



« 4 per 1000 Initiative: Soils for food security and climate »

Document Forum 5-3 – STC Activity Report until 2020

## 5<sup>th</sup> Meeting of the Forum

Wednesday 9<sup>th</sup> December 2020

12:00 to 15:00 (CET)

Online via ZOOM



### 1- INTRODUCTION

**The Scientific and Technical Committee is the scientific body of the "4 per 1000" Initiative.** The Scientific and Technical Committee (STC) was installed on November 17, 2016 during COP22 in Marrakech.

The STC is made up of **14 high-level scientists of international renown**, chosen by the Consortium of Members on the proposal of the Executive Secretariat.

It is a **multidisciplinary group**, with a balanced composition in terms of geographical origin and gender. Each member must regularly produce a declaration of interests.

The STC met two times per year in face to face meetings or virtually to:

- propose a set of benchmarks for the evaluation of projects and actions based on the principles and objectives of the Initiative, as well as on the Sustainable Development Goals
- formulate proposals for the guidelines of the international program for scientific research and cooperation and for any cross-cutting issue
- define the vision and mission of the initiative
- provide scientific and technical advice on the implementation, monitoring, reporting and verification of field projects, actions and programs
- assess projects submitted to the 4p1000 initiative
- discuss issues related to the implementation and the outreach of the initiative
- provide advice for the participation of the initiative in the high level political process and the establishment of its relation to other international bodies
- elaborate a roadmap

### 2- THE SCIENTIFIC EXPERTS OF THE STC

Founders members:

- **Farshad AMIRASLANI**
- **Claire CHENU**
- **Magali GARCIA-CARDENAS**
- **Martin KAONGA**
- **Lydie-Stella KOUTIKA**
- **Jagdish LADHA**
- **Beata MADARI**
- **Cornelia RUMPEL**
- **Yasuhito SHIRATO**
- **Pete SMITH**
- **Brahim SOUDI**
- **Jean-François SOUSSANA**
- **David WHITEHAND**
- **Lini WOLLENBERG**

In 2018 Pete Smith resigned and was substituted by **Beverley HENRY**

In 2019 David WHITEHAND, Brahim SOUDI, Magali GARCIA-CARDENAS and Martin KAONGA resigned and were substituted by **Budiman MINASNY, Saidou Nourou SALL, Consuelo VARELA-ORTEGA** and **Alejandro FUENTES ESPINOZA**.

Biographies of the STC members and their roles are available on [www.4p1000.org](http://www.4p1000.org)

### **3- THE ROLE OF RESEARCH IN THE "4 PER 1000" INITIATIVE**

**The "4 per 1 000" Initiative is a multi-stakeholder initiative built around two main sectors of actions:**

1. **A multi-actor, state and non-state action program for better soil carbon management** to combat poverty and food insecurity, while contributing to adaptation to climate change and mitigation of emissions
2. **And an international scientific research and cooperation program:** "Carbon in soils": a food security challenge "covering four complementary scientific questions:
  - The study of mechanisms and estimation of carbon storage potential in soils of different regions and agro-climatic systems
  - The assessment of the performance of sustainable economically viable agricultural practices in terms of soil organic carbon sequestration and other production and regulatory services
  - The support of innovations and their stimulation through appropriate policies
  - The monitoring, reporting and verification (MRV) of results, in particular at farm-scale.
  - The STC will support in particular at an international level, the coordinated development of the four matters described above, in synergy with the CIRCASA project and the FAO RECSOIL program:
  - Knowledge of soil carbon stocks and storage potential
  - Impacts of agricultural and forestry practices on carbon storage in soils
  - Methods for monitoring the carbon sequestration in soils
  - Identification and upscaling of region-specific good practices.

