



# REFERENCE CRITERIA AND INDICATORS

# FOR SOC PROJECT ASSESSMENT

VERSION 2 - JUNE 2021





The “4 per 1000 Initiative: Soils for Food security and Climate”, part of the Global Climate Action Plan and called «Initiative» hereinafter, proposes an international research and scientific cooperation program and an action plan aimed at increasing soil organic carbon (SOC) sequestration, in order to increase food security, mitigate and adapt to climate change. Its overarching goal is to assist contributing countries and non-state organizations to develop evidence-based projects, actions and programs, referred to as «projects» hereafter, to promote and encourage actions towards reducing greenhouse gas emissions through protecting and increasing SOC stocks, the target rate of a 4/1000 (0.4%) per year being an aspirational goal.

The Scientific and Technical Committee (STC) of the Initiative was established at the first meeting of the Consortium members during COP22 in Marrakech, aiming at providing scientific and technical support to Consortium members. Following the terms defined by the Consortium, the principal mandate of the STC is to propose a set of reference criteria, hereafter referred to as “4/1000 reference criteria”, for the formative assessment of projects to meet the principles and goals of the Initiative as defined in the Unified Declaration of Intent and the relevant UN Sustainable Development Goals (SDGs) as set out in Table 1, with particular focus on SDG 2 on zero hunger, SDG 13 on climate action and SDG 15 on land conservation and restoration.

A project on soil organic carbon submitted to the STC for expert advice, hereafter referred to as “a SOC project”, should include a set of well-defined actions, hereafter defined as “SOC project actions”, that are expected to result in quantifiable increase in SOC stocks (or, at a minimum, reduction in losses of SOC) as a primary goal while balancing complementary impacts relating to the SDGs. Each project action should have clearly defined temporal and spatial scales. The SOC project actions should be aimed primarily at increasing SOC or reducing losses, following changes in land management and/or land use management options. The project proposers will be asked to assess the anticipated co-benefits, possible trade-offs and community benefits of the project based on the 4/1000 Reference Criteria.

## FORMATIVE ASSESSMENT OF PROJECTS

An ensemble of criteria, indicators, methods and metrics, has been developed by the STC to provide guidance to project proposers and provide formative assessment of projects. For projects that satisfy the first set of criteria that ensure project actions do not restrict human rights or negatively affect land rights and poverty alleviation, the formative assessment will provide guidance for actions, and recommend improvements. This guidance will help to ensure that the projects are consistent with the aims of the Initiative, and that, with appropriate funding and project management, methods would be in place to monitor progress during project implementation.

The assessment will provide narrative advice aimed at improving the quality of the project before it is implemented and during implementation. The post project stage, including funding opportunities, will not be included in project assessments. The depth and quality of the advice will depend on the quality of the information provided about the project.



## FOUR STEPS FOR SOC PROJECT ASSESSMENT

The proposed SOC project assessment approach comprises four sequential steps, with each step being defined by a distinct category of reference criteria that include socio-economic and soil science dimensions. Assessment will proceed to the next step only if the criteria are met for the previous step. If not, the project proposer will be informed of the reasons why the project is not assessed fully. Then, depending on the level of technical information provided, and on the expertise available within the STC, technical advice will be provided to the proposer to improve the project. If Step 1 is successful, Step 2 will be completed and if successful, the SOC project assessment will enter in the third and fourth final steps of assessment.

**Step 1:** Safeguard Criteria will be used to ensure that actions to increase SOC do not restrict human rights, or negatively affect land rights and poverty alleviation. If a SOC project, or a SOC project activity, does not satisfy all safeguard criteria the STC will stop the assessment of the project, or the corresponding project activity, and the project holders will be informed.

**Step 2:** Direct Reference Criteria will be used to assess the direct effects of projects on i) SOC stocks and land degradation neutrality (SDG 15), ii) climate change adaptation and iii) climate change mitigation (SDG 13), and iv) food security (SDG 2). A project or activity needs to contribute at least a positive impact to soil organic carbon (i.e. increase SOC or, at a minimum reduce SOC loss, compared to business as usual), and should actively aim for positive impacts on the other direct reference criteria. Otherwise, the project may not be considered further by the STC and where possible, advice will be provided on how the proposal can be improved to achieve positive impacts for all direct reference criteria.

