



**A SOIL INITIATIVE  
FOR AFRICA:  
VISION, PLAN AND PROCESSES**

# **A Soil Initiative for Africa:**

## **Vision, Plan and Processes**

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# Contents

List of Abbreviations.....	4
1. Rationale: The Need for a Soil Initiative for Africa.....	5
2. Process: The African Union Commission Sets in Motion Initiatives on Fertilizer and Soil Health .....	6
3. Vision: A Soil Initiative for Africa.....	7
3.1 A Vision for Local and National Level Elements of a Soil Management System for Africa.....	7
3.2 A Vision for Regional and Continental Elements of a Soil Management System for Africa.....	9
4. Monitoring: A Dashboard to Monitor Success.....	11
5. Scaling: The Challenge .....	11
6. Beyond the Summit: The Development of the Soil Initiative for Africa.....	12
7. Next Steps.....	12

## List of Abbreviations

<b>AAP</b>	Alliance for Africa Partnership
<b>AFAAS</b>	African Forum for Agricultural Advisory Services
<b>AfDB</b>	African Development Bank
<b>AFSH</b>	Africa Fertilizer and Soil Health
<b>AGRA</b>	Alliance for a Green Revolution for Africa
<b>AGRF</b>	African Green Revolution Forum
<b>ASARECA</b>	Association for Strengthening Agricultural Research in Eastern and Central Africa
<b>AUC</b>	African Union Commission
<b>AUDA</b>	African Union Development Agency
<b>CAADP</b>	Comprehensive Africa Agriculture Development Programme
<b>CCARDESA</b>	Centre for Coordination of Agricultural Research and Development for Southern Africa
<b>CORAF</b>	Conference of the agricultural research leaders in West and Central Africa
<b>FANRPAN</b>	Food, Agriculture and Natural Resources Policy Analysis Network
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>FARA</b>	Forum for Agricultural Research in Africa
<b>IFDC</b>	International Fertilizer Development Center
<b>LDN</b>	Land Degradation Neutrality
<b>NAFSIP</b>	National Agriculture and Food Security Investment Plan
<b>NDC</b>	Nationally Determined Contribution
<b>NEPAD</b>	New Partnership for Africa's Development
<b>ReNAPRI</b>	Regional Network of Agricultural Policy Research Institutes
<b>RUFORUM</b>	Regional [African] Universities Forum for Capacity Building in Agriculture
<b>SIA</b>	Soil Initiative for Africa
<b>SRO</b>	Sub-regional organization



## Rationale: The Need for a Soil Initiative for Africa

Africa has experienced a widespread decades-long decline in soil quality since the early 20th century - a phenomenon that continues today. There has been an overt abuse and overuse of Africa's soil resources without due cognizance of replenishment strategies to bring the soils back to health and productivity. In June 2006, recognizing the central role that healthy soils can play in the development conundrum, the Heads of State and Governments of the African Union endorsed a continental strategy and resolutions that will stimulate the reversal of the worrying trend of poor productivity of the African soils. At the time of the African Union Special Summit in Abuja, 2006, the concern was the abysmally low use of fertilizer (largely inorganic) in African farming systems. Fifteen years after the Abuja Declaration<sup>1</sup> and its 12 Resolutions on raising the productivity of African soil through higher fertilizer use (Abuja+15), it is timely to revisit the state of play of African soil health and to recalibrate the strategies being deployed to reverse the undesirable trends. The decline in soil health has hindered agricultural productivity, food security, and environmental sustainability across the continent. It hampers economic growth and well-being—particularly for Africa's poorest and most vulnerable people who derive their livelihoods directly from the natural resource base. The wider implications of these effects are that this decline in soil quality and productivity for Africa poses threats well beyond Africa.