### **4- STC MEETINGS**

The STC had nine meetings since its launch:

- 1- Marrakesh (COP22), 17 November 2016
- 2- Rome, 24-25 March 2017
- 3- Montpellier, 28 June 2017
- 4- Bonn (COP23), 14-15 November 2017
- 5- Madrid, 5-7 June 2018
- 6- Katowice (COP24), 11-12 December 2018
- 7- Montpellier, 22-24 June 2019
- 8- Madrid (COP25), 9-10 December 2019
- 9- Online, 15-17 June 2020

## 5- MAIN ACTIONS AND DELIVERABLES

### A- International scientific research and cooperation program

In order to address the knowledge gaps to best enhance global SOC stocks, while also ensuring food security and climate change adaptation, the Scientific and Technical Committee of the Initiative (STC) proposes an international research and scientific cooperative program.

The suggested program aims to obtain the scientific knowledge to provide evidence-based options for countries' stakeholders and support the development of region-specific policies that are specific for each country. While much information is already available, action-oriented research to guide policy is needed. This requires a multidisciplinary and integrated approach, including facilitation by the international scientific community to strengthen complementarities and synergies. Engagement with local communities, stakeholders and policy makers together with enhancement of education and capability building is also needed. The Scientific and Technical Committee of the Initiative will recommend research priorities, promote their adoption among partners of the initiative, and facilitate engagement with existing initiatives and research programs to implement action plans. As a first step, the STC defined a set of research priorities, to provide the framework for implementing the goals of the Initiative.

Research priorities are grouped into four pillars (1) estimating the SOC storage potential, 2) developing management practices, 3) defining the enabling environment and 4) developing a monitoring, reporting and verification strategy with an initial focus on agricultural land use systems. The focus was made, because of agricultural soils are frequently low in soil organic matter content and play a crucial role in food security. Work on other ecosystems such as forests and peatlands will be included in the future. Research under these priorities should consider (i) the timescale for the impact in the short-term, medium-term and long-term increases (ii) the risk of reversibility of practices and negative direct or indirect side effects of practices at different scales and (iii) the alternative uses of existing organic carbon inputs and the competition for this resource.

To see aims and key knowledge gaps of every pillar you can enter in [https://www.4p1000.org/sites/default/files/content/consortium\\_3-4\\_-\\_4p1000\\_research\\_priorities\\_from\\_stc\\_0.pdf](https://www.4p1000.org/sites/default/files/content/consortium_3-4_-_4p1000_research_priorities_from_stc_0.pdf)

### B- Reference criteria and indicators for project assessment

The overarching goal of the Initiative 4 per 1000 is to assist contributing countries and non-state organizations in the development of evidence-based projects, actions and programs 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 principal mandate made by the Consortium to the STC was to propose a set of reference criteria, for the formative assessment of projects to meet the principles and goals of the Initiative as defined in the Paris Declaration and the UN Sustainable Development Goals (SDGs), with particular focus on SDG 2 on zero hunger, SDG 13 on climate action and SDG 15 on land conservation and restoration.

An ensemble of criteria, indicators, methods and units of measurement, has been developed by the STC to provide guidance to project holders and to provide formative assessment of projects. After being validated by a Task Force group, formed by members of each college of

the Consortium, the document was endorsed by the Consortium at the UNFCCC meeting of Katowice in December 2018. The formative assessment provides guidance for actions, and recommends improvements, to ensure that the projects are consistent with the aims of the Initiative, and that methods are in place to monitor progress during project implementation.

The proposed SOC project assessment approach comprises four sequential steps, with each step being defined by distinct category of reference criteria. 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. Step 1 includes safeguard criteria to ensure that actions to increase SOC do not restrict human rights, or negatively affect land rights and poverty alleviation. Step 2 refers to direct reference criteria and assesses 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). Step 3 comprises indirect reference criteria and assesses 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. Finally, Step 4 assesses cross-cutting dimensions of projects such as training and capacity building, participatory and socially inclusive approaches.

You can find the entire document in

[https://www.4p1000.org/sites/default/files/francais/doc\\_2\\_criteria\\_and\\_indicators\\_vf.pdf](https://www.4p1000.org/sites/default/files/francais/doc_2_criteria_and_indicators_vf.pdf)

### **C- Scientific and technical advice for projects**

Every year, the "4 per 1000" Initiative launches a call for formative assessment of projects. This original idea aimed to identify and support field projects in the spirit and framework of the objectives of the "4 per 1000" Initiative. After STC evaluation, projects that received a positive appraisal, the project holder will receive advice to improve his project in view of submission to major international donors who will submit them to their own selection criteria for funding.