**Step 3:** Indirect Reference Criteria will be used to assess indirect effects of projects on a range of other economic, social and environmental dimensions, including welfare and well-being (SDG 12), biodiversity and ecosystem services (SDG 15), water and nutrient cycles (SDG 6), etc. If, compared to a business-as-usual baseline, the project is likely to result in strong negative impacts on social, economic or environmental dimensions, it will be negatively evaluated on the corresponding criteria.

**Step 4:** Cross-cutting Dimensions of projects will be reviewed using cross-cutting criteria, including training and capacity building, participatory and socially inclusive approaches.

Projects that have undergone the full assessment for the four steps will also receive recommendations for further improvement. A short description of the projects that are assessed as conforming with the objectives of the 4 per 1000 Initiative will be included on the 4 per 1000 website<sup>1</sup>. **There is no commitment from the “4 per 1000” Initiative to ensure funding for the projects**

<sup>1</sup> The Executive Secretariat of the 4 per 1000 Initiative will ask project holders whose projects are in line with the objectives of the Initiative if they give permission for their projects to be published in the media.

## DEVELOPMENT OF THE ASSESSMENT METHODOLOGY

Noting the diversity of regional circumstances and the wide-ranging nature of the projects and project actions, the assessment methodology can provide only a general framework. For each reference criterion, a set of default indicators has been agreed and, for each indicator, a default evaluation method was proposed. These defaults are intended as guidance and project proposers are able to suggest alternative indicators for a given reference criterion, or alternative evaluation methods for a given indicator in order to adapt the default methodology to the specific features of the particular project system e.g. specific biophysical, ecological or socio-economic characteristics of the project. The major aspects expected to be covered for each criterion are provided. Validation of alternative criteria or alternative evaluation methods will be part of the assessment process undertaken by the STC.

The default assessment methodology, including the sets of reference criteria, default indicators and associated default evaluation methods is presented in the form of a questionnaire for project holders and a project evaluation form for completion by the STC. These provide sufficient details to allow project proposers to undertake a self-assessment, prior to formal submission of the project to the STC. At set times each year, a call for formal submissions of projects to the STC will be open. The Executive Secretariat of the Initiative will organize and coordinate the assessment process by the STC, noting that further advice by external scientific reviewers may be solicited by the STC as necessary.

Prior to online publication of the first version of the default methodology elaborated by the STC, it was subjected to a discussion and review process by “4 per 1000” Initiative partners of all Forum colleges. This review was based on preliminary testing of the evaluation methodology, using a small number of case studies proposed by “4 per 1000” Forum partners, and selected to represent contrasting world regions with different degrees of development, i.e. from projects already implemented to new project proposals. This discussion and review process allowed the default indicators and default evaluation methods to be refined and ensured that the assessment methodology could be readily applied or adapted for application for a wide range of projects.

Version 2 of the “4 per 1000” project assessment methodology results from a planned periodic revision process, to take account of both progress in the scientific literature, and the experience and learnings gained through assessment of multiple projects in earlier rounds.



## REFERENCE CRITERIA AND THEIR LINKS TO SDGS

Table 1 shows the list of 13 reference criteria to be used for the four steps of SOC projects assessments and their main links with the SDGs.

**TABLE 1**  
ASSESSMENT STEPS, REFERENCE CRITERIA TYPES, CRITERIA AND THEIR LINKS WITH THE SDGS

STEP	TYPE	CRITERION	MAIN LINKS WITH SDGS (#)
1	Safeguards	1.1 Human rights	1,5 & 16
		1.2 Land tenure rights	1 & 16
		1.3 Poverty alleviation	1
2	Direct	2.1 Soil conservation/improvement and land restoration	15
		2.2 Soil organic carbon stock increase or maintenance	15
		2.3 Climate change mitigation	13
		2.4 Climate change adaptation	13
		2.5 Food security	2
3	Indirect	3.1 Biodiversity	15
		3.2 Water resources	6
		3.3 Welfare and well being	3,8 & 12
4	Cross-cutting	4.1 Inclusive and participatory approach	12 & 17
		4.2 Training and capacity building	4 & 17

Default indicators and associated method principles are provided below for each reference criterion in the four categories.

