

*Toolkit for Supporting National
Implementation of the*
**Africa Fertilizer & Soil Health
Action Plan (2024-2034) and
the Soil Initiative for Africa (SIA)**



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List of Abbreviations

AARIEIs	-	African Agricultural Research, Innovation and Education Institutions
AARINENA	-	Association of Agricultural Research Institutions in the Near East & North Africa
AFAAS	-	African Forum for Agricultural Advisory Services
AfSIS	-	Africa Soil Information Service
AFSH	-	Africa Fertilizer and Soil Health
AFSH-AP	-	Africa Fertilizer and Soil Health Action Plan
AR4D	-	Agricultural Research for Development
ASARECA	-	Association for Strengthening Agricultural Research in Eastern & Central Africa
ATVET	-	Agricultural Training and Vocational Education
AU	-	Africa Union
AUC	-	Africa Union Commission
AUDA	-	African Union Development Agency
CAADP	-	Comprehensive Africa Agriculture Development Program(me)
CBFs	-	Community-Based Facilitators
CCARDESA	-	Centre for Coordination of Agricultural Research and Development for Southern Africa
CGIAR	-	Consortium of International Agricultural Research Centers
CoP	-	Community of Practice
CORAF	-	West and Central African Council for Agricultural Research and Development
DSM	-	Digital Soil Mapping
ECA	-	East and Central Africa
EUDASM	-	European digital archive of soil maps
FAIR	-	Findable, Accessible, Interoperable, and Reusable
FAO	-	Food and Agriculture Organization
FARA	-	Forum for Agricultural Research in Africa
FNSSA	-	Food and Nutrition Security and Sustainable Agriculture
GIS	-	Geographic Information Systems
GSP	-	Global Soil Partnership
HWSD	-	Harmonized World Soil Database
ICT	-	Information and Communication Technology



IITA	-	International Institute of Tropical Agriculture
ISRIC	-	International Soil Reference and Information Center
LandIS	-	Land Information Systems
LESIS	-	Lesotho Soil Information System
MEL	-	Monitoring, Evaluation and Learning
NARS	-	National Agricultural Research Systems
NASRO	-	National Association of Agricultural Services and Research Organizations
NGOs	-	Non-Governmental Organization
NSIS	-	National Soil Information System
RANCH	-	Regional Anchor Universities for Higher Agricultural Education
RAUs	-	Regional Anchor Universities
RSIS	-	Regional Soil Information System
RUFORUM	-	Regional Universities Forum for Capacity Development
S3A	-	Science Agenda for Agriculture in Africa
SADC	-	Southern African Development Community
SIA	-	Soil Initiative for Africa
SIS	-	Soil Information System
SROs	-	Sub Regional Organisations
STISA	-	African Union Science, Technology Innovation Strategy for Africa
SUSIS	-	Sudan Soil Information System
TSO	-	Technical Support Organization
WOSAC	-	World Soil Survey Archive and Catalogue



Background

Africa has experienced a widespread, secular decline in soil quality since the early 20th century – a decline that continues today. This decline has significantly reduced agricultural productivity across the Continent. It threatens food security and environmental sustainability as well as economic growth and well-being, particularly for Africa's poorest and most vulnerable people.

Recognizing the importance of reversing the ongoing and widespread decline of soil health, the African Union launched, in 2020, a continental effort to improve the situation. Through a broad consultative process involving numerous African stakeholders as well as a wide array of African and global experts, a way forward was formulated and agreed upon, and then formally adopted by the African Union in May of 2024 in Nairobi at an African Union Heads of State Africa Fertilizer and Soil Health (AFSH) Summit. Specific outcomes of the Summit included the issuance of the following documents:

1. [The Nairobi Declaration](#);
2. [The 10-year Fertilizer and Soil Health Action Plan](#); and
3. [The Soil Initiative for Africa Framework](#) (with a 40-year time horizon).

Together, these documents express Africa's commitment to improving soil health. They establish a vision of an African system for taking care of Africa's soils and indicate how the system will be realized. They establish medium—and long-term goals and present Africa's roadmap for how the goals will be met and maintained.

Implementation of the Soil Initiative for Africa (SIA) Framework and the 10-year Fertilizer and Soil Health Action Plan will involve a wide variety of actors and activities across several levels – continental, regional, national, local, and, most importantly, at farm and field levels. The scale, scope, and ambition of the SIA necessitates coordination at every level.

The SIA Framework establishes how such coordination will be led and organized – including the development of SIA coordination structures at the continental and regional levels (regional hubs). It also establishes roles and responsibilities at every level for the implementation of the SIA. The SIA calls for each of Africa's five regions and 55 countries to develop SIA plans for their respective jurisdictions – these to complement and form part of CAADP regional and national investment plans. The SIA Framework also indicates how support from Africa's external partners should be coordinated with SIA plans at every level.

Current capacity limitations at every level, in many key institutions, and across the farming sector, necessitate that, beyond coordination, technical assistance and capacity building be readily available. The SIA Framework and the 10-year Fertilizer and Soil Health Action Plan provide for such technical assistance and capacity building and indicate how such support will be organized. Such support will include, *inter alia*,

leadership and services from continental technical agencies such as AFAAS, RUFORUM, the sub-regional organizations viz., CORAF, CCARDESA, ASARECA, NASRO, and FARA, and from regional SIA hubs. It will also include support from technical coalitions of institutions with the requisite expertise that have been formed for this purpose.

To support the process of implementing the SIA and to provide more detailed technical guidance on the substantive actions of the SIA, a SIA Toolkit has been developed for use by SIA implementers at every level. The SIA Toolkit gives cognizance to the following guiding documents



[The Nairobi Declaration](#)



[Coordination Mechanisms for the Implementation of the Africa Fertilizer & Soil Health Action Plan \(AFSH-AP\) & Soil Initiative for Africa \(SIA\)](#)

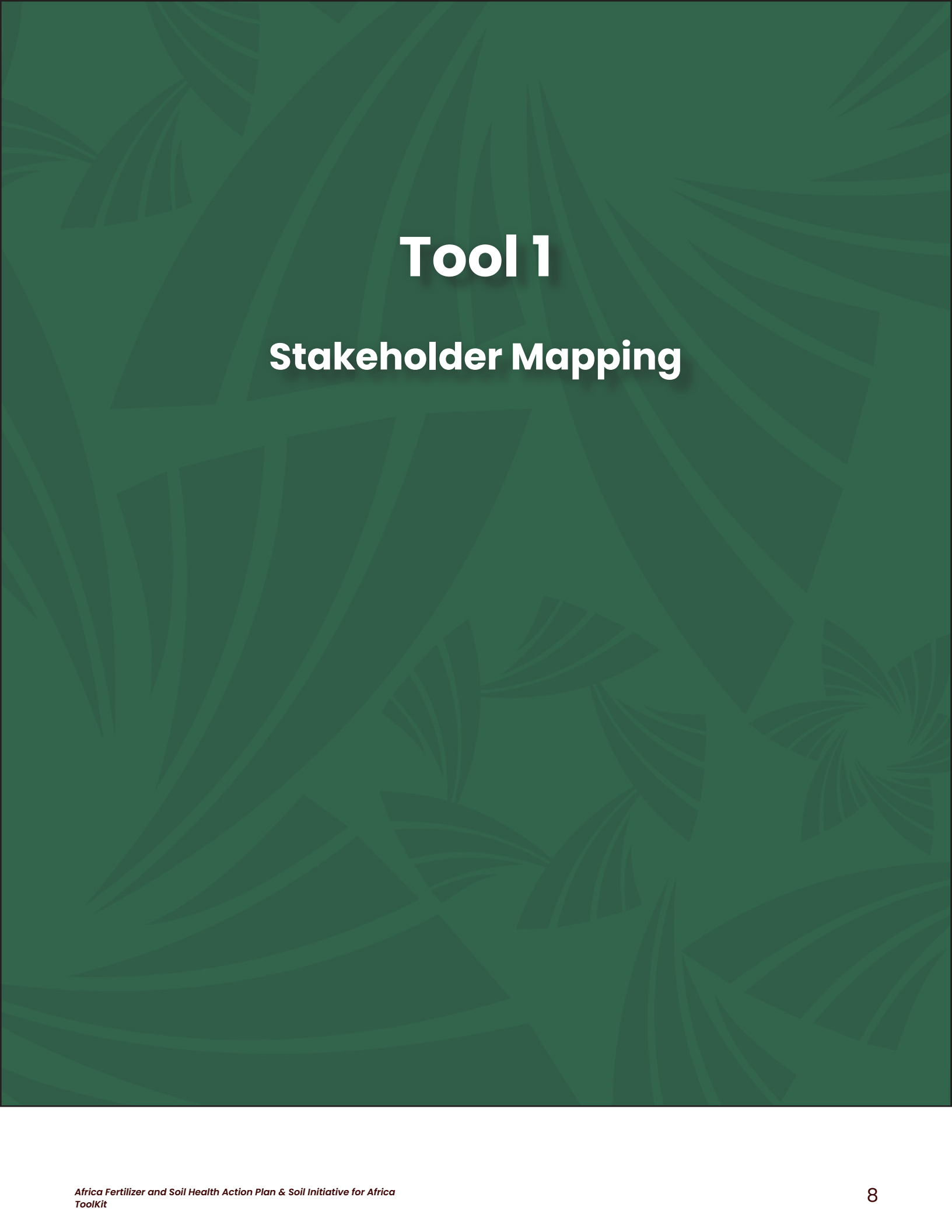


[The Soil Initiative for Africa Framework;](#)



[The 10-year Fertilizer and Soil Health Action Plan](#)

The Toolkit is a complementary document that further breaks down the logic behind the four predecessor documents. It attempts to provide a guide to the required actions to achieve the outcomes in the AFSH-AP and the investments in the SIA. The toolkit also provides a guide to different partners that may want to support the countries in domesticating continental action and using a near-uniform roadmap to achieve impact. The toolkit comprises two parts: Part 1. Consists of three chapters: the introductory chapter, the second chapter on stakeholder mapping for the implementation of the AFSH-AP and the SIA, and the Synopsis of the country engagement process. Part two presents summaries of ten companion document chapters explaining key issues defining the SIA. The full Companion Document is available as a separate document.



Tool 1

Stakeholder Mapping

AFSH and SIA Stakeholder Mapping

Background

Stakeholders are individuals or groups of individuals or governments who have a vested interest and influence in AFSH–AP and SIA. Their mapping is a process of identifying and analyzing how to best engage them. Stakeholder mapping involves three main steps: identification of stakeholders, analyzing stakeholders, and development of stakeholder engagement plan. The map should provide a visual representation of stakeholders, their relationships, and influence on the AFSH–AP implementation. This document provides the first step of the stakeholder mapping process to provide the way for detailed engagement to analyze stakeholder influence and their engagement plan.

Key stakeholders of AFSH and SIA

The stakeholders can be segmented into different levels based on their sphere of influence and engagement, including:

- Global level: International organizations, global NGOs, and multinational companies involved in agriculture, environmental sustainability, and economic development. They include UN organizations, development organizations, global climate and environmental organizations, etc.
- Continental level: African Union, Africa Union Commission, AUDA–NEPAD, continental research institutions, and pan–African agricultural initiatives, members of parliament caucus.
- Regional level: Regional economic communities, regional development banks, sector–specific alliances, regional research organizations
- National level: National governments, local NGOs, farmers’ associations, and academic institutions.

Furthermore, stakeholders can also be categorized according to the following functions:

- Financial: Entities providing funding or financial resources.
- Political: Stakeholders with political influence or governance roles.
- Coordinative: Groups that facilitate coordination and collaboration among various entities as well as technical support (such as coalitions of the willing).
- Farmers: Agricultural producers and their associations.
- Researchers: Academic and research institutions contributing to knowledge and

innovation and expert groups such as professionals, soil science societies, etc.

- Businesses or private sector: Stakeholders involved in private business service provision
- Civil organizations: Stakeholders involved in coordinating special groups/interests that are in/directly affected by implementation of AFSH-AP such as consumer protection, environmentalists, etc.