Numerous plans, projects, programs, policies, and institutional frameworks, and other processes exist to address the persistent soil degradation, often with important practical achievements - but so far with much less than desired impact at scale. While many of the building blocks for a solution are in place, the overall attention and resources devoted to this issue have been fragmented and inadequate - a classic example of the scenario of the whole being less than the sum of the parts! Consequently, the continent-wide decline in soil quality continues unabated - at great cost to Africa and its people, and increasingly at great cost to the world at large. Reversing the decline in soil health across Africa has become even more urgent and crucial as global attention has shifted to the potential contribution this could make to raising global levels of carbon sequestration - a key part of any strategy to address the climate crisis. This situation has been discussed at some length in a recent report by the Chicago Council on Global Affairs - [Considering a Soil Initiative for Africa](#), January 2020. There will be no quick fixes but a broad-based, and long term plan would be imperative for success at reversing the awful trend. While such a plan should include actions to expand the use of inorganic fertilizers, one of the lessons learned since the Abuja Summit is that a much broader agenda of improved soil management practices - as part of a sustained and scaled regional soil management system - will also be needed.

A move toward reducing hunger and safeguarding agriculture-based livelihoods on the continent must begin by addressing its severely depleted soils through multiple agricultural land conservation, protection, and management approaches. Due to decades of soil nutrient mining and the age of the soils, Africa's soils, which are among the oldest in the world, have become the poorest in the world. It is estimated that the continent loses over US\$4 billion worth of soil nutrients each year, severely eating into its ability to feed itself. Yet farmers neither have sufficient access to fertilizers nor can they afford other inputs needed to add life to their soils with a view of reversing the downward spiral of the degradation of the physical environment.

<sup>1</sup>Abuja Declaration on Fertilizers for an African Green Revolution



## 2. Process: The African Union Commission Sets in Motion Initiatives on Fertilizer and Soil Health

### A Soil Initiative for Africa

In September 2020, at the Alliance for a Green Revolution for Africa's (AGRA) African Green Revolution Forum (AGRF), the African Union Commission (AUC) issued a call to create a Soil Initiative for Africa (SIA) as an ambitious effort to improve the condition of the Continent's soils. Improved soil condition will be achieved by scaling proven technologies (including expanded fertilizer application) in order to improve productivity for poor farmers and, in many cases, sequester greenhouse gases by putting in place policies, programs, and institutional structures (i.e., an effective soil management system for Africa) needed to improve and maintain soil fertility across Africa into the future. The AUC charged FARA (Forum for Agricultural Research in Africa) and the other xPillar4 agencies (CORAF, ASARECA, CCARDESA, and AFAAS ) to develop a design and plan for the Initiative. Accordingly, FARA has established a working group (the SIA Working Group) to take on this complex task. Several international donors have shown interest in this effort.

In taking leadership for the SIA, the SIA Working Group is collaborating with a wide range of stakeholders to develop a package of three documents to describe and Soil Management System for Africa, the SIA, and how it will be implemented:

**1. Vision Document** (this document) for Addressing the Decline in Soil Health Across Africa. This document presents the rationale and vision for a Soil Initiative for Africa – the Chicago Council paper Considering a Soil Initiative for Africa initially served this purpose, but an African version is needed.

**2. The Soil Management System for Africa.** A document providing a description of the institutional, programmatic, and policy elements that would be capable of resuscitating and sustaining Africa's soils.

**3. A Soil Initiative for Africa.** This document will constitute the long-term actions for the launch, development, and implementation of A Soil Management System for Africa described in the document above. This plan will be launched at the Africa Fertilizer and Soil Health (AFSH) Summit in mid-2023 – see section below).

