

CoSAI Taskforce on Principles and Metrics for Innovation in Sustainable AgriFood Systems: Terms of Reference:

Summary

1. The Commission on Sustainable Agriculture Intensification (CoSAI)¹ is initiating and convening a Taskforce with the objective of developing and recommending a set of principles and metrics² for guiding and monitoring innovation³ in Sustainable AgriFood Systems (SAS)⁴ working with individuals from various stakeholder groups who – in their own capacity – bring in valuable experience on the issue. The Taskforce will steer the process, supported by a small Expert Group.
2. The proposed users of these principles and metrics are:
 - Public and private direct⁵ investors (funders) in innovation in agriculture and agricultural systems who need to ensure that their funds are appropriately used to support their sustainability goals
 - Managers and implementers of R4D and innovation programs, both public and private, who need to plan their work and track progress against SAS objectives
 - Certification, benchmarking and watchdog organizations promoting investment in innovation for environmentally sustainable and socially-positive outcomes
3. The main aim of the Taskforce is to build on existing work in this area⁶ to recommend:
 - A focussed set of principles for innovation for SAS
 - Guidance and metrics to support the implementation of the principles
 - Further work required, including major gaps in available metrics for further investment
 - A suitable institutional home and process to take this forward from 2022

¹ [CoSAI](#) is a time-limited international Commission, set up to promote more and better-targeted investment in innovation for Sustainable Agriculture Intensification (SAI) in the Global South, in support of the United Nations Sustainable Development Goals (SDGs) and the climate goals of the Paris Agreement. CoSAI takes a broad view of SAI, as defined [here](#). For CoSAI, ‘innovation’ includes not only science and technology but also innovation in policies, finance and social institutions. SAI is interpreted broadly to mean the transformative changes needed in agricultural systems to meet the SDGs and climate goals of the Paris Agreement, including social and human objectives as well as environmental sustainability. CoSAI’s main intended audiences are ‘innovators’ (e.g., research and development entities and the private sector) and ‘investors in innovation’ (e.g., Ministries of Agriculture, international funders), who directly fund and support agricultural innovation. CoSAI was initiated and is supported by the CGIAR Research Program on Water, Land and Ecosystems ([WLE](#)), with funding through the [CGIAR Trust Fund](#)

² For convenience, the term ‘metrics’ is used in this paper to cover both indicators and metrics.

³ CoSAI defines innovation broadly to include innovation in policies, social institutions and finance as well as science and technology. It includes Research and Development (R&D) as well as other innovation processes.

⁴ The scope and terminology of the Taskforce will be decided by the Taskforce itself, and may end up being something different than “SAS”. However, for convenience, the acronym “SAS” is used throughout this paper.

⁵ The term “direct investors” excludes those investing in the broader enabling environment for innovation in agricultural systems, such as physical infrastructure or digital connectivity.

⁶ Annex 1 has examples of some existing principles, frameworks and metrics.

4. A further important aim is to promote, to the extent possible:
 - Agreement on the principles by key stakeholders
 - Agreement of a group of volunteer users to pilot, improve, and take forward the guidance and metrics (this piloting activity will continue beyond the end of the Taskforce)
5. The Taskforce will work from May – November 2021. It will be composed of volunteers representing potential users of the principles and metrics as well as a few benchmarking and watchdog organizations. It will be supported by a small Expert Group that will develop proposals for the Taskforce to discuss and make recommendations.

Background and rationale for Taskforce

1. It is widely agreed that **a huge boost for investment in innovation in agricultural systems will be a critical factor for meeting the Sustainable Development Goals and Paris Climate Agreement.** Innovations in policies, institutions, finance and technologies will be needed to meet the challenge of feeding an estimated 10 billion people with healthy, accessible, safe and nutritious food while protecting and regenerating the natural environment, meeting climate goals and sustaining equitable livelihoods.
2. According to a forthcoming study commissioned by CoSAI⁷ (Dalberg Asia, 2021), over US\$ 40 billion is invested every year in innovation for agricultural systems in the Global South⁸. However, only a small fraction of this funding (<10%) is squarely aimed at promoting the environmental and social objectives of SAI⁹. **This highlights a huge gap and opportunity to improve current investments in innovation to reach SAS objectives.**
3. A major challenge for both implementers and investors in innovation is deciding whether an investment in innovation is on the right track to promote SAS¹⁰. Lack of clarity potentially leads to poor prioritization of investments in innovation, as well as opening the door to ‘greenwashing’¹¹. **A way forward is to establish a clear set of principles for what innovations and innovation processes ‘count’ as promoting SAS, together with guidance and metrics supporting those principles.** These can be used to plan, guide and monitor progress against SAS objectives.
4. **CoSAI has identified this area of work as critically important to improve future innovation in agricultural systems and would like to help to bring experts together on this issue,** examining what has been done already¹² and promoting agreement on different principles, frameworks, guidance and metrics supporting the principles **for key groups (researchers, practitioners e.g.**