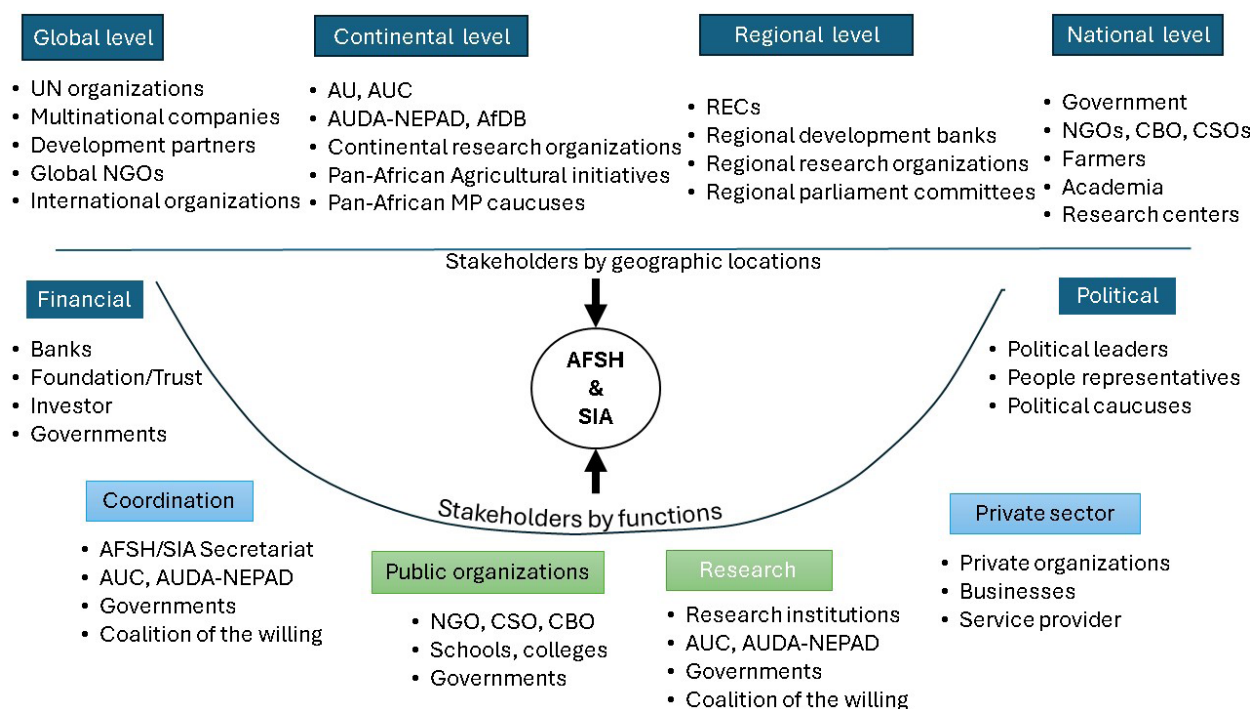


Figure 1: Stakeholders of AFSH and SIA

Stakeholder influence

Stakeholder influence refers to the power or ability of stakeholders to affect implementation or decision-making process. Stakeholder influence is essential in several key areas of the African Fertilizer and Soil Health Action Plan (AFSH-AP) and Soil Fertility Initiative for Africa (SIA) (Figure 2). These areas include:

- Coordination: Facilitating collaboration and alignment among various entities to ensure seamless execution of initiatives.
- Implementation: Direct involvement in the practical application of policies, strategies, and programs to achieve desired outcomes.
- Policies and Decision-Making: Shaping the strategic framework and priorities to guide actions and investments.
- Technical Guidance: Providing expertise, knowledge, and innovative practices to

support effective execution of soil health and fertilizer use initiatives.

- Resource Mobilization: Securing financial and material resources necessary for the successful implementation of projects and programs.

Africa Fertilizer and Soil Health Action Plan & Soil Initiative for Africa

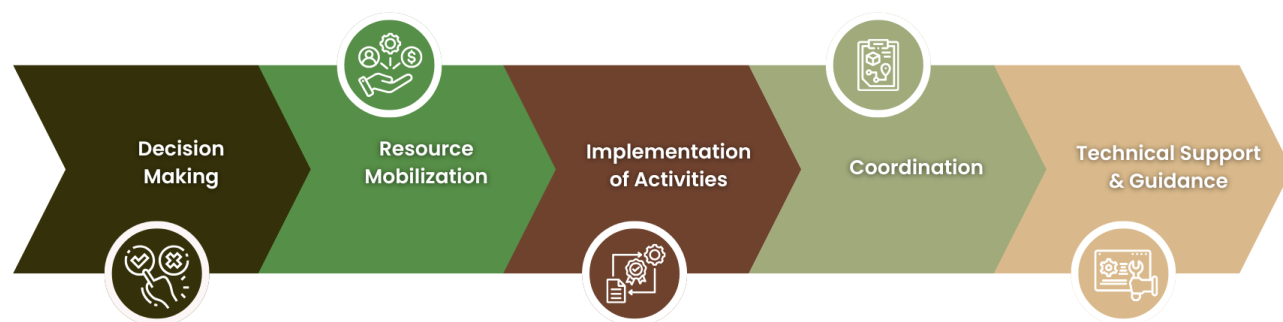


Figure 2: Critical areas of AFSH and SIA for stakeholder influence

AFSH and SIA stakeholders can be grouped according to their influence in implementation of the Action Plan and overall coordination of the AFSH. This categorization can be broken down into three main levels of influence:

High Influence

- National Governments: These stakeholders have significant power to impact policies, regulations, and funding related to agriculture and soil health. They also take responsibility for monitoring AFSH progress through the CAADP reporting process, financing national activities for implementing AFSH-AP, etc.
- Political Entities: Stakeholders with political influence or governance roles who can affect the strategic direction and prioritization of initiatives. They shape the policy framework, public awareness and buy-in, etc.
- Financial Entities: Organizations that provide crucial funding or financial resources, enabling the implementation of various programs and projects.

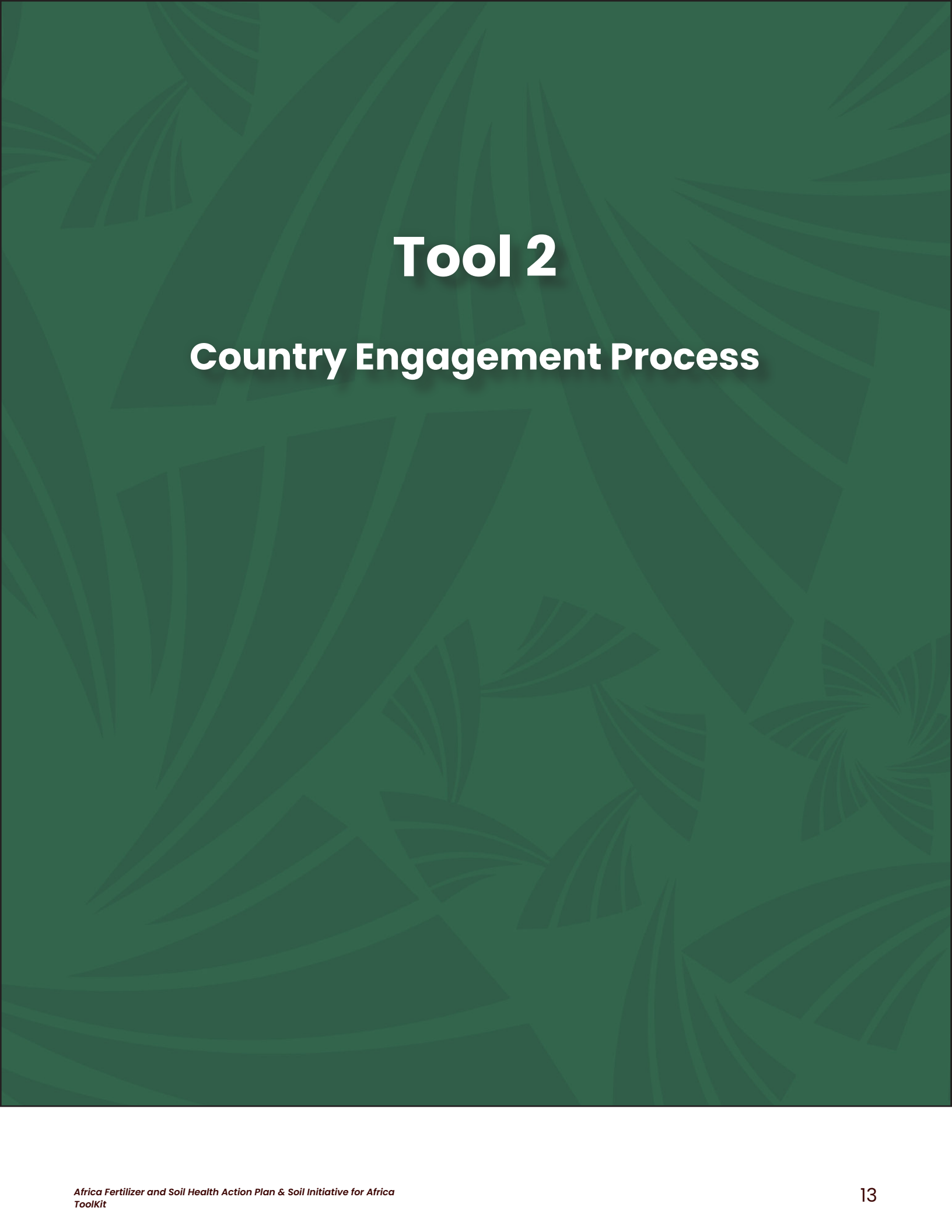
Moderate Influence

- Coordinative Groups: These entities facilitate coordination and collaboration among various stakeholders, ensuring the smooth functioning of initiatives.
- Researchers and Academic Institutions: Providers of knowledge and innovation, contributing to the development and dissemination of best practices in soil health and fertilizer use.

- 
- Farmers' Associations: Collectives of agricultural producers who can influence the adoption and implementation of new practices and technologies.
 - Businesses or Private Sector: Stakeholders involved in the provision of business services and products that support agricultural activities.

Low Influence

- Local NGOs: Organizations that work at the grassroots level, supporting communities and raising awareness about soil health and sustainable agriculture practices.
- Civil Organizations: Groups that coordinate special interests, such as consumer protection and environmental advocacy, and are indirectly affected by the implementation of AFSH-AP



Tool 2

Country Engagement Process

Country Engagement Process for the Domestication of the AFSH-AP and the SIA

Developing a coherent country engagement process is vital in implementing the AFSH-AP/SIA. While the AUDA-NEPAD was mentioned explicitly in the approved call to action to support the domestication of the action plan at the country levels, it will require the support of the different coalitions and the Technical Support Organization (TSO) to successfully carry out the more detailed technical component of the domestication. Hence, the support of the coalition and the hub is essential. A handful of existing projects have components dedicated to helping the countries domesticate the AFSH-AP. It is essential to harmonize these efforts into a coherent and well-coordinated piece. For instance, countries that are advanced in their domestication efforts will require little support; they should not be made to repeat the process, but rather they should be supported to advance from where they are.

The country process is expected to support the integration of the SIA and AFSH-AP into the country's own CAADP planning process. This will ensure that Soil management, soil health, and fertilizer use are factored into the country's agricultural investment plan and commitment of funds. In principle, the true impact of the SIA and AFSH-AP will be realised with the country's own investment in the action and process. The country process will require the designation of implementing organization(s) in the country, and the possible identification of champions for advocacy and persuasion of the right action with the civil society. Following real actions, it will foster the country reporting through the AU-led Biennial reporting process.

The following ten generic steps are identified to help the countries domesticate SIA into their action plan.

1. INITIAL VISIT TO THE COUNTRY FOR DIALOGUE ON THE AFSH-AP



A preliminary visit, conducted by principal representatives from pertinent Regional Hubs in conjunction with regional delegates from established supporting coalitions, is necessary to engage national governments and significant country-level stakeholders. The objective of this visit is to elucidate the paramount significance of the AFSH-AP and to evaluate the nation's preparedness and willingness to initiate the implementation of the Action Plan domestically. In certain instances, the visit is undertaken at the behest of the country seeking to commence domestication. Upon a country's expression of interest, the Action Plan development process may commence. The following steps are recommended:

2. CONDUCT COUNTRY SCOPING STUDY [Local Consultant]



The nation and its Regional Hub collaborate to complete this step. Its main goal is to identify the nation's most important problems with soil health and water resources in farms, landscapes, and important ecological niches like wetlands, forests, and grazing areas while also mapping all pertinent stakeholders, both state and non-state. In order to evaluate the nation's overall preparedness to create and carry out a national Action Plan, the scoping study must also involve direct interaction with these stakeholders, including the private sector and civil society.

3. DISCUSSION ON COUNTRY STATUS AND INTERNAL PROCESSES



The nation must have a national dialogue after the scoping study to determine whether it is ready to create and carry out an Action Plan. The same discussion should specify and reach a consensus on the procedures for creating and carrying out the national Action Plan if preparedness is verified. The national government should chair this meeting, which should be supported by technical experts from the relevant Regional Hub and comprise a wide range of private-sector and civil society stakeholders. The objective is to create a process that all state and non-state actors can understand and agree upon. From this point on, donors who are active in the nation may also be invited to participate.

4. ORGANIZATION OF COUNTRY CONSULTATION [Small Stakeholders' group]



5. DEVELOPMENT OF COUNTRY ACTION PLANS [Expert Group]



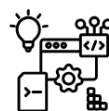
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6. VALIDATION OF COUNTRY ACTION PLAN



This step requires a national-level meeting involving all interested stakeholders, including active donors, where the small group responsible for drafting the detailed plan presents it for collective review. During this session, stakeholders discuss the draft, make any necessary adjustments, and formally approve it, potentially adding specific conditions as part of the approval.

7. INTEGRATION INTO COUNTRY PLAN [Multiple Ministries]



The relevant ministries who attended the approval meeting are in charge of incorporating the agreed-upon Country Action Plan into their national plans and initiatives once the plan has been validated. The Coordination Unit, which then disseminates this information to all stakeholders at the national level and the pertinent Regional Hub, must receive their report on how this integration was completed.

8. IDENTIFICATION OF COUNTRY-BASED COORDINATING ORGANIZATIONS.



9. SUPPORT THE COUNTRY WITH INITIATIVES



The Country Action Plan should be implemented with as much financial and technical assistance as possible from national governments, with additional contributions from stakeholders in the private sector and civil society. On request, development banks and donors may provide additional funding. With the long-term objective of developing adequate national expertise while preserving strong ties to regional, continental, and international Communities of Practice, technical assistance should come from both in-country experts and the technical coalitions supporting the SIA and AFSH-AP.