### An African Fertilizer and Soil Health Summit

The AUC will host an African Fertilizer and Soil Health Summit in mid-2023. To this end, IFDC, ReNAPRI, AAP , and the Global Soil Partnership at FAO have been tasked with helping to prepare for and organize the summit. The summit will bring together high-level stakeholders, including African Heads of State, the private sector, senior policy makers, and high-ranking government officials to discuss the crucial role of fertilizer and soil health management in stimulating sustainable productivity growth in African agriculture and to agree on an Africa Fertilizer and Soil Health Action Plan. The summit will serve as the platform from which the AUC will also officially launch the SIA. The Summit's Action Plan will address the broad set of interventions needed to increase the intensity and effectiveness of fertilizer use across the Continent as well as all

<sup>3</sup>CORAF (Conference of the agricultural research leaders in West and Central Africa), ASARECA (Association for Strengthening Agricultural Research in Eastern and Central Africa), CCARDESA (Centre for Coordination of Agricultural Research and Development for Southern Africa), and AFAAS (African Forum for Agricultural Advisory Services)

<sup>4</sup>IFDC (International Fertilizer Development Center), ReNAPRI (Regional Network of Agricultural Policy Research Institutes), AAP (Alliance for Africa Partnership)

the actions needed to put in place an effective Soil Management System for Africa (i.e., the Soil Initiative for Africa).

These two initiatives described above (i.e., the Soil Initiative for Africa and the preparations for the Africa Fertilizer and Soil Health Summit) are being coordinated under the leadership of a Technical Committee established by the AUC for this purpose. The Technical Committee is led by AUDA-NEPAD as chair and FARA as co-chair. The Technical Committee will ensure that the Africa Fertilizer and Soil Health Action Plan to be presented at the Summit will include the planning elements developed by both initiatives.



### 3. Vision: A Soil Initiative for Africa



This document presents a rationale and a vision for an initiative (the Soil Initiative for Africa) that will result in the design and establishment of a stronger Soil Management System for Africa sustained at scale. The proposed system will of necessity have programs, activities, and investments at local, national, sub-regional, and continental levels. The present document outlines the elements of such a system at each level. It also discusses other key aspects of the envisioned system – the need for achieving greater scale of activity; how it will fit within the Comprehensive Africa Agriculture Development Programme (CAADP) process; the need for more resources dedicated to the system; and the need for focused methods for measuring progress and monitoring and evaluating the effectiveness and success of the system.

#### 3.1 A Vision for Local and National Level Elements of a Soil Management System for Africa

The initiative's aim is to elaborate a wholistic approach to the improvement of soil health on farms across the continent which is firmly grounded in fostering local ownership of sustainable soil management decisions and solutions; hence the core activities will be at the local level overseen by the AUC's 55 member countries. This section focuses on how this might work. The initiative does not propose to redefine agriculture systems at the country level. If a country has designated related work to a district or local level, then that will be reflected in a country's approach. Each country's approach can vary, of course, but will likely have the same essential elements and will be well supported by the initiative's many activities above the country level. Farmers in each country – sometimes 10,000s or 100,000s of them – are already improving the health of their soils. The initiative aims to build on these efforts to reach scale.

***For each country in Africa, it is envisioned that a successful Soil Initiative for Africa would lead to a situation in which***

- Communities and farmers improve their soils by changing how they farm, resulting in increased productivity, resilience and, most likely, incomes. They are informed and empowered to adapt their soil management practices as they learn more and as the climate changes. Their treatment of soil will be complemented by how they manage water and other finite natural resources on their farms and in the landscape.
- Farmers have expanded access to a variety of fertilizers, and to tailored technical advice to help them use fertilizer most efficiently (i.e., environmental and economic efficiency). Policies and investments are identified and implemented to improve the efficiency of the various elements of relevant value chains related to fertilizers as inputs.
- Farmers learn improved practices from each other, from their farmer groups, as well as from public and private extension services. These services share better farming practices via face-to-face sessions and a variety of digitally-enabled approaches including radio, video, text, and sometimes specialized digital applications that can tap the increasing digitized information on soil, weather and agronomy (e.g., planting dates, variations by crop varieties). The initiative will provide resources to make sure each country does not have to “reinvent” the wheel and facilitate countries' learning

<sup>5</sup>Soil health is defined as the “the continued capacity of soil to function as a vital living system, within ecosystem and land-use boundaries, to sustain biological productivity, promote the quality of air and water environments, and maintain plant, animal, and human health” (Pankhurst et al., 1997)

<sup>6</sup>AUDA (African Union Development Agency)-NEPAD (New Partnership for Africa's Development)

from each other.