⁷ Dalberg Asia (2021) *Investment in innovation for agricultural systems in the Global South: how much promotes Sustainable Agriculture Intensification? (title tbc)*. Commission for Sustainable Agriculture Intensification (CoSAI)

⁸ This figure covers investment by direct investors (see footnote 5) such as governments, international funders and private sector, but excludes farmers’ own investments, which are considerable.

⁹ Based on an analysis by Dalberg Asia of innovation project descriptions and other available information.

¹⁰ This was among the early findings of the Dalberg Asia study.

¹¹ i.e., making claims of sustainability that are not justified.

¹² CoSAI started by collecting together an initial database of metrics from the literature, and recently has started collecting principles and metrics used by a selection of companies and organizations involved in innovation in agriculture. CoSAI also hosted an expert meeting on metrics for innovation in sustainable agriculture in December 2020, attended by experts from FAO, academia, thinktanks, and private sector, to exchange information on existing metrics and consider some challenges and opportunities in this area.

farmers, private sector and investors/policy makers). CoSAI will aim to align this work with that of other stakeholders, in particular FAO, which has a global normative function in agriculture and leads on many internationally-used principles, indicators and metrics. In 2021 there is an extraordinary international focus on sustainable agriculture and food systems, for example in the UN Food Systems Summit (UNFSS) and COP26, and this potentially provides some potential opportunities for leveraging broader agreement on principles and metrics.

5. As listed in Annex 1, various sets of principles and metrics already exist for sustainable agriculture (in general), and others exist for innovation and innovation systems. However, **there is a gap in the intersecting area of Principles and Metrics for Innovation in SAS**, as explained in the table below. The Taskforce will build on and where possible reconcile existing principles and metrics, and avoid reinventing the wheel.

Why aren't existing principles and metrics sufficient to use for innovation in SAS?

Existing principles and metrics ¹³ for...	Usually focus on....	These are insufficient for Innovation in SAS because...
Sustainable agrifood systems and related concepts	Outcomes of agrifood systems - such as soil carbon, biodiversity, gender equality, labour standards, productivity, loss and waste.	While outcomes are an important part of the picture, they are not sufficient, because innovation is usually a long undertaking. For the first few years, it may only be possible to track intentions, theories of change and processes, and checking to what degree these are being monitored and changes made in response to new information. This requires additional proxy and/or process metrics ¹⁴ .
Innovation processes	Processes such as consultation of end users, ethics	While principles and metrics for processes are important, they do not address the specific objectives to be achieved (i.e., SAS)
Innovation systems	Enabling environment for innovation, e.g. education, infrastructure, connectivity, information	While an enabling environment for innovation is very important, these metrics do not address the specific needs of direct investors in innovation who need to decide whether their own process and product is on the right track.

6. At least two groups have already proposed practical frameworks and metrics for classifying the sustainability of *innovations* in agriculture:
 - a) USAID Feed the Future – Sustainable Intensification Innovation Lab (Musumba et al., 2017). This framework defines 5 domains of sustainable intensification: productivity, economic, environmental, social (equity), and human (nutrition, capacity) and four spatial scales: field, farm, household-community and landscape. The framework provides a selection of indicators and metrics for each domain as well as a means to visualize trade-offs between objectives and domains (www.sitoolkit.com).

¹³ For principles, see list in Annex 1.

¹⁴ For one example, see (World Benchmarking Alliance (WBA), 2021) p. 27 draft scoring guidelines



- b) Biovision (Biovision and IPES-Food, 2019, 2020) based on the framework of (Gliessman, 2016). This distinguishes five levels of ‘agroecological integration’, moving from industrial agriculture (score 0) to incremental approaches (e.g. input efficiency and substitution) to transformational approaches.

While both frameworks have been tested, neither is yet widely accepted and both may need further development, for example to incorporate different types of innovation (such as financial) and outcomes (such as resilience). The Taskforce will consider and build on both these frameworks, as well as others identified.

Description, responsibilities and timeline of Taskforce

The Taskforce will be composed of around 20-25 volunteer individuals, representative of a range of potential users, monitoring organizations and others interested. It will work in close conjunction with a small Expert Group that will develop options and recommendations for the Taskforce’s consideration. Annex 3 outlines the Terms of Reference for the Expert Group.