10. SUPPORT COUNTRY ACTORS TO SOURCE FUNDING



The Regional Hubs, AUDA-NEPAD, and occasionally the FARA Coordination Unit are expected to assist country stakeholders in obtaining additional funding for particular plan components, even though national governments should continue to be the primary financiers of their Country Action Plans.

Tool 3

AFSH-AP & SIA Companion Document

Developing Soil Information Systems for Africa

The fundamental problem is the dearth of accessible and usable soil information in Africa, which has serious implications for agricultural performance and investment certainty.

Problem Statement: Soil information is scattered, held in hardcopy (legacy data), non-harmonized, and not digitized.

Scale of the Problem: Less than five African countries have accessible national soil information systems (NSIS) online, and no Soil Information System (SIS) exists in any of the eight economic communities.

Consequence: Without adequate accessible soil information, agricultural investment decisions often result in uncertain outcomes, impacting the over 30 million smallholder farmers who manage more than 70% of the agri-food systems.

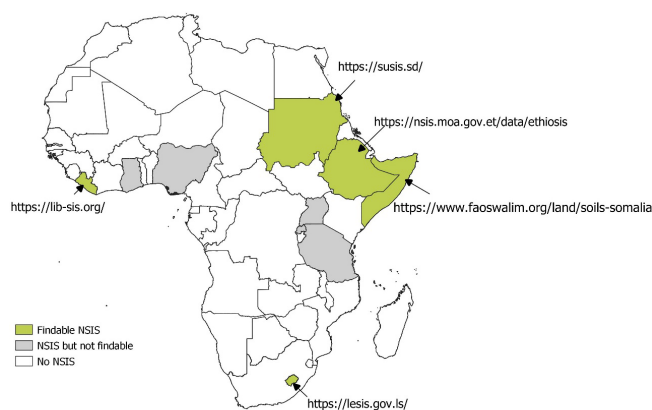


Fig. 2.1: Status of NSIS in Africa in April 2024

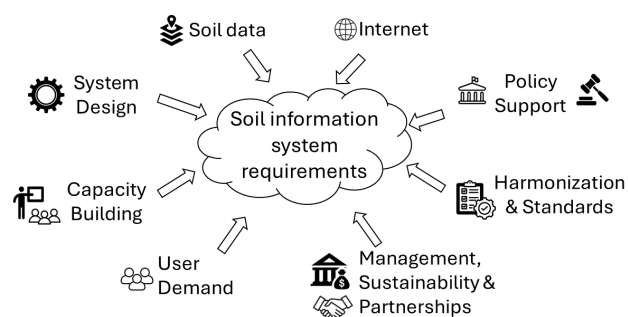


Fig. 2.2: Requirements for establishing a soil information system

Key Action Areas (Multi-Level Governance)

The document outlines a multi-level approach to establish and sustain functional Soil Information Systems (SIS):

Level	Key Action Area Focus	Specific Actions Mentioned
Continental	Standardization, Policy, and Resource Mobilization.	Promote the African Soil Information Service (AfSIS) as the continental SIS for data sharing and regional coordination. Mobilize resources for large-scale data campaigns (e.g., the 20,000 profile campaign).
Regional	Harmonization and Collaborative Tools.	Establish Regional SISs (within economic communities) to facilitate harmonization of soil data collected by different national systems. This ensures data interoperability and seamless movement between countries.

Level	Key Action Area Focus	Specific Actions Mentioned
National	Establishment, Data Rescue, and Maintenance.	Kickstart the development of NSISs. Focus on legacy data rescue (digitizing hardcopy data) and data centralization. Secure dedicated funding and ensure the system is supportive of innovative research for technical evolution.

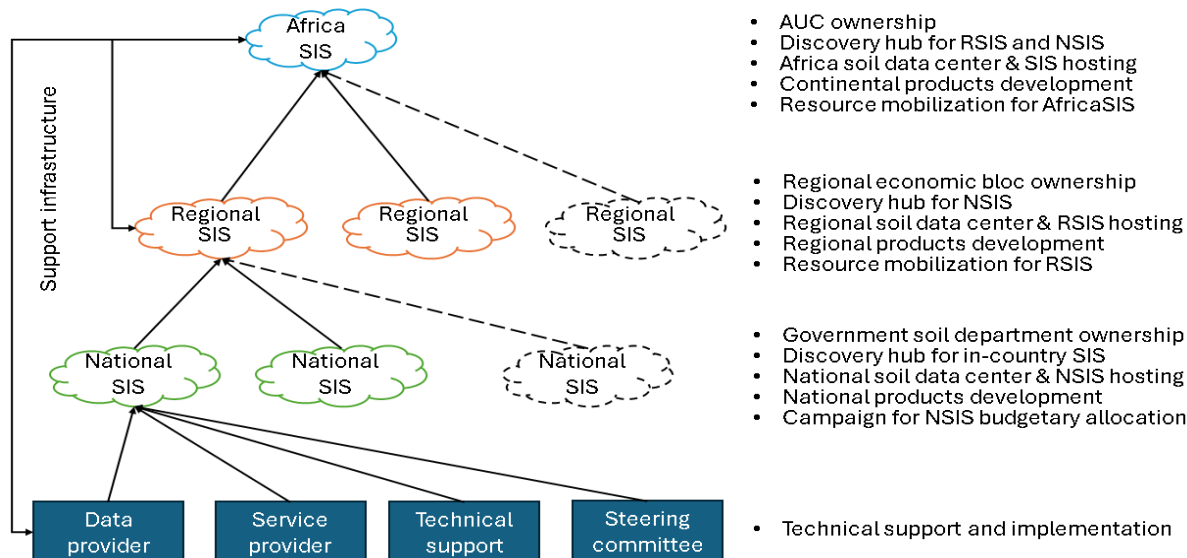


Fig. 2.3: Framework for soil information systems governance in Africa

Implications and Key Management Actions

Area	Implication/Benefit of SIS	Key Management Action Suggested
Soil Health & Resource Management	Improved Decision Certainty. Provides the necessary baselines and interpretive data to guide sustainable management practices and investments.	SIS should be utilized for interpreting data to inform decisions, moving beyond raw data delivery. SIS is a pillar action for improving soil health.
Data Quality & Utility	Coherent, Usable Datasets. Standardized and harmonized data can be combined for large-scale analysis and modeling.	Implement strict harmonization strategies to align data from varied sources into a common specification, safeguarding quality and integrity.
Data Gaps	Targeted Data Collection. Reveals where research efforts must focus to enable holistic modeling.	Prioritize the collection of missing physical and water properties (e.g., bulk density, soil structure, water retention) which are essential for climate-smart agriculture modeling but currently scarce.
Outreach & Adoption	Translation of Science into Practice. Enables direct delivery of customized advice to land managers.	Design systems with advisory and outreach features (e.g., web dashboards, mobile applications) to deliver synthesized messages in simple, non-technical terms.

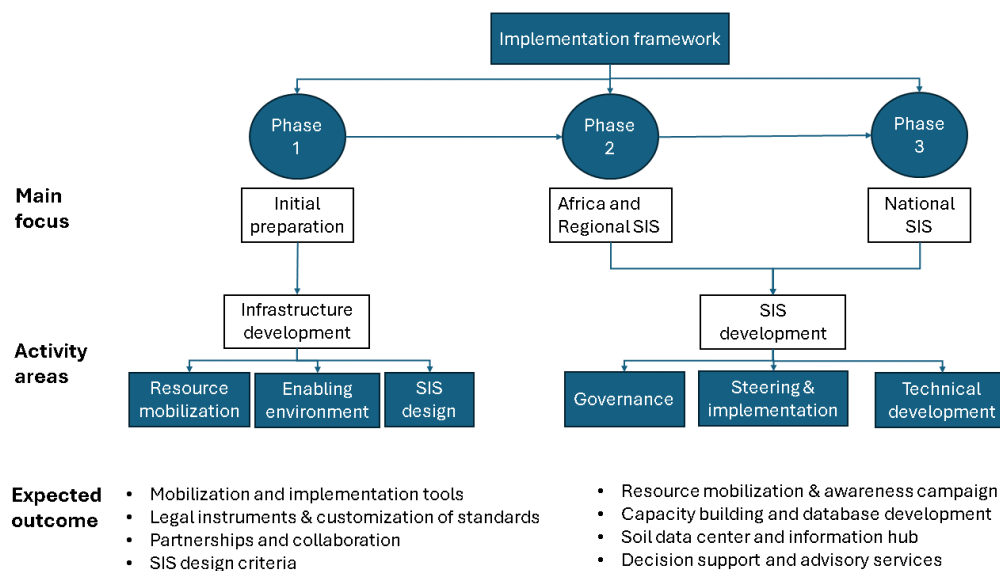


Fig. 2.3: Framework for soil information systems governance in Africa

Economics of Soil Degradation and Restoration in Africa

The fundamental issue is that soil degradation diminishes the ability of soil to provide essential ecosystem services. These services include:

- Support for plant growth and consequent agricultural productivity.
- Water regulation.
- Carbon sequestration.
- Support for soil biota and gene pool.
- Cleaning environmental contamination.

Understanding the economics of this degradation, the cost of impacts, the cost of restoration, and the foregone cost of abandoned land—is beneficial for uncovering the economic burden, quantifying remediation costs, and illustrating the investment needs to improve soil health.

Key Degradation Types and Management Actions

Prevalent Degradation Types in Africa: The most common forms are soil erosion, nutrient depletion, salinization, acidification, and contamination.

- **Erosion:** Removes nutrient-rich topsoil.
- **Nutrient Depletion:** Results from over-cultivation without adequate replenishment, leading to diminished fertility.
- **Salinization & Acidification:** Negatively affect nutrient exchange between soil and plant roots.
- **Contamination:** Stems from industrial activities, mining, and use of chemical fertilizers/pesticides.

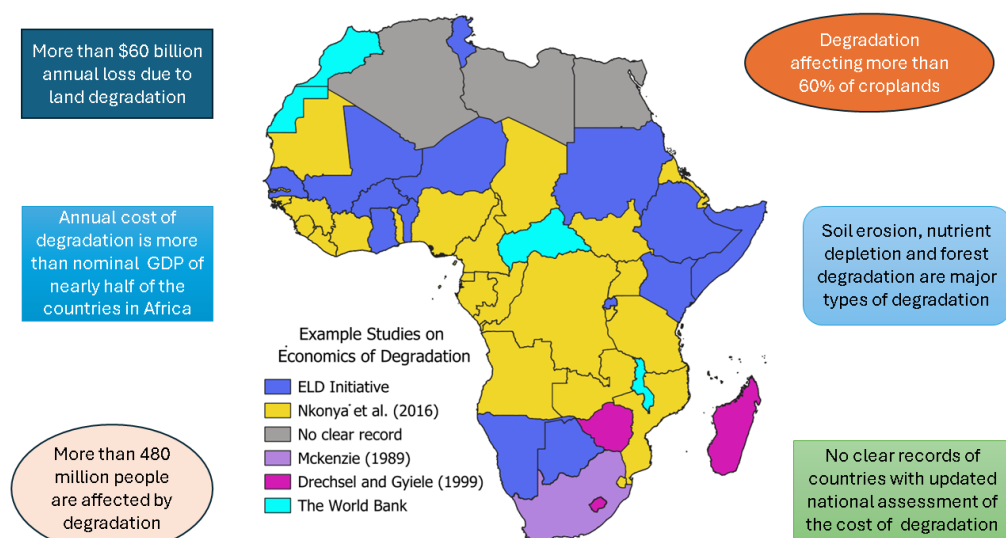


Fig. 3.1: Overview of large-scale studies on economics of degradation in Africa

Key Action Areas (Levels)

The plan for incorporating the economics of soil degradation is envisaged to be implemented through activities at the following levels:

Level	Focus
Continental	Developing frameworks and facilitating coordination (e.g., following the framework set by the SIA Action Plan and the CAADP monitoring system).
Regional	Implementing strategies for quantifying and monitoring economics of degradation.
National	Incorporating economics of soil degradation into national soil health strategies to guide investment.
Local	Implementing on-the-ground activities.

Key Implications and Management Actions

Implications of Degradation

The negative impacts, or “costs of inaction”, are significant:

- **Economic Loss:** Loss of productivity in croplands could be more than \$60 billion annually in Africa. This loss is more than the 2024 nominal GDP of nearly half of the countries in Africa.
- **Food & Health Security:** It results in low food production, nutrition and food insecurity, and affects the overall health and economic activity of most rural populations.
- **Climate & Infrastructure:** Degraded soil has low levels of carbon sequestration and tends to release stored carbon. It also leads to higher expenditures on infrastructure repair and flood mitigation.