## SAFEGUARD CRITERIA

Safeguard criteria are used to identify proposed SOC projects that have the potential to negatively affect human rights, land rights and poverty alleviation, in Step 1 of a SOC project assessment.

The assessment is bound by the Unified Declaration of Intent of the 4 per 1000 Initiative which 'recalls the necessity of protecting existing legitimate land rights, including informal rights, and their holders, in coherence with the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (CFS 2012) and the Principles for Responsible Investment in Agriculture and Food Systems (CFS 2014)'. Major aspects of Safeguard Criteria to be assessed for SOC projects include:

SAFEGUARD CRITERIA	MAJOR ASPECTS TO BE COVERED	DEFAULT INDICATOR	DEFAULT METHOD
1.1 Human rights	<ul style="list-style-type: none"> <li>- Children</li> <li>- Gender</li> <li>- Minority groups</li> <li>- Forced, unpaid or underpaid work</li> </ul>	Extent of negative, neutral or positive effects on local people and communities	- The project holder's assessment for each Safeguard criterion must be justified with evidence.
1.2 Land tenure rights	<ul style="list-style-type: none"> <li>- Land property and land tenure system</li> <li>- Land grabbing</li> <li>- Conflicts</li> <li>- Population displacement</li> <li>- Litigation equity</li> </ul>		- The project holder should discuss the risks and benefits relating to relevant aspects of each Safeguard Criterion (including those listed above) and how any risks will be mitigated before the project start and provide a plan of how these risks will be monitored or surveyed during the project.
1.1 Poverty alleviation	<ul style="list-style-type: none"> <li>- Farmer income and distribution</li> <li>- Subsidies/taxes and their distribution (income support policies, rural development policies)</li> <li>- Other income sources and revenue distribution</li> <li>- Employment rates and opportunities</li> </ul>		

The following **resources and references** may be used to develop project indicators and methods for the Safeguard Criteria:

**Human rights (UN):**

International Covenant on Civil and Political Rights, International Covenant on Economic, Social and Cultural Rights, ILO Convention 169 relative to Indigenous and Tribal People, Guiding Principles on Business and Human Rights.

**Local tenure rights:**

International Covenant on Economic, Social and Cultural Rights (ICESCR), art. 2.1; Committee on World Food Security Voluntary Guidelines on the Responsible Governance of Tenure.

**Land use:**

Free Prior and Informed Consent principles, UN REDD guidelines.

<https://www.unredd.net/documents/fpic-repository-1/guidelines-1/16837-guidelines-on-free-prior-and-informed-consent.html>

**Soils and the SDGs:**

Keesstra SD, Bouma J, Wallinga J, Tittone P, Smith P, Cerdà A, Montanarella L, Quinton JN, Pachepsky Y, Van Der Putten WH, Bardgett RD. (2016). The significance of soils and soil science towards realization of the United Nations Sustainable Development Goals. Soil 2(2):111-28. <https://soil.copernicus.org/articles/2/111/2016/soil-2-111-2016.pdf>



**DIRECT CRITERIA**

Direct criteria are used to assess the direct effects of projects on I) soil organic carbon (SOC) stocks and land degradation neutrality (SDG 15), II) climate change adaptation and, III) climate change mitigation (SDG 13), and IV) food security (SDG 2) in **Step 2** of a **project assessment**.