The Taskforce is expected to meet about five times between May and October 2021 to discuss and come to agreement on the following issues (*all dates approximate*):

May	Introductions; agreement on the scope of the task, terms and definitions, and workplan
June	Consider a first draft set of principles and proposals
July	Agree on a set of principles for wide consultation
July- Aug	Consultation
Sept	Discuss results of consultation and agree on a set of principles to recommend. Consider first draft set of guidance and metrics
Oct-Nov 2021	Guidance and metrics recommended for wider consultation and piloting; proposal for institutional home and next steps in 2022

Taskforce members will also read and make written comments on draft proposals.

Terms of Reference for Leader of Expert Group

Background and rationale

The [Commission on Sustainable Agriculture Intensification](#) (CoSAI) is initiating and convening a Taskforce with the objective of developing and recommending a set of principles and metrics for guiding and monitoring innovation in Sustainable AgriFood Systems (SAS) working with individuals from various stakeholder groups who – in their own capacity – bring in valuable experience on the issue. For further details, see the ToR for the Taskforce. The Taskforce will be composed of around 20-25 volunteer individuals, representative of a range of potential users and benchmarking/monitoring organizations. The Taskforce will act as a steering group to agree the scope of the task, terms and definitions, and workplan; discuss and agree a set of principles; discuss initial proposals for guidance and metrics, and make recommendations on how to take these forward.

A small **Expert Group** of 2-5 people will support the Taskforce by developing proposals and presenting them for consideration by the Taskforce. It will also support the broader consultation process.

The Expert Group will be supported by a part-time (2 days/ week) Research Assistant provided by the Secretariat of CoSAI. The Secretariat will also provide administrative support for the organization of Taskforce meetings and for any broader consultation required, as well as liaison with UNFSS and other stakeholders as needed. The CoSAI Head of Secretariat will participate in the Taskforce and work with the Expert Group in the start-up phase.

Objectives and technical requirements of consultancy

CoSAI is looking to recruit a specialist consultant to lead the Expert Group on Principles and Metrics for Innovation in SAS³, develop ideas and proposals, debate and help reconcile differing views, and consolidate ideas into final versions of principles, guidance and metrics that command broad agreement.

The leader of the Expert Group will be a highly experienced researcher with excellent understanding of frameworks and metrics for sustainability in agriculture, of working with international, multicultural stakeholder groups to reconcile different views and reach agreement, as well as experience of managing short-term teams to deliver within time and budget.

Deliverables

The expected deliverables are outlined below. They may vary depending on decisions made at inception phase and during the course of the work.

1. 1-2 weeks after start of work: Brief inception report, outlining initial ideas for process and workplan, additional interviewees, additional people for Expert Group and Taskforce (if needed). Annexes should contain at least: key findings from interviews, list of interviewees, list of documents analysed. Discuss report with CoSAI and the Co-chairs of Taskforce and make any improvements required.

2. 1 week before the first meeting of the Taskforce: Start-up proposal for the Taskforce: scope of the task, terms and definitions, and workplan. Presentation and discussion with Taskforce.

This proposal should indicatively cover:

- Background for the work (why needed)
- Scope of the task, terms and definitions (for example, SAS or related concepts, agricultural system or food system etc)
- Workplan and timeline for Task Force, including proposal for wider consultation if required

3. 1 week before the first meeting of the Taskforce: A short paper on principles for innovation in SAS. Presentation of draft and discussion with Taskforce, revision and second presentation with revised principles recommended for external consultation.

This should cover:

- Recommendations (or options) for principles with brief justification for each, including options examined, reconciliation proposed where relevant.
 - Annex(es) with supporting details and references.
 - Principles should be built on existing principles as much as possible, in particular those that have already got broad international agreement
4. Draft guidance, framework(s), indicators and metrics¹⁵ for key stakeholders (e.g. researchers, practitioners, private sector and policy makers) to support the principles, for testing and piloting. (September draft, Taskforce recommendations October). The final product and document to be delivered by November.

The exact design of these final deliverables will depend on how the earlier work evolves. The Expert Group will meet with the Head of CoSAI Secretariat and the Co-Chairs of the Taskforce at a mutually convenient time, probably late July, to agree on the final deliverables and workplan.

Timeline

The planned timeline of meetings for the full Taskforce, to which the Expert Group will report, is below. Exact dates are yet to be agreed, and the overall workplan and timeline will be discussed and confirmed in the first Taskforce meeting.

The Taskforce is expected to meet about five times between May and November 2021 to discuss and come to agreement on the following issues:

May	Introductions; agreement on the scope of the task, terms and definitions, and workplan
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¹⁵ The Expert Group is not expected to develop original metrics, but to collate and select appropriate metrics, and also to highlight any areas where there are critical gaps in metrics and further investment is needed.