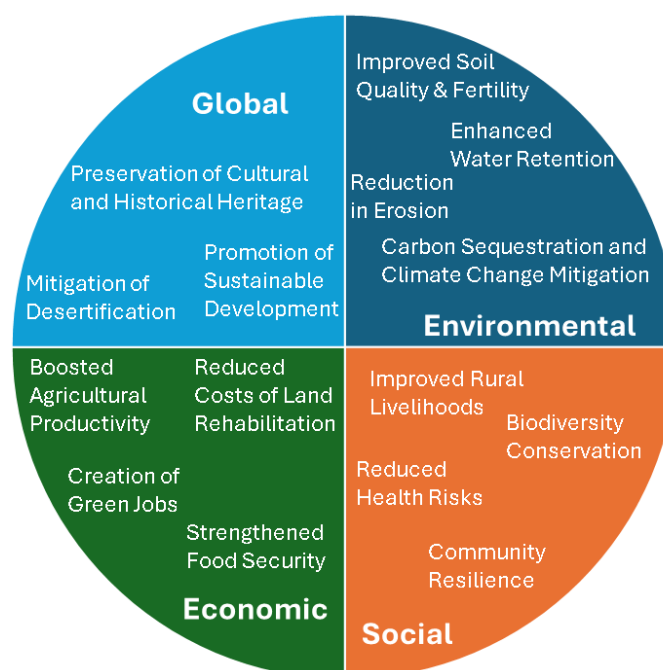


Fig. 3.2: Benefits of actions against soil degradation

Prevalent Degradation and Key Management Actions

The most prevalent forms of soil degradation in Africa include soil erosion, nutrient depletion, salinization, acidification, and contamination.

Actions against soil degradation are grouped into three main categories:

Main Category	Type of Action	Target Degradation
Soil Conservation	Agronomic, Structural, Biological	Soil erosion and other physical degradation
Soil Management	Nutrient management, Pollution/contamination control, Carbon storage and retention	Chemical degradation, Soil carbon loss
Institutional	Education/awareness creation, Legislation/policy, Stakeholder involvement, Capacity enhancement	All types of degradation

Scaling Soil Health and Integrated Fertilizer Management

The fundamental challenge is widespread soil degradation across Africa, which negatively impacts agricultural productivity, food security, and rural livelihoods. While many local projects have successfully improved soil health, these successes have largely remained limited to small areas.

The objective is to achieve and maintain improved soil health, soil fertility, and productivity, along with their impacts, **at scale** across Africa. This must be achieved through **sustainable intensification**, increasing production per unit area while avoiding the expansion of arable land, deforestation, and biodiversity loss.

Key Action Areas and Implications by Level

Scaling requires a multi-level approach, encompassing horizontal (scaling out), vertical (scaling up), and deep (cultural) changes.

Level	Key Action Areas	Research & Agronomy Implications
Continental	Strategic Alignment & Monitoring: Ensure all initiatives align with the overarching SIA goals. Track broad indicators like changes in soil carbon and land degradation rates.	Harmonization & Data Standards: Research must contribute to harmonized data collection methods to enable comparative analysis across countries. Advocate for common standards for evaluation and innovation assessment (Stage-Gate process).
Regional	Coordination & Knowledge Exchange: Focus on regional challenges, cross-border issues (like shared watersheds), and coordinate data on policy impacts. Harmonization of policies.	Contextual Research: Research findings must be adaptable to specific agro-ecological zones and inform cross-regional knowledge exchange programs. Utilize regional bodies to coordinate effectiveness of regional programs.
National	Policy & Institutional Influence: Scaling-up efforts must be led by national institutions. Monitor national soil health strategies and policy effectiveness. Create an enabling environment through policy reform.	Policy-Relevant Metrics: Research must provide data on fertilizer use efficiency and soil fertility status to inform national policy adjustments and resource allocation. Strengthen research institution capacity to support scaling.
Sub-national / Programmatic	Capacity Building & Adoption: Focus on scaling practices vs. scaling human capacities. Track changes in farmers' practices and economic impacts. Enable last-mile adoption through incentive mechanisms.	Farmer-Centric Innovation: Focus on detailed assessments of project outcomes in specific areas. Establish feedback systems from farmers to assess practicality and adaptability of scaled practices. Capacity development is crucial at the individual, organizational, and cooperation levels.



Suggested Key Management Actions

For those involved in research design and program implementation, the following actions are crucial:

- **Apply the Science of Scaling:** Use tools like the Scaling Scan (CIMMYT, 2023) to assess innovation readiness and identify key leverage points where interventions can catalyze systemic change.
- **Prioritize Human Capital Investment:** Invest in training centers, labs for soil testing, and demonstration sites. Equip farmers and extension services with ICT and technical equipment (e.g., mobile soil test kits) for precision management.
- **Implement a Systems-Oriented Value Chain Approach:** Understand how every segment, from input supply to market access, can support soil health. Ensure soil amendments and fertilizers are accessible and markets exist for crops grown on improved soils.
- **Establish Effective Knowledge Management:** Develop a Knowledge Value Chain Approach that prioritizes farmer-facing formats (e.g., extension services, digital platforms) and actively documents and shares local innovations.
- **Foster Partnerships:** Utilize Innovation Platforms to facilitate collaboration and coordinate efforts across different sectors (governments, NGOs, private sector, research) to avoid duplication and align resources.

Strengthening Agricultural Extension and Advisory Services for Sustainable Fertilizer and Soil Health Management in Africa

The fundamental problem driving the need for intervention is the declining soil productivity and environmental degradation in Africa which has attained a threshold requiring strategic intervention.

- **Key Constraints:** Poor soil fertility is a key constraint to agricultural productivity. This includes degradation of soil organic matter, negative nutrient balances, erosion, acidification, loss of soil biodiversity, salinization, pollution, and overgrazing.
- **Consequences:** This decline leads to agrarian poverty, food and nutritional insecurity, and reduces the capacity of soil to respond to yield-increasing inputs, increasing the vulnerability of smallholder farmers to climate shocks.
- **Environmental Effect:** Soil degradation has far-reaching effects on the soil's environmental services, resulting in water and air pollution, biodiversity reduction, and increased vagaries of climate change.

The **Soil Initiative for Africa (SIA)** and the **Africa Fertilizer and Soil Health Action Plan (AFSH-AP)** represent efforts by African leaders to address the core cause of this decline.

Key Action Areas and Multi-Level Summary

The document identifies five priority action areas for Extension and Advisory Services (EAS) in implementing the SIA/AFSH-AP:

1. Capacity Development
2. Digital Innovation and Technology Integration
3. Sustainable Financing Models
4. Monitoring, Evaluation, and Learning (MEL) Framework
5. Implementation Structures

The tables below summarize the key structural actions, implications (institutional actions/responsibilities), and suggested key management actions (capacity, digital, and financing) at each governance level:

Level	Key Focus Area	Implications & Institutional Actions (Responsibilities)	Key Management Actions
Continental	Structure	Establish a Continental EAS Coordination Platform for Soil Health .	Establish a Continental Soil Health Extension Observatory to track performance.
	Coordination	The AUC provides political leadership and policy integration. The SIA Secretariat ensures alignment between SIS and extension.	AFAAS and partners develop continental frameworks and set standards for soil-focused extension.
	Technical	Establish a Technical Working Group on Extension for Soil Health to develop guidelines, training curricula, and digital tools.	Develop a Continental Capacity Development Program to set certification standards and professional pathways for extension specialists.
	Digital	Establish data interoperability standards .	Develop a Continental Soil Health Extension Dashboard to track performance and coverage gaps.
	Financing	Integrate with CAADP and AfCFTA to ensure policy coherence and resource mobilization.	Develop blended finance mechanisms and mobilize continental funding.
Regional	Structure	Regional Economic Communities (RECs) should establish a Regional Soil Health Extension Network .	Establish Regional Technical Support Teams (soil scientists, extension specialists) to provide on-demand assistance.
	Coordination	RECs adapt continental frameworks to regional needs and harmonize extension approaches. Regional Research Organizations develop regionally appropriate soil management technologies.	Facilitate cross-border learning and knowledge exchange workshops.
	Capacity	Establish Regional Training Hubs in partnership with agricultural universities to offer specialized programs and short courses.	Implement Training-of-Trainers programs.
	Digital	Establish Regional Digital Resource Centers to develop region-specific digital advisory tools and mobile applications in relevant languages.	Develop regional mobile apps and adapt them to local languages.
	Financing	RECs must integrate soil health extension into their agricultural investment plans and create dedicated budget lines.	Develop results-based financing mechanisms and mobilize private sector partnerships.

Level	Key Focus Area	Implications & Institutional Actions (Responsibilities)	Key Management Actions
National	Structure	Establish a National Soil Health Extension Coordination Unit within the appropriate ministry/agency.	Create Sub-national Extension Hubs in key agroecological zones to localize services, maintain demonstration sites, and facilitate farmer training.
	Coordination	Establish a National Extension-Research Linkage Committee for Soil Health to ensure advisory services are based on the latest research and research responds to challenges.	Extension Directorates coordinate multiple service providers (public, private, NGO). Farmer Organizations articulate farmer priorities and provide feedback.
	Capacity	Revise extension training curricula and establish specialized soil health units.	National Agricultural Research Systems (NARS) conduct adaptive research and provide evidence-based content.
	Digital	Deploy soil health mobile apps and integrate them with national soil information systems.	Develop farmer feedback systems and use digital tools for problem diagnosis.
	Financing	Ministries of Agriculture are responsible for allocating resources. Countries must develop costed national action plans .	Secure dedicated budget lines and implement performance-based financing to link funding to measurable outcomes.

Human Capital for Soil Science and its Application in the Soil Initiative for Africa

The implementation of the **Soil Initiative for Africa (SIA) Framework** and the **Africa Fertilizer and Soil Health (AFSH) Action Plan** depend on urgently addressing the severe systemic deficiencies in human capital for soil science across the continent.

The fundamental constraint is the “thin-ness” of human capital in soil science at all levels (farm, local, national, continental). This weakness severely jeopardizes the successful implementation of the SIA and the AFSH Action Plan.

Key Problems for Agronomists/Researchers:

- **Inverted Pyramid of Expertise:** The majority of soil scientists are concentrated in universities and national research institutes, creating a significant “missing middle” at the local/watershed level. This is the primary obstacle to scaling out soil health knowledge and practices for farmers.
- **Disciplinary Gaps:** Only 6% of soil scientists specialize in soil biology and health, and 5% in soil conservation. The majority (33%) are in soil chemistry and fertility. This deficiency limits the capacity for holistic, integrated soil health management (SHM) research and extension.
- **Outdated Tools and Data:** Many soil maps are obsolete (1960s–1980s), and there is a critical shortage of human capital trained in modern tools like Digital Soil Mapping (DSM), GIS, geostatistics, and remote sensing. This prevents the generation of the accurate, site-specific recommendations necessary for the AFSH Action Plan.

Key Action Areas and Management Implications by Level

The suggested investments and reforms, broken down by the level of implementation, represent high-leverage actions for soil health professionals:

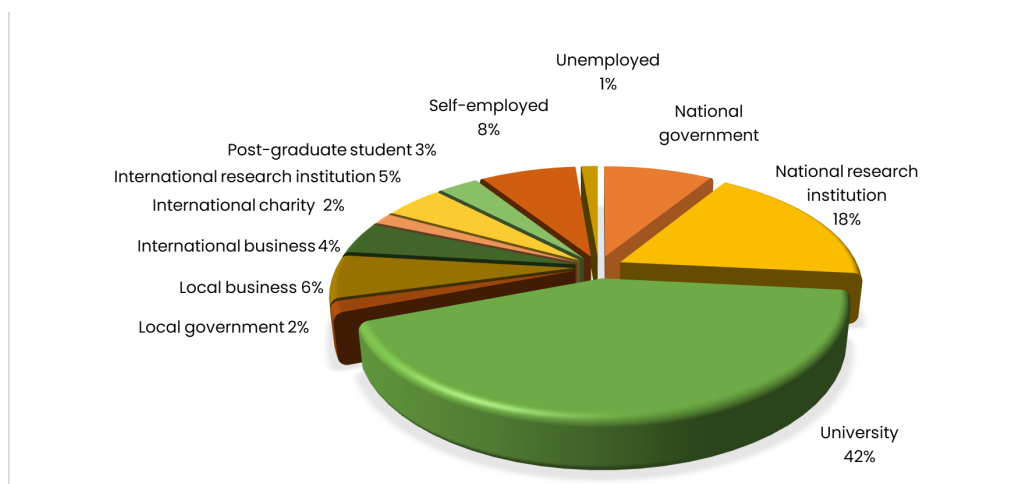
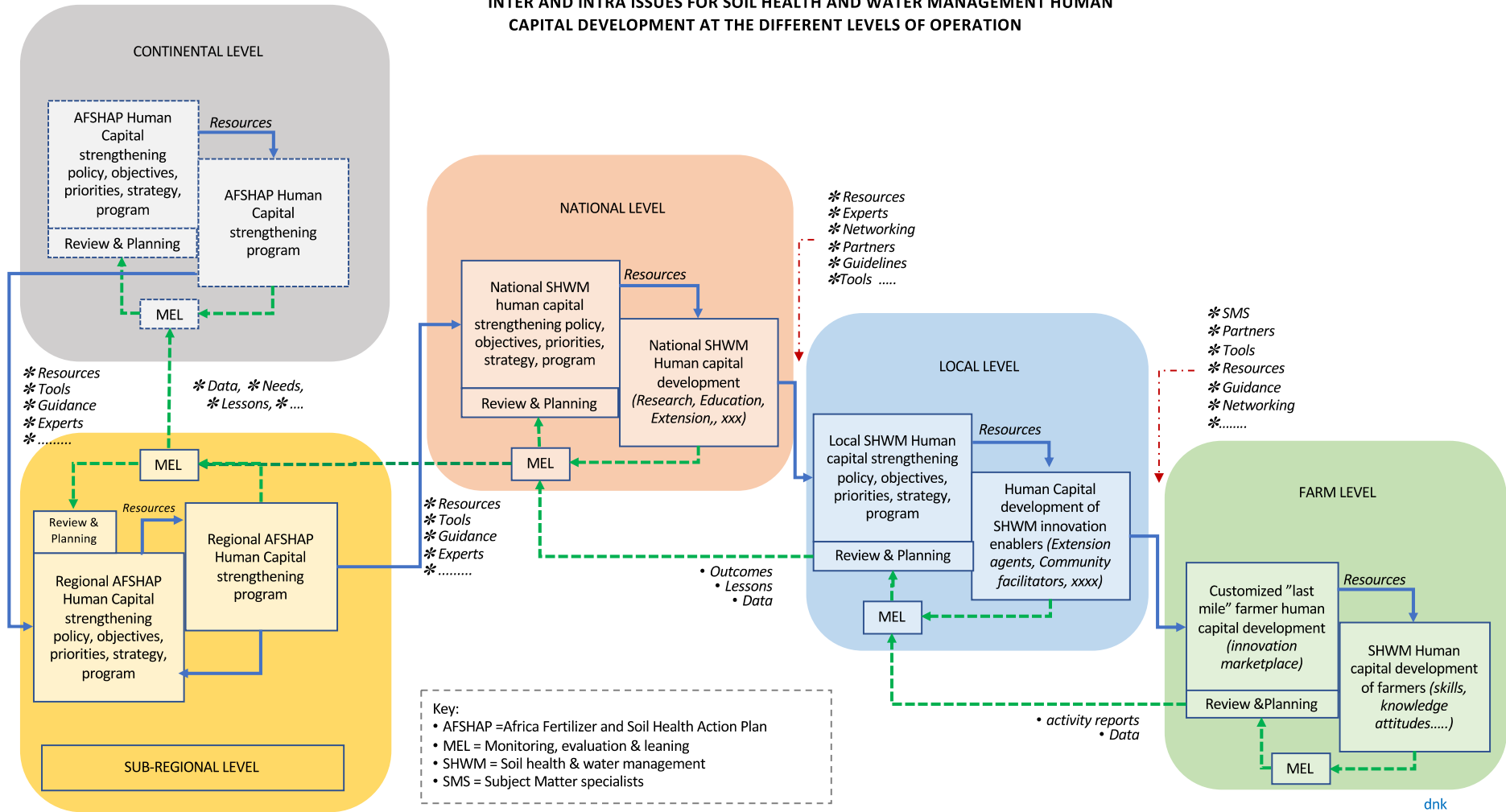


