring fair employment conditions to all. Indicators within the labour rights theme assess whether a fair wage—that is, a wage that can support a decent standard of living—is paid to unskilled labour on farm, compared to the national average (in line with SDG 2.4.1 sub-indicator on decent employment); whether hired workers are free to associate, to negotiate their employment conditions, and to leave employment freely, without penalties or fear of repercussion. A last indicator under this theme assesses child labour on farm—that is the presence of children (under 16 years of age) that engage in work that is harmful to their physical or mental development, or that deprives them of the right to receive formal education (FAO, 2015a).

Indicator	**Wage rate in agriculture**	*Soc.1*
Source	**SDG 2.4.1**	
Sustainability measure	**Rating**	
How the wage paid to hired labourers on farm compares to the minimum agricultural sector wage rate (if available) or minimum national wage rate *Only applicable if the farm holding hires labourers (in addition to family labour)*		Wage paid is higher than that of reference
		Wage paid is the same as that of reference
		Wage paid is below that of reference

Indicator	**Freedom of association**	*Soc.2*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
Whether hired workers are free to associate and bargain their conditions		Yes
		Sometimes
		No

Indicator	Forced labour	Soc.3
Source	SAFA Smallholders	
Sustainability measure	Rating	
Whether hired workers are free to leave employment		Yes
		At a price (e.g. penalty, non-payment of wage, loss of privileges)

Indicator	Child labour	Soc.4
Source	SAFA Smallholders	
Sustainability measure	Rating	
Whether children (<16 years old) work on the farm		Children do not work on the farm, or they work in a way that allows them to attend school (<20 hours per week).
		Children work on the farm instead of going to school

Theme 11. Human health and safety

Survey module(s): 2. Agricultural production activities; 8. Working conditions

A further characteristic of farm holdings that can be considered sustainable in relation to labour standards is that they provide a safe and healthy work environment to all those engaged in farm operations. Among essential features of such a working environment is the availability and ease of access (in both physical and financial terms) to good quality medical care and to safe sources of drinking water, the presence of first aid kits on farm and the regular training of farm staff on potential hazards. A particular source of concern for human health in agricultural settings is misuse of agrochemicals such as pesticides. A sustainable farm holding ensures that certain precautions and safety standards are adopted with regard to pesticide application. These include adhering carefully to the instructions from the manufacturer when applying such products, disposing safely of containers once they are empty, ensuring that personal protective equipment (PPE) is used at all times when handling them, and that at-risk individuals (for example, pregnant women or minors) are not involved in their application. Accidents and injuries recorded on farm can serve as a proxy indicator of the sustainability levels of the holding in relation to health and safety standards.

Indicator	Access to medical care	*Soc.5*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
1. Distance from nearest medical care facility		The nearest facility is on farm or less than one hour away
		The nearest facility is between one and three hours away
		The nearest facility is over three hours away
2. Affordability of medical care		Medical care is free or low cost
		Cost of medical care is difficult to meet, but not so high as to prevent people to seek treatment when needed
		Cost of medical care is so high that it prevents people to seek treatment when needed

Indicator	Access to safe water	*Soc.6*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
1. Distance from nearest source of drinking water		Source is on site or less than five minutes away
		Source is five to 20 minutes away
		Source is more than 20 minutes away
2. Whether the household has consistent access to sufficient water for their needs		Yes
		Most of the times
		No

Indicator	Safe pesticide use	*Soc.7*
Source	**SDG 2.4.1; SAFA Smallholders**	

Sustainability measure	Rating	
1. Number of practices adopted to protect people against health-related pesticide risk		The farmer adopts the following practices: • Adherence to pesticide labels (including use of PPE) • Maintenance and cleaning of PPE after use • Safe disposal of waste (cartons, bottles and bags)
		The farmer adopts two of the practices listed
		The farmer adopts one/none of the practices listed
2. Whether at risk individuals (pregnant women; individuals under 18; individuals not trained in pesticide application) apply pesticides on the farm.		Individuals from the following at-risk groups do not apply pesticides on the farm: • Pregnant women • Individuals under 18 • Individuals not trained in pesticide application
		Individuals from any of at-risk groups apply pesticides on the farm
3. Type of personal protective equipment (PPE) used		The farmer/worker uses all of the following PPE: • Plastic or rubber gloves • Breathing masks • Protective impermeable outer clothing • Protective foot gear
		The farmer/worker uses one to three types of PPE
		The farmer/worker does not use PPE

Indicator	Workplace safety	*Soc.8*
Source	**SAFA Smallholders**	

Sustainability measure	Rating	
1. Whether more than one serious injury occurred on farm over the past year		No
		Yes
2. Number of measures taken to avoid risk and prepare for emergencies		The farmer adopts the following measures: • Keeps first aid kits on the farm • Trains employees on possible hazards • Properly stores dangerous equipment
		The farmer adopts two of the measures listed
		The farmer adopts one/none of the measures listed