Major aspects of Direct Criteria to be assessed for SOC projects include:

DIRECT CRITERIA	MAJOR ASPECTS TO BE COVERED	DEFAULT INDICATOR	DEFAULT METHOD
2.1 Soil conservation/ improvement; land restoration	<ul style="list-style-type: none"> <li>- Risks of land degradation/ opportunities to restore degraded land</li> <li>- Agricultural practices</li> <li>- Forestry practices</li> </ul>	<ul style="list-style-type: none"> <li>- Fraction of land area in the project maintained or restored using recognised conservation/ restoration practices;</li> <li>- Agriculture or forestry areas with regenerative practices.</li> </ul>	<ul style="list-style-type: none"> <li>- Land use and management survey results;</li> <li>- Records of the implementation of good practice and the nature and duration of these practices;</li> <li>- Measures of improved land condition and soil health</li> </ul>
2.2 Soil organic carbon stock increased/ maintained	<ul style="list-style-type: none"> <li>- Baseline conditions e.g. SOC stocks, soil stability, management practices</li> <li>- Soil health e.g. depth, erosion, organic matter content, nutrient levels, biodiversity</li> <li>- SOC monitoring e.g. SOC stock change by indirect accounting or direct measurement</li> </ul>	<ul style="list-style-type: none"> <li>- Best: (1) SOC stock change relative to baseline (change per year to a depth of at least 30cm); (2) Monitoring plan that ensures (to the extent possible) permanence, no leakage, additionality of improved practices.</li> <li>- Minimum: Soil carbon content (% C) monitoring of change in soil condition e.g. structure</li> </ul>	<ul style="list-style-type: none"> <li>- Best: Full description of the method of quantifying SOC stock change e.g. sampling and analysis for measurement; use of validated models; other standardised with MRV methods; monitoring plan e.g. periodic re-measurement or model verification (e.g. every 5 years); record keeping protocol.</li> <li>- Minimum: Description of measurements and records of observations; justification for use of other recognised and validated MRV methods e.g. IPCC Tier 1-3; and (if possible) plans to upgrade.</li> </ul>
2.3 Climate change mitigation	<ul style="list-style-type: none"> <li>- Nitrous oxide and methane emissions</li> <li>- Reduction in fossil energy use; predicted renewable energy use</li> <li>- Life cycle assessment studies</li> </ul>	<ul style="list-style-type: none"> <li>- Increase in N2O, CH4 and fossil energy emissions in units of CO2 equivalents per unit land (and per unit production) and evidence that these emissions are not greater than the CO2e increase in SOC stocks.</li> <li>- No production leakage caused by a reduction in productivity.</li> <li>- Predicted new renewable energy use.</li> </ul>	<ul style="list-style-type: none"> <li>- Description of MRV methods for GHG emissions associated with the project using standardised IPCC Tier 1-3 or other recognised and validated MRV methods</li> </ul>

2.4 Climate change adaptation	<ul style="list-style-type: none"> <li>- Production stability</li> <li>- Resilience to extreme events</li> </ul>	<ul style="list-style-type: none"> <li>- Reduction in the inter-annual variability of yield in agricultural/ forest production compared to baseline management.</li> <li>- Reduced production losses under extreme droughts/ floods/ heatwaves compared to baseline management.</li> <li>- Reduced irrigation needs.</li> <li>- Area covered under water-saving techniques; deficit irrigation.</li> <li>- Institutional aspects.</li> <li>- Early warning programs and actions.</li> </ul>	<ul style="list-style-type: none"> <li>- Space for time: documented examples showing how similar changes in land use/ management have reduced climate variability and increased resilience;</li> <li>- Documented improved/ introduced nature-based measures</li> </ul>
2.5 Food security	<ul style="list-style-type: none"> <li>- Supply and procurement</li> <li>- Access</li> <li>- Safety and quality including nutrition aspects</li> </ul>	<ul style="list-style-type: none"> <li>- Increase (or, at a minimum no decrease) on average in yields and agricultural productivity.</li> <li>- Micro-nutrients content and food safety of plant and animal products are preserved or improved.</li> <li>- Appropriate policies to ensure fair distribution of income to farmers and improved access to foodstuff for all people.</li> <li>- New high yield and climate tolerant species introduced</li> </ul>	<ul style="list-style-type: none"> <li>- Space for time measurements: documented examples showing how similar changes in land use/management have preserved or increased agricultural productivity, micro-nutrients contents and food safety of plant and animal products.</li> <li>- Direct field surveys of yields and livestock production;</li> <li>- Number of people with access to safe and healthy foodstuff compared to the total population at various stages of project to be recorded;</li> <li>- Measures that have been taken in the project to improve food storage, supply or procurement (reduced food loss).</li> </ul>