Fig. 6.1: Where soil scientists are found in local and national levels

Level	Key Action Area (Investment/Reform)	Implications and Management Actions for Agronomists/Researchers
Continental/ Sub-Regional	Continental Knowledge Platform	Use this platform to share standardized soil science information, access services, and ensure research output is interoperable with digital tools (APIs, AI/ML).
	Strengthen Networks and Associations	Support and actively engage in sub-regional and continental networks (like the African Agricultural Research, Innovation and Education Institutions (AARIEs) consortium) to harmonize research agendas and resource mobilization efforts.
	Programmatic Capacity Building	Actively participate in continental programs for strengthening soil science faculties. This offers high-level opportunities for research collaboration and funding to address national human capital gaps.
National	Domesticate Continental Frameworks	High-Leverage Mandate: Countries must domesticate the AFSH Action Plan and SIA Framework into national agricultural plans and policies. This is the political mechanism to secure financial commitments.
	Re-Tooling and Training	Actively seek training in high-demand areas such as GIS, Digital Soil Mapping (DSM), geostatistics, and digital data processing to overcome current technical insufficiency and modernize soil survey capabilities.
	Curricula Review	Participate in the review of university soil science curricula to shift the focus from being “too academic” to being more practical and encompassing emerging topics in SHM.
Local	Establish SHM Coordination Nodes	Engage with these nodes to ensure research and extension agendas are aligned with local needs, and to manage farmer feedback systems. These nodes link local advisory services, education, and research.
	Recruit/Train Para-Soil Scientists	Support the use and training of Community-Based Facilitators (CBFs) as “para-soil scientists” to overcome the “missing middle” and achieve a functional scientist-to-farmer ratio (e.g., 1 scientist: 20 CBFs: 500 farmers).
	Establish Soil Testing Infrastructure	Utilize and contribute to these functional local facilities to provide the accurate, data-driven fertilizer and soil management recommendations required by the AFSH Action Plan.

Fig. 6.2

INTER AND INTRA ISSUES FOR SOIL HEALTH AND WATER MANAGEMENT HUMAN CAPITAL DEVELOPMENT AT THE DIFFERENT LEVELS OF OPERATION



Soil Health and Climate Change in Africa

This chapter outlines the strategic framework for integrating climate change mitigation and adaptation into soil health management, directly addressing the provisions of the **Soil Initiative for Africa (SIA) Framework** and the **Africa Fertilizer and Soil Health Action Plan (AFSH-AP)**.

There is a reciprocal relationship between soil health and climate change. Degraded African soils release greenhouse gases (GHGs), exacerbating climate change, while climate change, in turn, intensifies soil degradation by altering temperature, precipitation (leading to increased organic matter decomposition and soil erosion), and extreme weather events. This requires the urgent implementation of **Climate-Smart Soil Health Practices** to restore soil function and enhance carbon sequestration.

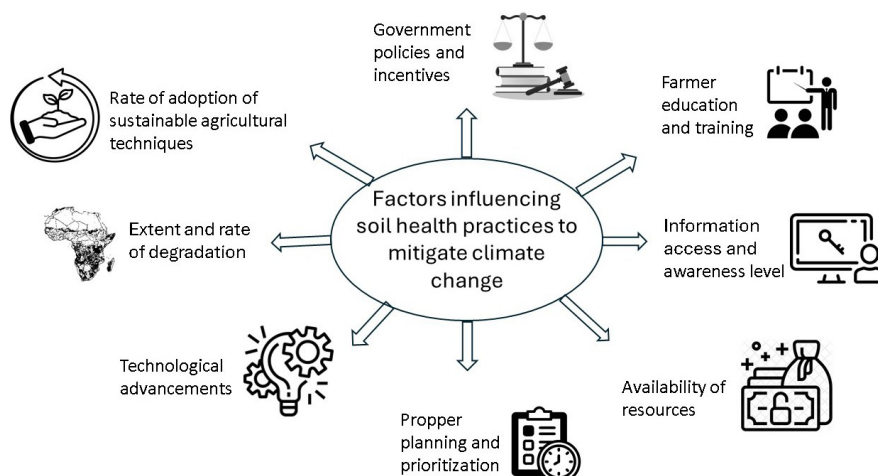


Fig. 7.2: Factors influencing soil health practices for mitigating climate change

Key Action Areas & Management Implications

The framework is structured into a three-phased implementation plan across different operational levels, crucial for coordinating research and policy action:

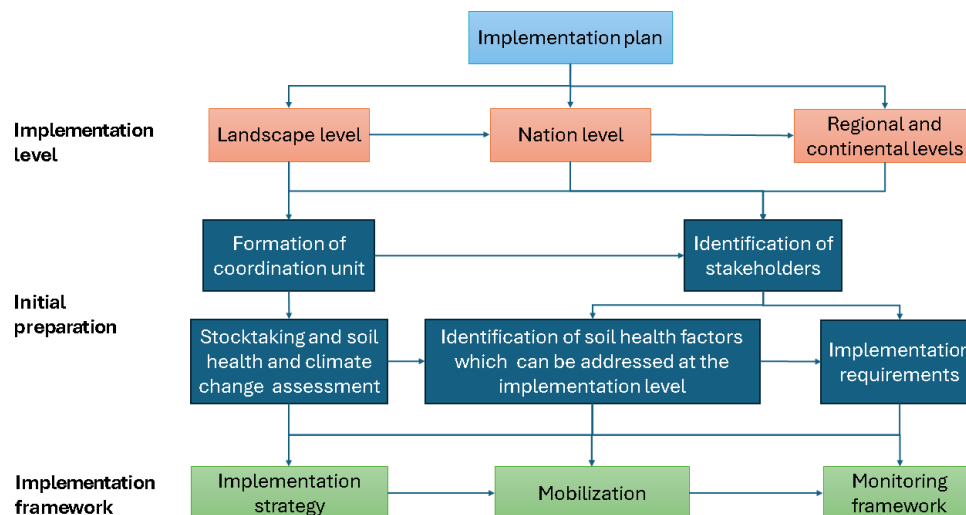


Fig. 7.3: Factors influencing soil health practices for mitigating climate change

Level	Action Area	Implications & Key Management Actions
Continental/Regional	Standardization & Knowledge Management	Implication: Requires harmonized monitoring to track continental progress and impact. Action: Develop a Soil Health Monitoring Dashboard and standardize protocols for measuring Soil Organic Carbon (SOC) stocks and tracking the soil degradation rate across regions.
	Coordination & Alignment	Implication: Need to align regional bodies and agreements. Action: Implement strategies that ensure regional economic communities (RECs) adopt and prioritize the soil health agenda within their development goals.
National	Strategy and Policy Integration	Implication: Soil health must be legally and fiscally supported. Action: Develop and operationalize National Soil Health Strategies that incorporate climate resilience. Ensure increased national budgetary allocation for Climate-Smart Agriculture (CSA) and soil conservation initiatives.
	Gap Analysis & Prioritization	Implication: Resources must be directed to high-risk and high-potential areas. Action: Conduct situation analyses to identify hotspot areas (severe degradation) and brightspot areas (successful practices) for targeted intervention and scaling.
Farm/Landscape	Practice Implementation & Adaptation	Implication: Practices must be tailored, especially since adoption rates for practices like Conservation Agriculture (CA) are currently very low (<1% of global CA coverage). Action: Implement and promote core practices: Conservation Agriculture (minimal disturbance, cover crops), Organic Amendments (compost, green manure), and Agroforestry.
	Technological Advancement	Implication: Tools are needed for efficient deployment and monitoring. Action: Utilize Precision Agriculture technologies (remote sensing, soil sensors) and support Research and Innovation (e.g., Living Labs) to develop and optimize new, climate-resilient practices.

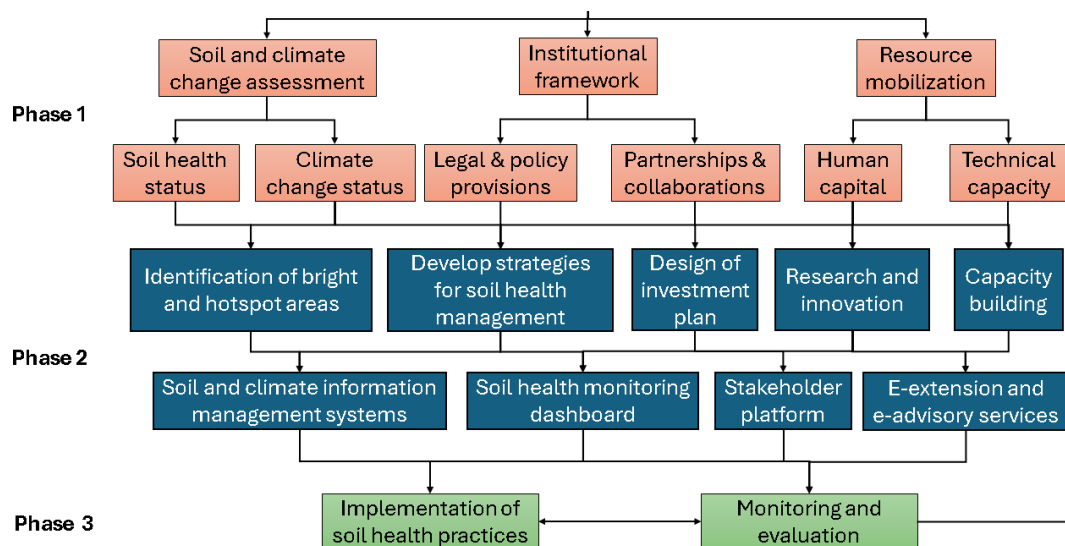
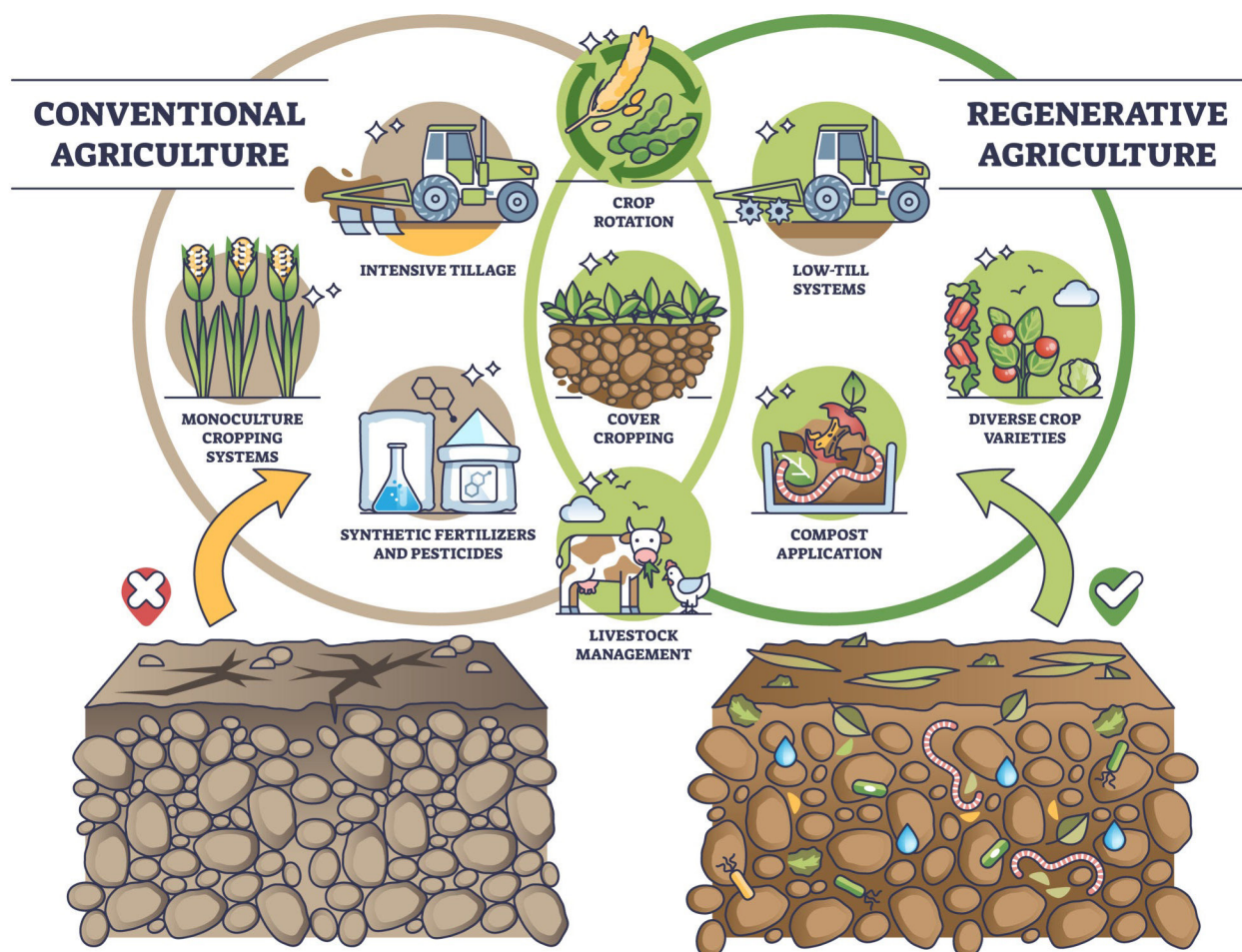