The objective of this assessment is double:

- Modality 1 goes to new projects looking for funds to be implemented. In this case the aim is to improve project actions and increase the chances for approval by funders. There will be no commitment from the "4 per 1000" Initiative to ensure funding for the projects.
- Modality 2 goes to on-going projects looking for "recognition" within the framework of the "4 per 1000" through the STC assessment. In this case the aim is to aid projects, through expert advice, in achieving goals that are in conformity with the aims of the "4 per 1000" Initiative and that methods are in place to monitor progress during project implementation

The procedure is applicable for the implementation of an agricultural practice, for the development or implementation of a project (e.g. soils restoration in a given area) or of a policy proposal. Research projects may be assessed if they include an implementation aspect. The call for project addresses project holders (individuals or organizations) from various regions and conditions.

The assessment is carried out by the STC of the “4 per 1000” Initiative, with help from external reviewers if required, using the set of criteria, indicators methods and units developed by the STC and approved by the Consortium.

After completion of the assessment process, the project holders receive a report including the assessment result and recommendations from the STC. A short description of the projects that are in conformity with the aims of the “4 per 1000” Initiative is published on the website of the initiative and receives a final report recommending it for funding from funders compatible with the goal of the Initiative.

First call of assessment of projects (<https://www.4p1000.org/projects>)

In response to the first call closed in September 2019, 13 projects have been received. The projects were assessed by the STC members and the summary report of the assessment, together with the recommendations to improve the project, were sent to the project holders at the end of January 2020. Taking into account the summary report and the recommendations from the assessment of all projects, the STC and the Executive Secretary of the “4 per 1000” Initiative consider that the following four projects are in line with the objectives of the “4 per 1000” Initiative and recommend each of these projects for support by appropriate funding from funders compatible with the goal of the Initiative. The remaining nine projects received recommendations on how to improve the project in order to be in line with the objectives of the “4 per 1000” Initiative. Selected projects are (details in the final report):

- PFA-01 Feed the Future Resilient Agricultural Markets Activity-Beira Corridor (RAMA-BC)
- PFA- 03 Land for Life
- PFA- 06 Wheat for climate and people (WPC)
- PFA- 07 Soil Restoration and Multifunctionality of degraded forest landscapes in Ivory Coast (TERRI4SOL)

A questionnaire was sent to the project holders to evaluate their degree of satisfaction with the assessment process. Nine out of 13 responses were obtained, indicating satisfaction with the process, easiness to send the information, usefulness for improving the project and recommend the assessment to others.

Second call of assessment of projects (<https://www.4p1000.org/call-projects-2020>).

After the success of the first call in 2019, the 4p1000 Initiative and the World Agrorestry (ICRAF) launched the second call for formative assessment of projects. The call opened on May 15 2020 and closed on July 15, 2020 and 14 projects were received.

Review and assessment of the projects will be carried out from August to October 2020 and results will be communicated to project holders end of January 2021.

**D- Contribution and validation to the constitution of a database for the digital resource center (<https://www.4p1000.org/resources>)**

One requirement of the Consortium to the STC was to contribute and validate the constitution of a database for the digital resource center. The STC revises continuously papers sent by the Executive Secretariat and recommends to include or not in the resource center of the webpage. There are three different sections: a) news (33 papers included currently), b) thematic papers (21) and scientific papers, reference and technical papers (44).