Theme 12. Gender, youth and education

Survey modules: 1. Individual, household and geographic information; 4. Information transfer and exchange

Rural smallholder households generally engage in multiple activities to diversify the livelihood sources, thus rural women, together with men, are often involved in a wide range of different activities on and off the farm (FAO, 2020d). Women make up close to half the agricultural workforce in low-income countries and contribute significantly to the sector—in fact their contribution is likely underestimated as their work is often unpaid and therefore not captured by official statistics (FAO, 2020d). Besides contributing to productive activities, women are instrumental to food security and nutrition, as they remain the primary responsible for domestic and care work in their household and communities, and to the preservation of traditional knowledge on natural resources management (FAO, 2020d). The essential role of women in advancing sustainable development objectives is reflected in the inclusion of a dedicated Sustainable Development Goal to measure progress in this area—SDG 5 "Achieve gender equality and empower all women and girls".

Yet, women continue to face major gender-based constraints in agricultural settings (and beyond), rooted in socio-cultural norms, attitudes and believes that influence the formulation of policies and legal frameworks, limit equality in decision-making and in overall allocation of resources (FAO, 2020d). This also reflects in lower levels of food and nutrition security in women, particularly among the poorer segments of the population (FAO, 2020e). There is substantive evidence that investing in closing the gender gap in the agricultural sector and improving their access to opportunities and control over productive assets and natural resources can ultimately result in long-term benefits in terms of increased agricultural productivity and strengthened food and nutrition security (FAO, 2020d). Gender equality indicators under this theme therefore assess equality in decision-making within the farm holding, the extent to which women and men have equal access to training and, if there are children on the farm, whether girls and boys have equal access to educational opportunities.

Education and training are key to reduce inequality and, more broadly, to increase opportunities for both men and women in agricultural communities, and across all age groups. By attending training events, farmers can develop or strengthen a wide range of skills that can be beneficial to their production activities including many that are relevant to farm sustainability—for example, capacity to implement specific sustainable farm management practices, and knowledge on best practices related to agrochemicals management or labour standards. Training events can be of different kinds, ranging from formal events organised by government agencies and extension services, to community-based interventions, private sector events (e.g. organised by input suppliers), farmer field school initiatives and farm-to-farm exchange events (FAO, 2015a). Specific training initiatives aimed at increasing youth access to income-generating opportunities in the agricultural sector can also have catalytic effects in terms of improved socio-economic well-being. Particularly effective are those initiatives that target directly barriers to youth participation in agriculture, for example by improving access to education and training on technical and entrepreneurial skills, land, markets and financial services, green jobs and engagement in institutional and policy dialogue (FAO, 2014b).

Indicator	**Gender equality in decision-making**	*Soc.9*
Source	**SAFA Smallholders**	
Sustainability measure	**Rating**	
Whether on-farm decisions are made by women and men in equal measure		Men and women decide in equal measure
		Either men or women make most decisions

Indicator	Gender equality in education and training		Soc.10
Source	SAFA Smallholders		
Sustainability measure	Rating		
1. Whether girls and boys in the household have equal access to educational opportunities		Yes	
		No	
2. Whether men and women in the household have equal access to training opportunities		Yes	
		No	

Indicator	Training participation		Soc.11
Source	SAFA Smallholders		
Sustainability measure	Rating		
Number of trainings attended by the farmer over the past year		The farmer attended three or more trainings	
		The farmer attended one or two trainings	
		The farmer did not attend any training	

Indicator	Youth initiatives		Soc.12
Source	-		
Sustainability measure	Rating		
Whether youth on farm (age 15-24) have participated to training programmes/initiatives (in addition to formal education)		Youth on farm attended one or more initiative	
		Initiatives targeting youth are not available	
		Initiatives targeting youth are available, but youth on farm do not participate	

Theme 13. Food security and nutrition

Survey module: 7. Food security and nutrition

Strengthening food security and improving nutritional status of the population, both through sustained contribution to the livelihoods of those employed in the agricultural sector, and through the provision of sufficient, affordable, safe and nutritious food, is the ultimate goal of sustainable agricultural systems. The inter-connectedness between sustainable agriculture, nutrition and human health is highlighted by SDG 2, which aims explicitly to "End hunger, achieve food security and improved nutrition and promote sustainable agriculture". According to the widely used 1996 World Food Summit definition, "food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life".

Two indicators are included in the framework to assess household food security and access to a nutritious diet. The first is the Food Insecurity Experience Scale (FIES), which provides a global reference for a multi-dimensional assessment of household food security based on individual perceptions and experience across three domains: food quantity, food quality, uncertainty related to food provisioning (FAO, 2016). The second indicator is the Household Dietary Diversity Score (HDDS), a measure of household physical and economic access to a diverse diet (Swindale and Bilinski, 2006).