- The government's extension service monitors and shares best practices that it collects from its own tests, observing others' successes and information from the Soil Initiative for Africa. It collaborates with agribusinesses, donors, and private extension services. It develops and improves learning material and trains its agents on best practices, again with support from the SIA so each country does not have to "reinvent the wheel" but can tailor its approach to its own soil conditions.
- Other parts of a country's government (e.g., the ministry of agriculture) provide country-level services to support the agriculture sector by:
  - Setting country level goals (and perhaps local or district level goals) to improve agriculture and monitor progress to meet them. It is important to acknowledge that such goals may of course already exist. This effort will build on these existing metrics to the maximum extent possible.
  - Linking to the university system to ensure agriculture research is aligned with priorities and results are translated into action and agronomists, soil scientists and extension agents are trained.
  - Providing information from country-level systems to track improved soil, soil conditions, weather, and threats to farms.
  - Ensuring locally funded donor projects are well coordinated, consistent and contextualized within the country's plans.

#### **Institutional and programmatic structures needed to carry out the functions listed above would include the following:**

- A public agricultural extension program with sufficient technical capacity to master modern approaches to sustainable soil management and to communicate them at scale in a user-friendly manner to the farm-level. This would include the following inter alia:
  - A cadre of subject-matter specialists at national and/or provincial/state level with strong command of practical soil science - and with strong ties to university and agricultural research counterparts in soil science.
  - Field extension staff with sufficient grasp of sustainable soil management to be able to work effectively with farmers to improve and maintain soil management at field/farm level (and with systematic input from subject-matter specialists).
- Sufficient staffing of soil science programs at universities and agricultural research institutions to:
  - Train soil scientists at B.Sc., M.Sc. levels (and, where possible, at Ph.D. level) - and to provide ongoing in-service training to extension staff and other relevant agricultural professionals.
  - Identify in-country soil related issues, consult effectively with global partners about these issues, launch relevant research activities (in partnership with external partners as needed) to address these issues.
- A soil department within the appropriate ministry (e.g., agriculture or environment) with capacity to identify and take effective holistic action on soil-related issues as they arise.

Success in achieving the above vision would in many cases require pragmatic programmatic innovation and investment of resources. With the benefit of hindsight, lessons from the past 15 years since the Abuja 2006 fertilizer summit should guide the processes on 'the how' and 'the how not' to address plans for the enhancement of soil productivity and health. Complementary efforts on soil health across the continent would become very useful in developing synergistic and holistic approaches with a much broader spectrum beyond the increased use of fertilizers and reversing degraded unproductive soils and desertification. The quality of soils and the nutrient mapping initiatives will all count toward the greater goals of this initiative through wider programmatic and policy lenses. The Soil Initiative for Africa would provide both political and technical support for each country to design and implement such programmatic innovation. It would also assist in seeking and developing resources through which to support this - including development of human capital, business models for seeking financial support (from both domestic and external sources), increased access to regional/continental/global soil information systems, facilitated access to relevant research programs across Africa and across the globe.

Section 3.2 below presents how such support from the regional and continental level would be developed and organized.