June	Consider a first draft set of principles and proposals
July	Agree on a set of principles for wide consultation
July- Aug	On-line consultation
Sept	Discuss results of consultation and agree on a set of principles to recommend. Consider first draft set of guidance and metrics
Oct-Nov 2021	Guidance and metrics recommended for wider consultation and piloting; proposal for institutional home and next steps in 2022

Taskforce members will also read and make written comments on draft proposals.

Annex 2 Some relevant principles, frameworks and metrics to build on

Principles

ACFID (2017) Principles and Guidelines for Ethical Research and Evaluation in Development
<https://rdinetwork.org.au/effective-ethical-research-evaluation/principles-guidelines-ethical-research-evaluation/>

Barilla (2020) Fixing the business of food: how to align the agri-food sector with the SDGs
https://www.barillacfn.com/media/pdf/Executive_Summary_2020.pdf A four-pillar framework for the private sector (p6) Beneficial products; Sustainable Operations; Sustainable Supply Chains and Good Corporate Citizenship (including lobbying).

Committee for Food Security (2012) Principles for Responsible Investment in Agriculture and Food Systems (RAI) <http://www.fao.org/cfs/home/activities/rai/en/>

DFID (2019) DFID ethical guidance for research, evaluation and monitoring activities
<https://www.gov.uk/government/publications/dfid-ethical-guidance-for-research-evaluation-and-monitoring-activities>

Equator Principles <https://equator-principles.com/>

High Level Panel of Experts (2020) HLPE Principles for Agroecology
<http://www.fao.org/3/ca5602en/ca5602en.pdf> Tables 2-3, pp 58-61 (also the earlier FAO [10 Elements of Agroecology](#))

Mahon et al (2018) Towards a broad-based and holistic framework of Sustainable Intensification indicators. (UK) DOI: 10.1016/j.landusepol.2018.06.009

Principles for Digital Development Forum (2017) Principles for digital development
<https://digitalprinciples.org/about/>

Sustainable Intensification Assessment Framework. www.sitoolkit.com

Sustainable Agriculture Network (SAN) (2021), Sustainable Agriculture Framework (SAF) 2021.
<https://static1.squarespace.com/static/59d44f074c0dbfb29da45615/t/603534ac6ab0377cca7882a9/1614099638889/D-Sustainable+Agriculture+Framework+2021-Feb.pdf>

SocietyInside (no date) Principles for Responsible Innovation¹⁶ <https://www.tigtech.org/insights/si-pri>

UN Principles for responsible investment: Market Map <https://www.unpri.org/download?ac=5426>

UNICEF (no date) Principles for innovation and technology in development¹⁷
<https://unicefstories.wordpress.com/principles/>

WWF Sustainable Finance Report 2019

¹⁶ Developed with nanotechnology originally, then with World Economic Forum.

¹⁷ According to the website, "UNICEF innovation principles have been endorsed or adopted by the following partners: UNICEF, WHO, HRP, USAID, Gates Foundation, EOSG Global Pulse, WFP, OCHA, UNDP, SIDA, IKEA Foundation, UN Foundation, and UNHCR." But this webpage is archived, and more recent UNICEF pages do not refer to them, for example in the 2020 UNICEF Innovation Strategy.

https://wwfint.awsassets.panda.org/downloads/wwf_sustainable_finance_report_2019.pdf

Table on page 10 details 6 pillars and sub-indicators to assess whether an investor is focused on responsible/sustainable investments - Purpose, Policies, Processes, People, Products, and Portfolio. The UN Food Summit also [plans to adopt principles](#) of sustainable food systems.

Frameworks and metrics¹⁸

Allen T, Prosperi P, Cogill B, et al. (2019) A Delphi Approach to Develop Sustainable Food System Metrics. *Social Indicators Research* 141(3): 1307–1339. DOI: 10.1007/s11205-018-1865-8.

B Impact Assessment (n.d.) B-Impact Assessment - How does this relate to other impact measurement systems? Available at: https://bimpactassessment.net/how-it-works/frequently-asked-questions/top-10?_ga=2.160428285.1174004503.1617546030-1822705564.1617546030#how-does-this-relate-to-other-impact-measurement-systems (accessed 4 April 2021).

Biovision and IPES-Food (2019) Agroecology Criteria Tool. Available at: <https://www.agroecology-pool.org/methodology/> (accessed 3 February 2020).