Fig. 7.4: Implementation framework for soil health management to mitigate climate change



Optimizing Soil Health and Water Management in Africa

This chapter focuses on the technical integration of soil health with water management as mandated by the **Soil Initiative for Africa (SIA) Framework** and the **Africa Fertilizer and Soil Health Action Plan (AFSH-AP)**.

The core issue is the interdependence of soil health and water management, compounded by extensive soil degradation (affecting >65% of Africa). Healthy soil, characterized by high Soil Organic Matter (SOM) and stable aggregates, directly supports better water absorption, retention, and release. Degradation, primarily through soil erosion and physical deterioration (compaction, sealing), impairs the soil's capacity to manage water, leading to lower crop yields and increased vulnerability to climatic shocks.

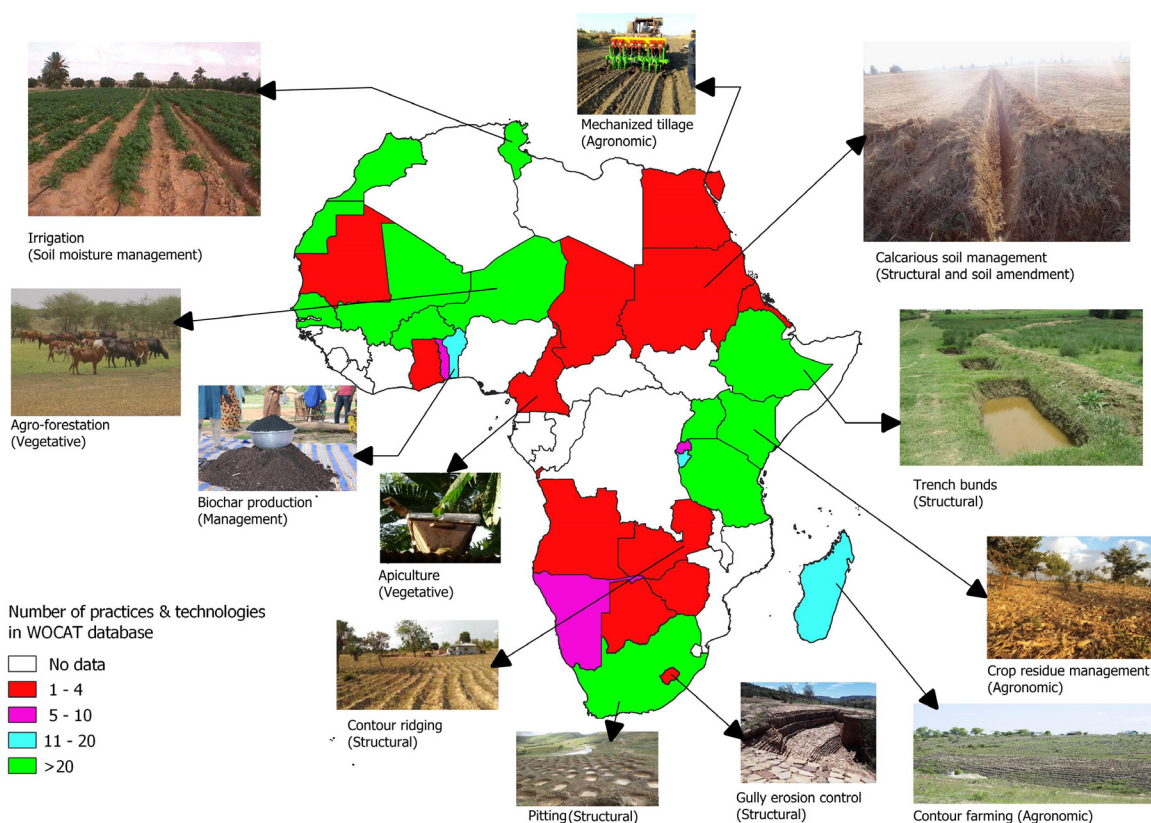


Fig. 8.1: Examples of soil and water management practices in Africa (adapted from WOCAT database)

Key Action Areas & Management Implications

The strategy emphasizes Soil and Water Conservation (SWC) as the essential intervention, requiring technical precision and effective scaling.

Level	Action Area	Implications & Key Management Actions
Continental/ Regional	Scaling Strategy Development	Implication: Success requires strategic, multi-level scaling beyond localized projects. Action: Focus on the three dimensions of scaling: Scaling Out (geographic expansion), Scaling Up (policy/institutional support), and Deep Scaling (transformational change in mindsets and local adoption).
	Knowledge and Capacity Building	Implication: Technical knowledge must reach all stakeholders efficiently. Action: Develop and deploy e-extension and e-advisory services to scale technical knowledge on SWC practices across regions.
National	Data-Driven Prioritization	Implication: Interventions must be targeted based on need and potential. Action: Conduct SWC Status and Gap Analyses to identify “hotspot” and “brightspot” areas. Prioritize these areas for investment.
	Monitoring Tool Development	Implication: Need robust systems for tracking performance and resource allocation. Action: Establish a Soil Health and Water Management Dashboard for real-time monitoring of interventions and their impact on water-use efficiency and degradation rates.
Farm/Land-scape	Integrated SWC Deployment	Implication: Practices must be location- and resource-specific, requiring farmer involvement in selection. Action: Implement a combination of Structural/Physical Measures (e.g., terraces, micro-catchments like Zai pits) and Vegetative/Agro-nomic Measures (e.g., Conservation Agriculture, agroforestry, residue management) to control erosion and conserve in-situ moisture.
	Technological Optimization	Implication: New tools are vital for efficiency and precision. Action: Utilize Precision Agriculture (PA) tools and Geographic Information Systems (GIS) for targeted SWC planning, execution, and monitoring of water and soil physical properties.

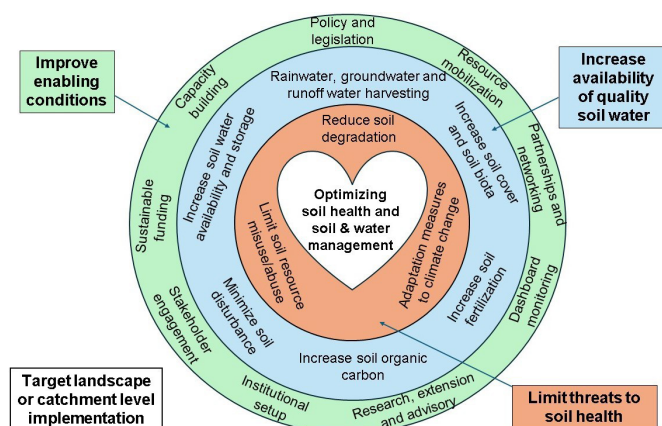


Fig. 8.2: Important considerations for optimizing soil health and water management

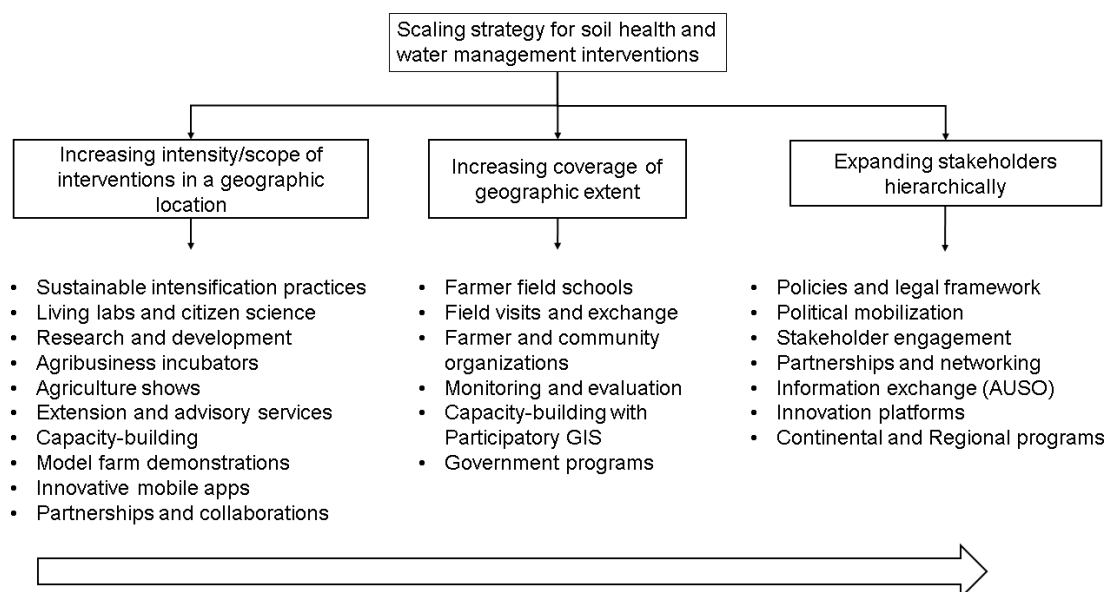


Fig. 8.3: Strategy for scaling soil health and water management interventions in Africa