The following **resources and references** may be considered in developing project indicators and methods for direct criteria:

FAO. 2020. A protocol for measurement, monitoring, reporting and verification of soil organic carbon in agricultural landscapes – GSOC-MRV Protocol. Rome. <https://doi.org/10.4060/cb0509en>

FAO. 2019. Measuring and modelling soil carbon stocks and stock changes in livestock production systems – A scoping analysis for the LEAP work stream on soil carbon stock changes. Rome. 84 pp. Licence: CC BY-NC-SA 3.0 IGO. <http://www.fao.org/partnerships/leap/publications/en/>

Voluntary Guidelines for Sustainable Soil Management. ITPS, Global Soil Partnership and FAO, Rome 2017.

IPCC (2006). IPCC Guidelines for national greenhouse gas inventories. Report of the Intergovernmental Panel on Climate Change, Cambridge, UK: Cambridge University Press.

Mohr, A., Beuchelt, T., Schneider, R., & Virchow, D. (2016). Food security criteria for voluntary biomass sustainability standards and certifications. *Biomass and Bioenergy*, 89, 133-145.

FAO IFAD, UNICEF, WFP and WHO (2020) The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets.



## INDIRECT CRITERIA

**Indirect criteria** are used to assess indirect effects of **SOC projects** on a range of economic, social and environmental dimensions in **Step 3** of a **SOC project assessment**.

Major aspects of Indirect Criteria to be assessed for SOC projects include:

INDIRECT CRITERIA	MAJOR ASPECTS TO BE COVERED	DEFAULT INDICATOR	DEFAULT METHOD
<p><b>3.1</b></p> <p>Biodiversity</p>	<ul style="list-style-type: none"> <li>- Landscape beta diversity</li> <li>- Plant functional diversity (especially endemic species)</li> <li>- Protected patrimonial and endangered species</li> <li>- Crop and animal genetic diversity</li> </ul>	<ul style="list-style-type: none"> <li>- Shannon diversity indices.</li> <li>- Protected/endangered/patrimonial species habitats conserved</li> </ul>	<ul style="list-style-type: none"> <li>- Before the project: space for time;</li> <li>- During the project: surveys of habitats and wildlife, field survey recording (describe random or stratified sampling techniques)</li> </ul>
<p><b>3.2</b></p> <p>Water resources</p>	<ul style="list-style-type: none"> <li>- Soil infiltration; resilience to low rainfall /drought</li> <li>- Annual evapotranspiration; water access</li> <li>- Irrigation technologies for increased water use efficiency</li> <li>- Development of IWRM, IWLRM</li> <li>- Water policies; instruments for water management</li> <li>- Water quality; nitrogen, phosphorus losses ; pesticide losses; water bodies in good ecological condition</li> <li>- Tree cover fraction ; riparian vegetation</li> </ul>	<ul style="list-style-type: none"> <li>- Water balance for aquifers and streams</li> <li>- Crop water requirements</li> <li>- Irrigation needs</li> <li>- N and P loads to water bodies</li> </ul>	<ul style="list-style-type: none"> <li>- Before the project: Baseline Hydrological and nutrient measures (water use efficiency; water quality), space for time measures;</li> <li>- During the project: Periodic monitoring (repeat hydrological and nutrients surveys)</li> </ul>
<p><b>3.3</b></p> <p>Welfare, livelihoods and well-being</p>	<ul style="list-style-type: none"> <li>- Access to education</li> <li>- Access to healthcare</li> <li>- Access to sanitation</li> <li>- Access to communications</li> <li>- Livelihood security</li> </ul>	<ul style="list-style-type: none"> <li>- Potential changes compared to business-as-usual</li> <li>- Expected benefits due to the project</li> <li>- Degree of involvement of relevant stakeholders in the access to education and health services</li> </ul>	<ul style="list-style-type: none"> <li>- Describe expected benefits and a plan for surveys during the project (reference to be provided by project holder)</li> </ul>