Biovision and IPES-Food (2020) *Money Flows: What is holding back investment in agroecological research for Africa?* Biovision Foundation for Ecological Development & International Panel of Experts on Sustainable Food Systems. Available at: <https://www.agroecology-pool.org/moneyflowsreport/>

Chaudhary A, Gustafson D and Mathys A (2018) Multi-indicator sustainability assessment of global food systems. *Nature Communications* 9(1). 1. Nature Publishing Group: 848. DOI: 10.1038/s41467-018-03308-7.

Fanzo J, Haddad L, McLaren R, et al. (2020) The Food Systems Dashboard is a new tool to inform better food policy. *Nature Food* 1(5). 5. Nature Publishing Group: 243–246. DOI: 10.1038/s43016-020-0077-y.

FAO (2019) *TAPE Tool for Agroecology Performance Evaluation 2019 – Process of development and guidelines for application. Test version.* Rome: FAO. Available at: https://www.researchgate.net/publication/341940191_FAO's_Tool_for_Agroecology_Performance_Evaluation_TAPE_Process_of_Development_and_Guidelines_for_Application_Test_Version (accessed 16 February 2021).

GIIN (2020a) *The State of Impact Measurement and Management Practice, Second Edition.* Available at: https://www.researchgate.net/publication/341940191_FAO's_Tool_for_Agroecology_Performance_Evaluation_TAPE_Process_of_Development_and_Guidelines_for_Application_Test_Version (accessed 11 February 2021).

GIIN (2020b) *Understanding Impact Performance: Agriculture Investments.* Global Impact Investing Network. Available at:

¹⁸ This is a selection of documents from a wider collection in the CoSAI literature database



https://thegiin.org/assets/Understanding%20Impact%20Performance_Agriculture%20Investments_webfile.pdf.

GIIN (2020c) Updates to the IRIS+ system | IRIS+ System. Available at:

<https://iris.thegiin.org/upcoming-updates-and-process/> (accessed 4 April 2021).

Gliessman S (2016) Transforming food systems with agroecology. *Agroecology and Sustainable Food Systems* 40(3): 187–189. DOI: 10.1080/21683565.2015.1130765.

HLPE (2019) *Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition*. HLPE 14. Rome: High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Available at: <http://www.fao.org/3/ca5602en/ca5602en.pdf>.

IUCN (2020) *IUCN Global Standard for Nature-based Solutions: A user-friendly framework for the verification, design and scaling up of NbS. First edition*. Gland, Switzerland: IUCN. Available at: <https://portals.iucn.org/library/sites/library/files/documents/2020-020-En.pdf>.

Kennedy G, Rota Nodari G, Trijsburg L, et al. (2020) *Compendium of Indicators for Food System Assessment*. Alliance of Bioversity International and CIAT. Available at: https://cgspace.cgiar.org/bitstream/handle/10568/108652/Compendium_Kennedy_2020.pdf.

Musumba M, Grabowski P, Palm C, et al. (2017) *Guide for the sustainable intensification assessment framework*. Kansas State University and USAID. Available at: https://www.k-state.edu/siil/documents/docs_siframework/Guide%20for%20SI%20Assessment%20Framework%20-%202010.24.17.pdf.

PROCISUR (Arístide, P.; Cittadini, E.; Blumetto, O.; Giobellina, B.; Ledesma, S.; Ovalle, C.; Marchao, R.; Caballero, P.J.; Osman, A.; Tittonell, P.) 2020. Variables claves para la evaluación de la sustentabilidad de los sistemas agropecuarios: Hacia un sistema de indicadores de Intensificación Sostenible en el Cono Sur. Montevideo: Programa Cooperativo para el Desarrollo Tecnológico Agroalimentario y Agroindustrial del Cono Sur (PROCISUR) <https://www.procisur.org.uy/bibliotecas/documentos/VARIABLES-CLAVES-PARA-LA-EVALUACION-DE-LA-SUSTENTABILIDAD-DE-LOS-SISTEMAS-AGROPECUARIOS/ES>

Tittonell P (2014) Ecological intensification of agriculture—sustainable by nature. *Current Opinion in Environmental Sustainability* 8. SI: Sustainability governance and transformation: 53–61. DOI: 10.1016/j.cosust.2014.08.006.

World Benchmarking Alliance (WBA) (2020) *Food and Agriculture Benchmark: A framework for corporate action on food system transformation July*. July. Available at: <https://www.worldbenchmarkingalliance.org/food-and-agriculture-benchmark/>.

World Benchmarking Alliance (WBA) (2021) *Methodology for the Food and Agriculture Benchmark*. February. World Benchmarking Alliance. Available at: <https://www.worldbenchmarkingalliance.org/research/food-and-agriculture-methodology/>