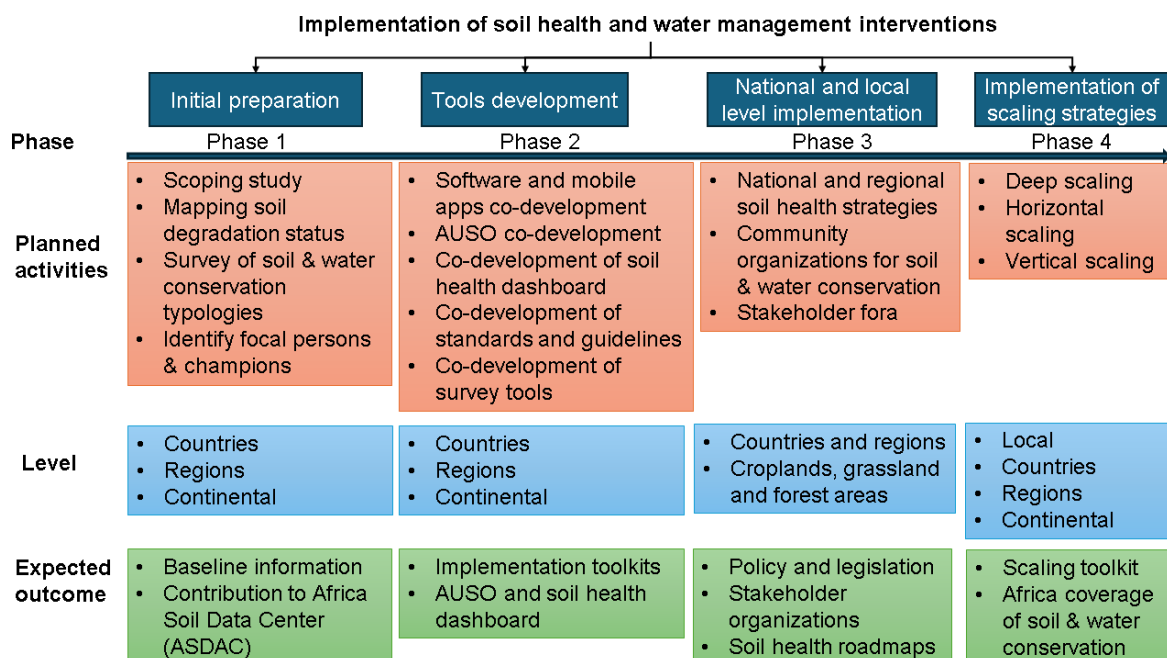
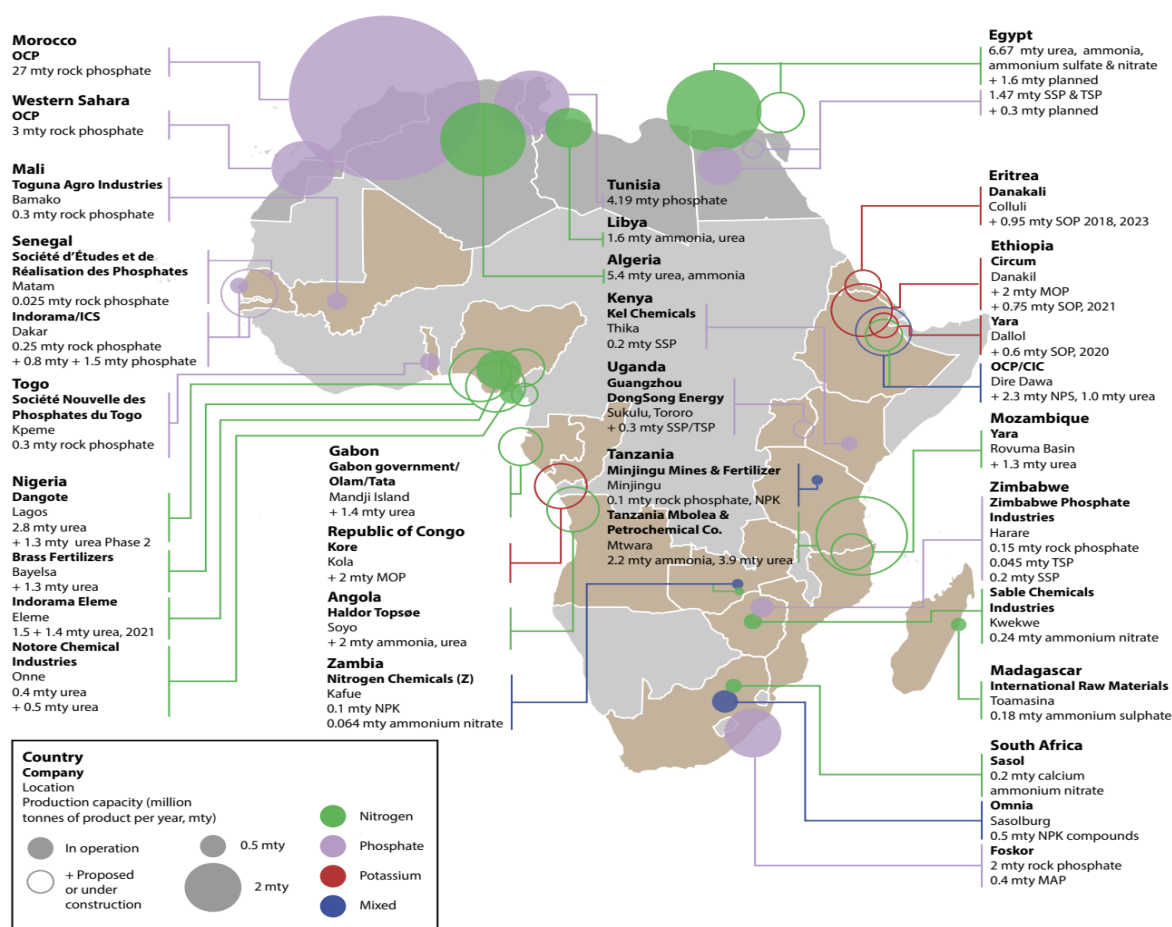


Fig. 8.4: Implementation Framework

Fertilizer Production, Marketing and Use In Africa

This chapter highlights the strategic and logistical imperatives for optimizing fertilizer use in Africa, framing it as an essential component of the **Africa Fertilizer and Soil Health Action Plan (AFSH-AP)** and the **Soil Initiative for Africa (SIA) Framework**.

The fundamental issue is critical nutrient mining driven by Africa's low and imbalanced fertilizer use, currently estimated at 17 kg/ha of nutrients (compared to a global average of 136 kg/ha). This severe nutrient depletion is a primary cause of soil degradation, poor yields, and persistent food insecurity. The AFSH-AP seeks to reverse this by promoting the **efficient, balanced, and judicious** use of fertilizers.



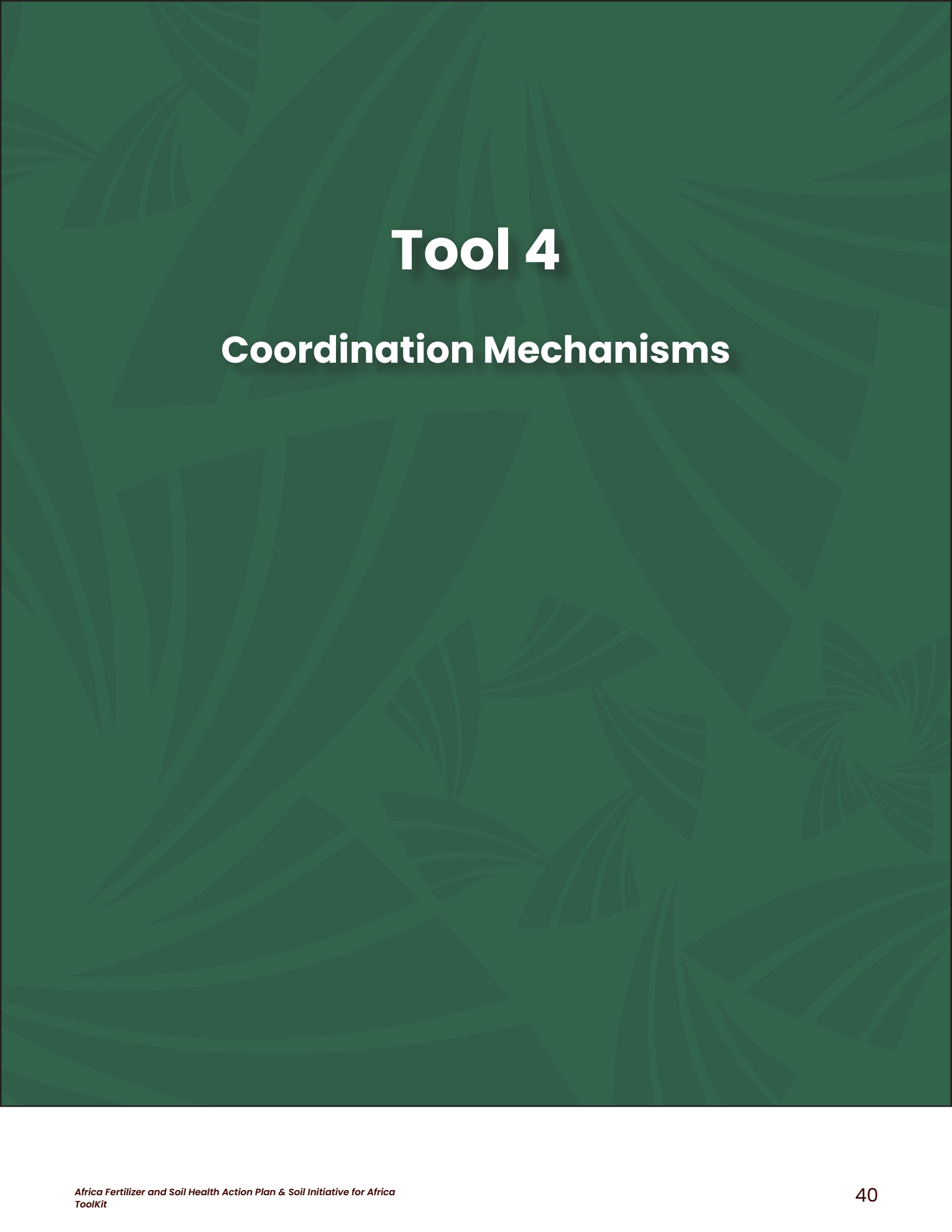
Sources: Chilande, G. IFDC (2018), Harrison (2017, 2018), CRU (2017), AFO (2018), Heffer and Prud'homme (2018), news reports and company websites

Fig. 9.1: Map of Fertilizer Manufacturing Facilities in Africa

Key Action Areas & Management Implications

The framework focuses on systemic improvements across the entire value chain, from policy to on-farm application.

Level	Action Area	Implications & Key Management Actions
Continental/ Regional	Market Alignment & Investment	Implication: African markets are vulnerable to global price shocks and lack robust regional supply. Action: Align international support and investment to promote local and regional fertilizer production. Build Strategic Agricultural Commodity Compacts to stabilize input supply and pricing across borders.
	Infrastructure and Power	Implication: High logistical costs and unreliable supply impede affordability. Action: Prioritize investment in energy (power) and transport infrastructure to reduce the costs associated with fertilizer manufacturing, distribution, and storage.
National	Enabling Policy Environment	Implication: Government policies often disincentivize private sector involvement or promote inefficient subsidies. Action: Implement policies that are market-friendly, promote competitive private sector participation in distribution, and transition to smart, time-bound subsidy programs that support local farmers without distorting markets.
	Technical & Quality Assurance	Implication: Farmers risk purchasing adulterated or inappropriate fertilizers, undermining investment. Action: Strengthen Quality Assurance mechanisms across the value chain. Invest in local research to improve technical knowledge on blending and formulation, ensuring the availability of locally appropriate fertilizers.
Farm/ Landscape	Efficient and Balanced Use	Implication: The focus must shift from blanket application to site-specific nutrient management to replenish soil health. Action: Prioritize the development and dissemination of regionally and crop-specific, balanced fertilization recommendations (including macro and micronutrients).
	Technical Extension	Implication: Farmers lack the technical expertise to optimize new fertilizer types and application methods. Action: Strengthen agricultural extension services and provide training on the “Four R’s” of nutrient stewardship: Right Source, Right Rate, Right Time, and Right Place.



Tool 4

Coordination Mechanisms

Africa Fertilizer and Soil Health Action Plan (AFSH-AP) and Soil Initiative for Africa (SIA) Coordination Mechanisms

The objective of the **African Fertilizer and Soil Health Action Plan (AFSH-AP)**, the 10-year implementation instrument (2024–2034) for the long-term **Soil Initiative for Africa (SIA) Framework** is clear: to halt soil degradation and ensure improved, sustained soil health across the continent.

The sheer scale of the vision marked in the Nairobi Declaration (2024) requires a multi-level coordinated system to ensure coherence of action among a wide range of stakeholders, including governments, the private sector, donors, and land users. The coordination framework is robust, African-owned, and African-led, designed to ensure optimal impact by leveraging existing knowledge and institutional structures.

Key Action Areas: The Five Thematic Pillars

The implementation of the AFSH-AP is functionally structured around five **Thematic Coalitions**, which serve as the primary action areas, providing specialized thought leadership, technical assistance, and resource mobilization across the continent.

1. Coalition for Policy and Advocacy (C4PA):

- **Action Focus:** Providing executive and political support for the AFSH-AP/SIA. This involves continental policy development and the domestication of the Nairobi Declaration at national levels.
- **Stakeholder Impact:** Ensures high-level buy-in from Heads of Government and Ministers to facilitate the necessary political environment for implementation.

2. Coalition for Soil Information Systems in Africa (C4SISA):

- **Action Focus:** Technical leadership in data management. It provides technical support for the collation, harmonization, curation, standardization, and accessibility of soil data.
- **Key Asset:** This coalition is crucial for supporting the **African Union Soil Observatory (AUSO)** and ensuring key soil health and fertilizer-related indicators are integrated into the CAADP Biennial Review (BR) process.

3. Coalition for Fertilizer and Private Sector Engagement (C4FB):

- **Action Focus:** Mobilizing resources and facilitating collaboration with private sector partners, bi-lateral, and multi-lateral donors.
- **Stakeholder Impact:** Encourages the alignment of external funding and activities with the core priorities and processes of the AFSH-AP/SIA.

4. Coalition for Strengthening Extension and Advisory Services (C4SEAS):

- **Action Focus:** Capacity development, technical assistance, and serving as a technical exchange platform for planning and implementation activities.

- **Stakeholder Impact:** Facilitates the exchange of experiences and continuous development of responses to emerging issues on fertilizer and soil health.

5. Coalition of Implementors for Fertilizer and Soil Health (CIFSH):

- **Action Focus:** Direct implementation of the AFSH-AP and SIA. These actions must support national and regional initiatives to ensure local ownership and sustainability.
- **Stakeholder Impact:** Coordinates implementers' activities with other coalitions and regional hubs to prevent duplication and achieve synergistic impacts on the ground.

Multi-Level Coordination and Institutional Structure

Effective delivery relies on a structured, multi-level hierarchy (Continental, Regional, National, Sub-National) as illustrated in the organizational chart.