### 3.2 A Vision for Regional and Continental Elements of a Soil Management System for Africa

Some elements of an African system to manage the Continent's soils are best situated at regional and continental levels. This is the case for several reasons. First, given the thin level of human and institutional capital in the soil science currently in place across the Continent, Africa does not have sufficient resources at present in most of its 55 countries to cover all of the technical, managerial and administrative functions that are needed to maximize the effectiveness of stand-alone country-level soil management systems. Collective action among the countries to take advantage of the human and institutional capital in soil sciences that does exist (i.e., sharing these resources across countries) is possible and necessary - and institutions such as FARA, the Sub-regional organizations (SROs), AFAAS, and RUFORUM are already in place to facilitate this approach. Second, application of the principle of subsidiarity to the design of an African system for soil management suggests that, even if Africa were to have deeper reserves of human and institutional capital in soil science, some functions of the system would be most effectively managed at regional and/or continental levels. Further, where issues are global in scope, partnerships with institutions across the globe (including, in particular, with the [One CGIAR](#) institution) will continue to be needed and nurtured - Africa will need to further develop and expand its effectiveness in harnessing its access to such partners toward addressing Africa's agricultural challenges.

**The following achievements and roles under a Soil Management System for Africa would be best situated at sub-regional and continental levels:**

- Information about soil health and fertility across the Continent is collected, archived, analyzed, mapped, summarized, readily available with open access, and translated into actionable advice for farmers.
- Priority research topics on African soils are identified, corresponding research teams and facilities are located to address these topics, and research is funded and launched.
- Expertise on soils and sustainable soil management from across Africa (and across the World) can be readily mobilized as needed to attend to issues at regional, country, and local levels.
- An inventory of locally adaptable soil amelioration technologies would become important for scaling through the continent.
- CAADP advocates in every African country for measures to improve soil and root health.
- CAADP formulates materials to provide guidance on the development of effective soil health programs at country and local levels.
- CAADP offers African technical assistance in the development of soil health programs at every level - including providing guidance materials and technical expertise to support the effective incorporation of programmatic and policy measures to manage and improve soil health into each country's National Agriculture and Food Security Investment Plan (NAFSIP).
- CAADP offers assistance to countries and regional agencies in seeking resources to finance programs aimed at managing and improving soil health.
- Within the context of Abuja+15, metrics to track progress on improving soil and root health are developed and added to the metrics reported on in CAADP biennial reviews. These metrics should preferably link to metrics that already exist in national, regional, and continental reporting cycles to reduce the additional workload of measurement and reporting.
- Effective B.Sc., M.Sc., and Ph.D. programs are available across the continent and are producing a growing cadre of effective soil scientists.
- Training programs are available across the Continent to ensure that agricultural extension and advisory service providers (public and private) possess fundamental practical skill and knowledge sets related to soil management.
- Institutional and programmatic structures needed to carry out the functions listed above might include the following:
  - An African Soil Information System (working together with the various elements of a global soil information system)
    - Technical expertise on soil information
    - Repository of soil information
    - Organizing soil information, integrating different sources, identifying gaps.

<sup>7</sup>The SROs (Sub-regional organizations including ASARECA [Association for Strengthening Agricultural Research in Eastern and Central Africa]), AFAAS (The African Forum for Agricultural Advisory Services (AFAAS), and RUFORUM (Regional [African] Universities Forum for Capacity Building in Agriculture).

- An African Community of Practice Network on Soils
  - An African Soil Research Coordination Center (possibly at FARA)
  - An African Soil Science Education Coordination Center (possibly at RUFORUM)
  - An African Soil Management Training Center (possibly at AFAAS).
  - African soil health and regeneration policy initiative geared towards raising soil-based productivities – for pastoralists and agronomic practices (possibly at FANRPAN - Food, Agriculture and Natural Resources Policy Analysis Network<sup>9</sup>)
- A Continental program to support countries, localities, and farmers in the expansion of fertilizer use, the efficiency of fertilizer use, the establishment of greater access to fertilizers (and better functioning fertilizer markets), and to shape fertilizer related policy to support all of these developments.
- An African Center for the Identification, Prioritization, Design of Business Models for Soil-related Initiatives, and Mobilization of Funding of regional and continental soil-related initiatives (research, training etc. - possibly at AfDB or other institution - with SROs, AFAAS, FARA, RUFORUM all having roles in this).
- A system for sharing, scaling, and tracking the results of appropriate agronomic approaches for soil improvement, perhaps partially facilitated by AFAAS.
- A University-based Center of Excellence on Soil Research and Education in each of the following regions: North Africa, West Africa, East Africa, Central Africa, and Southern Africa.
- An African Centre of Excellence on Soil and Root Health is established as the custodian of Research and Innovation information systems. The Centre will harmonize and analyze all soil-based initiatives across the continent as the go-to African Soil Reference Centre (ASReC).
- A collaborative program on African soils between the African Community of Practice Network on Soils and the One CGIAR system (hosted at one of the CGIAR centers in Africa).
- A CAADP-based continental team available to advocate for, and assist in the design of, country-based soil health programs.
- Parts of the above list of regional and continental components of the envisioned system for the management of African soils already exist. Others, if agreed to be useful, would need to be designed and established.