## E. Scientific contributions

### Opinion papers

The STC has written two “opinion” papers to clarify the objectives of the 4p1000 Initiative with regard to the ongoing discussion in the literature and with regards to evolved thinking since the launch of the initiative:

- RUMPEL C, AMIRASLANI F, CHENU C, GARCIA-CARDENAS M, KAONGA M, KOUTIKA L-S, LADHA J, MADARI B, SHIRATO Y, SMITH P, SOUDI B, SOUSSANA J-F, WHYTHEAD D, WOLLENBERG E (2020) The 4p1000 Initiative: Opportunities, limitations and challenges for implementing soil organic carbon sequestration as a sustainable development strategy. *Ambio* 49,350–360. Climate change adaptation, mitigation and food security may be addressed at the same time by enhancing soil organic carbon (SOC) sequestration through environmentally sound land management practices. This is promoted by the “4 per 1000” Initiative, a multi-stakeholder platform aiming at increasing SOC storage through sustainable practices. The scientific and technical committee of the Initiative is working to identify indicators, research priorities and region-specific practices needed for their implementation. The Initiative received its name due to the global importance of soils for climate change, which can be illustrated by a thought experiment showing that an annual growth rate of only 0.4% of the standing global SOC stocks would have the potential to counterbalance the current increase in atmospheric CO<sub>2</sub>. However, there are numerous barriers to the rise in SOC stocks and while SOC sequestration can contribute to partly offsetting greenhouse gas emissions, its main benefits are related to increased soil quality and climate change adaptation. The Initiative provides a collaborative platform for policy makers, practitioners, scientists and stakeholders to engage in finding solutions. Criticism of the Initiative has been related to the poor definition of its numerical target, which was not understood as an aspirational goal. The objective of this paper is to present the aims of the initiative, to discuss critical issues and to present challenges for its implementation. We identify barriers, risks and trade-offs and advocate for collaboration between multiple parties in order to stimulate innovation and to initiate the transition of agricultural systems toward sustainability.

**(<https://link.springer.com/article/10.1007/s13280-019-01165-2>)**

- RUMPEL C, AMIRASLANI F, KOUTIKA L-S, SMITH P, WHITEHEAD D, WOLLENBERG L, CHENU C, GARCIA -CARDENAS M, KAONGA M, LADHA J, MADARI B, SHIRATO Y, SOUDI B, SOUSSANA J-F (2018) Put more carbon in soils to meet Paris climate pledges. Comment in *Nature* 564, 32–34; 2018) <https://www.nature.com/articles/d41586-018-07587-4>.

After remarking the importance of soils managing climate change the paper call on countries involved in the Koronivia process to establish a body to monitor soil carbon in farmland, map changes to it and reclaim degraded areas. All involved should focus on the following eight steps: stop carbon loss, promote carbon uptake, monitor, report and verify impacts, deploy technology, test strategies, involve communities, coordinate policies, provide support.

In response to the CORONA crisis, the STC suggests to write an opinion paper on the importance of sustainable soil management and soil organic matter storage for increasing soil health, which is directly linked to human health.

### Special issue

To identify suitable region specific practices globally, the STC is editing a special issue in the international journal “Regional Environmental Change” (Springer Nature, impact factor 3.1) with the title “Sustainable management practices to increase soil carbon sequestration: what are their contribution to climate change mitigation, adaptation and food security in different ecosystems and regions of the world”. The special issue is divided in five sections from different regions of the world (America, Asia, Europe, Africa and Oceania) and editors were nominated grouping the STC members. A call for contributions resulted in the selection of 41 potential papers. The submission of papers is in progress and the publication of the special issue is planned for 2021.

## **F. Involvement of the Initiative in high level global actions**

### NDC project

In order to gather information on the importance of SOC in the countries’ Nationally Determined Contributions in the UNFCCC negotiations, an analysis of the Intentionally Determined Contributions (INDCs) and NDCs has been done. The analysis was supplemented by interviews with experts from selected countries. Moreover, the potential contribution of additional SOC storage was evaluated using the scientific literature. The results of the study were discussed during a side event in June 2019 at the Bonn Climate Change Conference (SB50) and presented in a webinar carried out in April 2020 ([NDCs webinar](#)). An Info Note was written by L. D. Wiese, V. Alcantara-Shivapatham and L. Wollenberg with the title “Enhancing Nationally Determined Contribution (NDC) ambition for soil organic protection and sequestration” ([Infonote on the NDCs](#)). Main conclusions are: (1) countries do not consider SOC in NDCs or indirectly via practices and not explicitly, (2) countries need help, (3) what about the additionality in projects that aim SOC sequestration if the SOC is in the NDC?