The following **resources and references** may be considered in developing project indicators and methods for indirect criteria:

Secretariat of the Convention on Biological Diversity (2020) Global Biodiversity Outlook 5. Montreal.

Biodiversity criteria for evaluating development assistance projects. World Resources Institute (<https://www.cbd.int/doc/guidelines/fin-wri-gd-Ins-en.pdf>; accessed online, Nov. 2, 2017)

Hashimoto, T., Stedinger, J. R., & Loucks, D. P. (1982). Reliability, resiliency, and vulnerability criteria for water resource system performance evaluation. *Water resources research*, 18(1), 14-20.

Guidelines Poverty and Livelihoods Analysis for Targeting in IFAD-supported Projects (2008) (<https://www.ifad.org/.../b7fc45f9-a4a8-49e3-a12a-00db4b7921f1>; accessed online, Nov. 2, 2017)

HLPE (2015). Water for food security and nutrition. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome 2015.

## CROSS-CUTTING CRITERIA

Crosscutting criteria for SOC projects include training and capacity building, participatory and socially inclusive approaches. The project holder should describe the effects of the project activities on these criteria for assessment in Step 4, noting that for the long-term sustainability of a project across social, economic and environmental aspects both cross-cutting criteria are important. Major aspects of Cross-cutting Criteria to be assessed for SOC projects include:

CROSS-CUTTING CRITERIA	MAJOR ASPECTS TO BE COVERED	DEFAULT INDICATOR	DEFAULT METHOD
<p><b>4.1</b></p> <p>Inclusive and participatory approach</p>	<ul style="list-style-type: none"> <li>- Participatory approach</li> <li>- Inclusiveness</li> </ul>	<ul style="list-style-type: none"> <li>- Stakeholders engaged in the project as a fraction of the local community</li> <li>- Inclusiveness of participants</li> <li>- Representativeness of the stakeholders involved in the project</li> </ul>	<ul style="list-style-type: none"> <li>- Surveys across local communities (reference to be provided by project holder)</li> <li>- Description of plan or framework for periodic surveys to be provided by project holder.</li> </ul>
<p><b>4.2</b></p> <p>Training and capacity building</p>	<ul style="list-style-type: none"> <li>- Technical training</li> <li>- Socio-economic building</li> </ul>	<ul style="list-style-type: none"> <li>- Fraction of stakeholders trained or provided opportunities for capacity building</li> </ul>	<ul style="list-style-type: none"> <li>- Surveys across local communities (reference to be provided by project holder)</li> <li>- Description of plan or framework for periodic surveys to be provided by project holder.</li> </ul>

The following **resources and references** may be considered in developing project indicators and methods for cross-cutting criteria:

A framework for an inclusive local development policy. Background information. <http://www.make-development-inclusive.org/toolsen/InclusivedevelopmentwebEnch4.pdf>

UNDP, 2009, Supporting capacity development: the UNDP approach. <http://www.undp.org/capacity/>

World Economic Forum, 2018. The Inclusive Development Index. System Initiative on the Future of Economic Progress



# THE “4 PER 1000” INITIATIVE:

## SOILS FOR FOOD SECURITY AND CLIMATE

The International “4 per 1000” Initiative, launched on December 1st, 2015 at COP 21, is part of the **Global Agenda for Action**

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The International “4 per 1000” Initiative, is a partner of the **Global Soil Partnership** (hosted by FAO)

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The International “4 per 1000” Initiative, is a partner of the **United Nations Decade for the Restoration of Ecosystems 2021-2030**



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