<sup>9</sup><https://fanrpan.org>



## 4. Monitoring: A Dashboard to Monitor Success

A dashboard will be developed and used to provide focus on overall goals, track progress across countries and the Continent, applaud progress, and hold the initiative accountable. High level metrics might include:

- Percentage of African soils with improved productivity
- Percentage reduction in area of degraded soil
- Directional change or percentage increase in carbon sequestration
- Average use of inorganic fertilizer per hectare of cropped area

In addition to such higher-level metrics, several common and easily monitorable national level goals will also be identified and used to track progress at that level. Where possible, formulation of all metrics will be built upon metrics already identified and being used in ongoing efforts (such as CAADP reporting and reporting against the Sustainable Development Goals (SDGs)). Most of these metrics relate to Land Degradation Neutrality (LDN) targets and in some instances would also link to Nationally Determined Contributions (NDCs) under the Paris Agreement. Countries' LDN and NDC targets would therefore provide starting points for goal setting and the SIA will be designed in such a way that it can directly feed into national LDN and NDC monitoring and reporting, building on countries' work on metrics.

For each metric, a measurable goal will be set for an appropriate time frame, some for 1 year, some 3, 5 or longer. The focus will be on measures of impact but may also include a handful of output metrics. Results will be collected at the national level but aggregated at regional (if desired) and for the initiative. Such visibility may help spur competition among countries and regions, but the aim is to track overall progress and to highlight the approaches taken by leading countries from which others may learn.

The initiative will use a digitally enabled mechanism in reporting progress to operate and update the dashboard. This will enable reporting across initiative components and more detailed reporting at the country level.



## 5. Scaling: The Challenge

One of the biggest challenges for the initiative will be to facilitate scaling across its components, from scaling the implementation of agronomic techniques to improve soil health and sequester carbon, to scaling soil mapping, training of requisite experts and more. The initiative will draw upon what is being learned about how to scale and have a standing advisory group. The advisory group will draw on international expertise on scaling including the ground-breaking work at CIMMYT on scaling and the Agriculture and Rural Development Scaling Community of Practice.

<sup>10</sup>See <https://www.unccd.int/actions/ldn-target-setting-programme>

<sup>11</sup><https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs>

<sup>12</sup>Others, such as CGIAR's Climate Change, Agriculture and Food Security (<https://ccafs.cgiar.org>) are also working to define metrics. These too should be considered.

<sup>13</sup>CIMMYT (International Maize and Wheat Improvement Center)

<sup>14</sup>See <https://www.scalingcommunityofpractice.com/groups/scaling-up-in-agriculture-and-rural-development/>