### Submissions to the process of the Koronivia Joint Work on Agriculture

The 23rd Conference of the Parties (COP23) to the United Nations Framework Convention on Climate Change (UNFCCC) concluded with a landmark decision recognizing the role of agriculture in tackling climate change.

Decision 4/CP.23 on the Koronivia Joint Work on Agriculture (KJWA) requests the two Subsidiary Bodies under the Convention, namely the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI), to jointly address issues related to agriculture, taking into consideration the vulnerabilities of agriculture to climate change and approaches to addressing food security.

The Initiative “4 per 1000”, together with the Intergovernmental Technical Panel on Soils and the Global Soil Partnership, the Secretariat and the Science-Policy Interface of the United Nations Convention to combat Desertification, Drynet, the World Agroforestry Centre (ICRAF) and the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) East Africa have submitted their science-based views for the workshops taking place at SBSTA/SBI 5& in June 2019 on topic 2 (c) “Improved soil carbon, soil health and soil fertility under grassland and cropland as well as integrated systems, including water management”.



In addition, together with a group of research and higher education institutions and programs the Initiative 4 per 1000 has submitted its science-based views for the workshops taking place at SBSTA/SBI 5& in November 2019 on topic 2(d) “Improved nutrient use and manure management towards sustainable and resilient agricultural”.

## **G. Relationships with other related initiatives**

### GSP activities

The STC has contributed to writing and reviewing several GSP documents such as the Technical Manual on SOC Management and the “Protocol for Measurement, Reporting, Verification and Monitoring to assess soil organic carbon sequestration and greenhouse emissions in agricultural landscapes (GSOC-MRW).

## **H. Strategy**

### Vision, Mission, Objectives, Implementation Plan of the Initiative

On June 15<sup>th</sup> 2020, the 4 per 1000 Strategic Plan for the next 30 years was endorsed by the Consortium. The STC contributed to the development since the start of the process. For developing a plan of actions to implement the strategic Plan the STC members will contribute to different objectives and task forces.

## **I. Workshops and events**

The STC has contributed and co-organized several workshops and events around the world:

- a regional meeting in South East Asia (Hanoi, Vietnam) in collaboration with CIRCASA in September 2019
- an international conference on the 4p1000 debate in June 2019 in Poitiers. The conference provided an exchange forum for scientists, decision makers, funding organizations (agencies), businesses and geopolitical entities to discuss critical issues and realistic opportunities and challenges for the implementation of the initiative. It aimed to build partnerships for soil sustainability and resilience, promote innovation and knowledge, and exchange and ensure that appropriate solutions are put into practices under the framework of the 4p1000 initiative.
- at the XXI World Congress of Soil Science in Rio de Janeiro (Brasil), 12-17 August 2018, two sessions were organized by STC members: 1. convened by Claire Chenu: C4.1.5 - Carbon sequestration potential of soils. Part of Division 4: The Role of Soils in Sustaining Society and the Environment <https://www.21wcss.org/docs/program/division4/C4.1.5.pdf> 2. Convened by Beata Madari: 4.4 - Soil organic matter to secure food and water and the 4 per 1000 initiative Interdivisional meeting part of Division 4: The Role of Soils in Sustaining Society and the Environment <https://www.21wcss.org/?secao=conteudo&id=74>
- at 5<sup>th</sup> International Rice Congress. Singapore, Marina Bay Sands, 14-17 October 2018. <http://ricecongress.irri.org/> a session was organized by an STC member: convened by J.K. Ladha
- International Conference on Agricultural Emissions and Food Security: Connecting Research to Policy and Practice. Berlin, 10-13 September 2018. FACCE-JPI and GRA



- NARO-FFTC-MARCO Symposium 2018: Climate Smart Agriculture for the Small Scale Farmers in the Asian and Paacific Region.Tsukuba (Japan), 26 to 30 september 2018.
- INRA/IRD/CIRAD in November 2018, STC member participated in the organization of a French national Symposium to identify research priorities in France;