Indicator	**Food Insecurity Experience Scale (FIES)**	*Soc.13*
Source	**SDG 2.4.1 (FAO-FIES methodology)**	
Sustainability measure	**Rating**	
Assessment of food security based on the eight FIES questions: 1. You were worried you would not have enough food to eat? 2. You were unable to eat healthy and nutritious food? 3. You ate only a few kinds of foods? 4. You had to skip a meal? 5. You ate less than you thought you should? 6. Your household ran out of food? 7. You were hungry but did not eat? 8. You went without eating for a whole day?		Negative answers to all FIES questions, or positive answer to question 1 only
		Positive answer to any FIES questions 2-6
		Positive answer to FIES question 7 and/or 8
Notes		
- The 8 FIES questions indicate increasing levels of food insecurity severity, from mild (uncertainty about ability to obtain food) to severe (no food for a day or more) (FAO, 2016). - The modified scoring simplifies the calculation procedures for the purpose of the farm sustainability assessment. The questionnaire still collects data compliant with the FIES methodology, which allows users with more resources/statistical capacity and/or specific needs to compute FIES scores following the original methodology. For more information see: http://www.fao.org/in-action/voices-of-the-hungry/fies/		

Indicator	Dietary diversity	*Soc.14*
Source	**Household Dietary Diversity Score (HDDS)**	
Sustainability measure	**Rating**	
Dietary diversity score based on the number of foods consumed by the household over the previous 24 hours across 12 different food groups: *Cereals* *Roots and tubers* *Vegetables* *Fruits* *Meat, poultry, offal* *Eggs* *Fish and seafood* *Pulses, legumes, nuts* *Milk and milk products* *Oil/fats* *Sugar/honey* *Miscellaneous*		HDDS>8
		HDDS= 6-7
		HDDS<6

Notes

- Each food the respondent consumed over the previous 24 hours counts as one point in the score, thus the HDDS ranges from 0-12.
- The HDDS (Swindale and Bilinski, 2006) was selected among available measures of dietary diversity such as the Minimum Dietary Diversity for Women, MDD-W (FAO, 2021) as a) the assessment is intended at the household level rather than at the individual level and b) the assessment aims to provide an indication of household food security (in terms of physical and economic access) rather than assess individual nutrient intake adequacy.
- The sustainability rating provided here represents a simplified version intended to give a quick indication of diversity threshold. For a more accurate measure, the measure can be rated by dividing the population studied in tertiles of diversity with the highest, mid and lowest tertile corresponding to a green, yellow and red rating respectively. See Swindale and Billinski (2006) for further information on the use and interpretation of the HDDS.
- The HDDS survey questions should be adapted to the local context where the assessment is conducted, for example in terms of specific foods included within each sub-group (FAO, 2013).

Theme 14. Rule of law

Survey module: 1. Individual, household and geographic information

Tenure rights define who can use natural resources, for how long and under what specific conditions. Limited or uncertain rights to land and other natural resources that sustain livelihoods can result in restricted possibilities to produce food, which in turn can negatively affect livelihoods, food security and nutrition. On the contrary, adequate distribution of resources and secure tenure rights can sustain long term economic stability of smallholder households' livelihoods and ensure adequate food security and nutrition levels. The importance of tenure rights is recognised in the Sustainable Development Goals, particularly by indicators 1.4.2 on equal access to economic resources, services, land and property; 5.a.1 on agricultural land ownership rights; and 2.4.1 on sustainable agriculture.

Indicator	**Secure land tenure rights**		*Soc.15*
Source	**SDG 2.4.1**		
Sustainability measure	**Rating**		
Whether the farmer has legally recognised land ownership rights		The farmer has a legal ownership document in his/her name OR has the right to sell the land.	
		The farmer has a legal ownership document without his/her name on it	
		Neither of the above options	

4. THE FRAMEWORK IN PRACTICE

To be developed.

Commented [CD6]: Note for reviewers: Section 4, to be developed, will focus on the practical aspects of implementing the Framework for field M&E of CSA projects.

The section will:

1. Present the survey developed to collect data for the indicators outlined above, which is annexed to the document.
   - Highlight the parts of the survey that collect data required for SDG 2.4.1
   - Highlight the parts that iwill likely need customisation to adapt to the local context (e.g. crop/animal lists, production practices, dietary diversity score, etc.) and technical terms to discuss and translate (linking to the annexed glossary)
   - Describe the digital version of the survey and its use through the FAO Collect Mobile application

2. Present a sample workflow that users can follow to plan activities in practices—for example:
   - Defining scope and breadth of data collection, including mention to sampling design issues;
   - Defining a timeline and milestones for data collection activities (e.g. for baseline, midline and endline monitoring)
   - Highlighting importance of enumerator trainings and providing a sample 1-2 week schedule to plan for these
   - Providing a sample budget breakdown to help users identify essential budget lines to be covered

3. Outline some (basic) examples of data analysis and visualisation that can be performed based on the data collected. Note: focus in this section will be to provide key elements and additional resources for those users that want to dig deeper into each theme, rather than a comprehensive and exhaustive discussion.

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6. ADDITIONAL RESOURCES

7. GLOSSARY OF KEY TERMS

8. ANNEXES