## 6. Beyond the Summit: The Development of the Soil Initiative for Africa

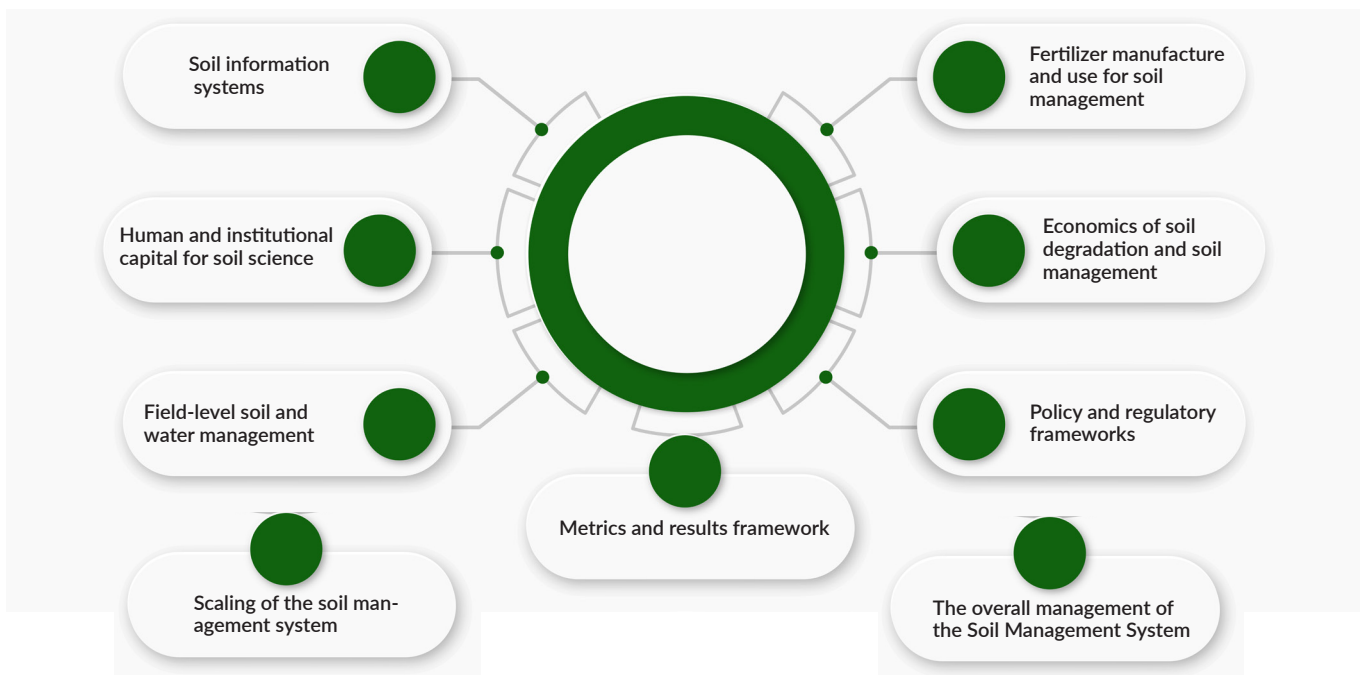
Once a plan for the Soil Initiative for Africa has been completed and launched at the AFSH Summit in 2023, the SIA Working Group will, within CAADP processes such as engagement in NAFSIP processes at country level, lead the effort to advocate for the plan with national and local officials (Ministers of Finance, Ministers of Agriculture, their respective technical staff, politicians, and other stakeholders). In addition, the Working Group (and its supporters - the AUC, technical agencies) will use the plan to seek support from Africa's Development Partners.

Resources will need to be mobilized at every level (farm, community, local government jurisdictions, country, sub-regional, and continental) in order to implement the Soil Initiative for Africa. Local and country-level elements of the SIA plans will need significant financial support from the respective local and national governments. For countries wishing to seek external assistance in the financing of SIA activities, the Working Group will work with country-level officials to utilize the SIA plan to seek support from external Development Partners. For programs and institutional structures and capacities that will be needed at sub-regional and continental levels, the Working Group will work with the relevant authorities in using the SIA plan to seek support from within Africa as well as from external Development Partners.



## 7. Next Steps

The SIA Working Group will engage in a broad consultation process with a wide range of stakeholders and key experts to develop the description of the Soil Management System for Africa and action steps for the SIA, considering at least the following elements:





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