1. Continental Leadership and Governance

- **Steering Committee:** Provides strategic advice and is permanently co-chaired by the African Union Commission (AUC-ARBE) and the African Union Development Agency (AUDA-NEPAD).
- **AUC-ARBE (Political/Executive Lead):** Responsible for overall continental executive and political leadership. It convenes political stakeholders, oversees policy development, and facilitates partnerships with global stakeholders.
- **AUDA-NEPAD (Technical Lead):** Responsible for overall technical leadership and coordination within the overarching CAADP framework. Its role includes coordinating resource mobilization, guiding RECs/Member States on domestication, and providing technical support to incorporate soil health priorities into national Agrifood Investment Plans.

2. Technical Support and Partner Coordination

- **Technical Support Organization (TSO):** The Forum for Agricultural Research in Africa (FARA) is designated as the TSO. FARA provides technical backstopping to AUC/AUDA-NEPAD, supports monitoring/reporting, policy design, and houses the critical African Union Soil Observatory (AUSO).
- **Joint Development Partner Group (JDPG):** A mechanism for external development partners to harmonize resources and coordinate their efforts, ensuring their projects are aligned with the principles and approaches of the AFSH-AP/SIA. The JDPG serves as a strategic thought partner and has representation on the Steering Committee.

3. Regional and National Coordination

- **Regional Hubs:** Established by Regional Economic Communities (RECs) in collaboration with Sub-Regional Research Organizations (SROs) (e.g., ASARECA, CORAF) for each of Africa's five geographical regions.

- 
- **Role:** Championing AFSH initiatives, facilitating the **harmonization of sub-regional policies** and regulations (e.g., fertilizer quality control), and coordinating the provision of technical services based on country demand.
 - **National-Level Actors:** Implementation requires the **domestication** of the AFSH-AP at the national level, led by National Focal Points. Actions include organizing multi-stakeholder dialogues, developing specific **Country Action Plans (CAPs)**, and integrating soil health into national planning. The coalitions are recommended to be represented during CAP development to ensure holistic implementation.

Tool 5

Monitoring, Evaluation, Accountability & Learning (MEAL) Framework

Monitoring, Evaluation, Accountability and Learning (MEAL) Framework for the Africa Fertilizer and Soil Health Action Plan (AFSH-AP)

The **Monitoring, Evaluation, Accountability, and Learning (MEAL) Framework** is regarded as the operational backbone for the 10-year implementation of the Africa Fertilizer and Soil Health Action Plan (AFSH-AP) (2024–2034). The framework’s design reflects a commitment to African-led, evidence-based decision-making and adaptive management, ensuring that the massive continental effort remains aligned and accountable to its ambitious goals under the Nairobi Declaration.

1. Strategic Alignment and Governance

The AFSH-AP MEAL system is institutionally anchored at multiple levels to ensure alignment with existing continental frameworks and political oversight:

- **CAADP Integration:** The system is systematically aligned with the **Comprehensive Africa Agriculture Development Programme (CAADP) Biennial Review (BR)** process. This ensures AFSH-AP progress is reported alongside core agricultural performance indicators, guaranteeing coherence with continental investment commitments.
- **Institutional Anchoring:** The system is jointly led by the **African Union Commission (AUC-ARBE)** and the **African Union Development Agency (AUDA-NEPAD)**, which co-chair the Steering Committee. The **Forum for Agricultural Research in Africa (FARA)** serves as the crucial **Technical Support Organization (TSO)**, responsible for technical backstopping, data management, and reporting.
- **Multi-Level Accountability:** Reporting flows from the **National Level** (Ministries of Agriculture, National Soil Health Programs) up through **Regional Hubs** (RECs and SROs) for data consolidation and quality control, culminating at the **Continental Level** for synthesis and review. **Thematic Coalitions** (e.g., C4SISA) ensure technical alignment of indicators across their specific domains.

2. Key Performance Targets (2034 Goals)

The framework is structured around a clear Theory of Change and defines quantifiable targets across the impact and outcome levels, serving as the primary metrics for success.

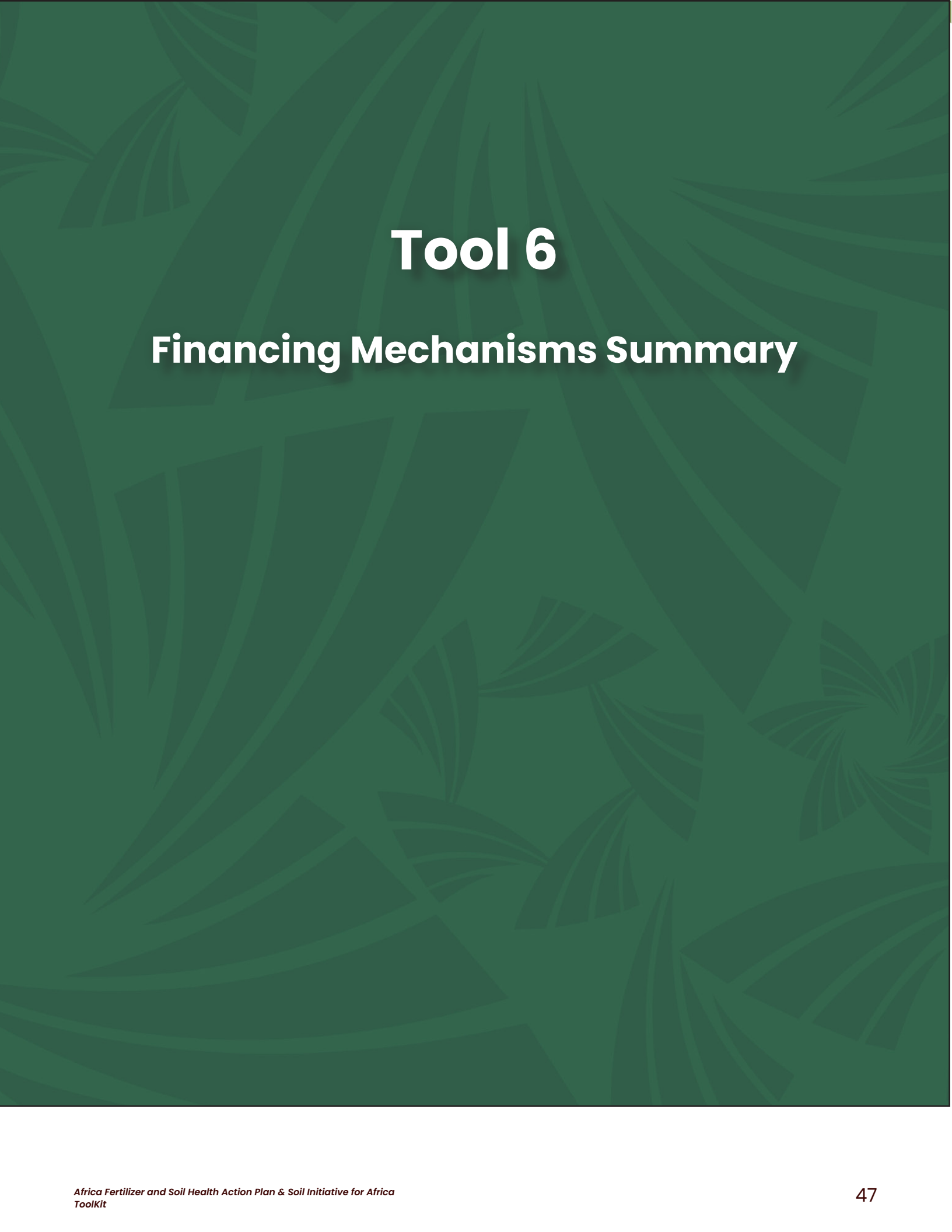
Level	Key Target (By 2034)	Specific Indicators Tracked
Impact	Restore 30% of degraded soils across the continent.	% of degraded land restored; Decrease in the Prevalence of food insecurity.
	Double Cereal Yields from 1.7 to 3.5 tonnes per hectare.	Average cereal yield (t/ha); Decrease in Agriculture’s carbon footprint per ha.
	Triple Fertilizer Use Rate to ≥ 54 kg nutrients/ha.	Fertilizer use rate (kg nutrients/ha).

Level	Key Target (By 2034)	Specific Indicators Tracked
Outcome	70% of farmers receiving soil-specific fertilizer advice.	% of farmers receiving soil-specific advice; % of agricultural land under ISFM/SSM practices.
	40 countries with policies aligned and Soil Health Fund operational by 2026.	# of countries with aligned national policies; Volume of public-private investment mobilized.
	100 accredited soil and fertilizer laboratories established across Africa.	# of functional soil/fertilizer labs; Domestic fertilizer production (Mt).

3. Digital Data Architecture and Adaptive Learning

A critical feature of this framework is the reliance on digital systems and structured learning cycles to ensure continuous improvement and transparency:

- **Digital Integration:** The core monitoring platform leverages the **CAADP Biennial Review digital dashboard**, which will be **enhanced by the African Union Soil Observatory (AUSO)**, hosted by FARA. The AUSO will integrate data from national statistical systems, remote sensing, and soil laboratories, providing a comprehensive, standardized, and geospatial view of soil health progress.
- **Knowledge and Learning:** The framework embeds learning through:
 - Annual Soil Health and Fertilizer Learning Weeks.
 - A digital MEAL Dashboard and Knowledge Portal for public dissemination and knowledge sharing.
 - Structured documentation of good practices by RECs and Thematic Coalitions.
- **Evaluation and Accountability:** The system mandates a **Mid-Term Evaluation (2029)** and a **Final Evaluation (2034)** to assess policy uptake, early impact, cost-effectiveness, and sustainability. Accountability is further enforced via **Joint performance reviews**, **Multi-stakeholder scorecards**, and **Biennial continental syntheses** presented to the AU's specialized technical committee.
- **Adaptive Management:** The MEAL system is designed to monitor contextual risks (e.g., climate shocks, data gaps) and includes mechanisms for **adaptive planning reviews** by the Steering Committee when performance indicators deviate from targets, allowing for timely course correction.



Tool 6

Financing Mechanisms Summary

Financing Mechanism for the Africa Fertilizer and Soil Health Action Plan

This chapter outlines a comprehensive, African-led strategy to sustainably fund the \$100 billion investment required to reverse soil degradation, improve fertilizer use efficiency, and achieve food security targets outlined in the AFSH-AP and the Nairobi Declaration (2024). The mechanism is designed to bridge the gap between continental policy ambition and field-level investment by blending public, donor, and private sector capital.

Summary of Key Action Areas

1. Rationale and Strategic Imperative

The financing mechanism is a direct response to the acute challenges facing African agriculture: nearly 65% of arable land is affected by degradation, and fertilizer consumption remains critically low (below 25 kg/ha). The mechanism is designed to drive targeted investment into three critical areas:

- **Soil Health Interventions:** Promoting sustainable land management practices and soil testing.
- **Fertilizer Value Chains:** De-risking local production, blending, and distribution, especially to the “last mile.”
- **Climate-Smart Agriculture (CSA):** Funding resilient practices that increase productivity and enhance environmental resilience.

2. Multi-Tiered Financing Structure and Governance

The mechanism adopts a two-tiered approach to ensure both continental coordination and national-level execution, reflecting the principles of subsidiarity and country ownership:

Tier	Component	Function and Focus
Continental	Africa Fertilizer and Soil Health (AFSH) Trust Fund	Serves as the central fiduciary and coordination platform. It pools grants, concessional capital, and guarantees. The African Development Bank (AfDB), via the Africa Fertilizer Financing Mechanism (AFFM) , is proposed to manage the fund, ensuring stringent fiduciary oversight and efficient disbursement.
National	National Financing Windows (NFWs)	Established at the country level to manage the last-mile deployment of funds. NFWs coordinate with relevant national ministries, private sector entities, and local financial institutions to align investments with specific National Agrifood Investment Plans and Country Action Plans (CAPs).

This structure ensures that funds are leveraged strategically at the continental level and deployed effectively at the national level.

3. Deployment of Capital: Three Strategic Windows

The mechanism uses three distinct windows to deploy resources, each tailored to dif-

ferent risk profiles and expected returns:

Financing Window	Mechanism/ Instrument Focus	Purpose and Expected Impact
Catalytic Window	Grants, Technical Assistance, Policy Support.	De-risks implementation and supports public goods. Funds policy harmonization, research translation (e.g., FARA), data systems (e.g., AUSO), and capacity building. Essential for creating an enabling environment.
Matching Window	Concessional Loans, Risk-Sharing Guarantees.	Attracts commercial capital by sharing risk. Provides first-loss capital and loan guarantees to local financial institutions and private agribusinesses investing in fertilizer blending, storage, and soil health technologies.
Innovative Finance Window	Soil Health Bonds, Carbon Credits, Climate Funds.	Leverages global environmental/climate markets. Deploys market-based mechanisms to generate revenue and incentivize sustainable practices, rewarding farmers and investors for positive environmental outcomes (e.g., carbon sequestration).

4. Coordination and Partner Responsibilities

Effective implementation is predicated on clear institutional roles and coordination among core African institutions:

- **AUDA-NEPAD:** Provides overall coordination, policy oversight, and fund governance, ensuring alignment with the CAADP/Malabo commitments.
- **AfDB/AFFM:** Assumes the critical role of **Financial Management**, providing fiduciary oversight, and managing the AFSH Trust Fund disbursement.
- **FARA:** Acts as the **Knowledge Brokering** and Technical Support Organization (TSO), focusing on coordinating research, data systems, and scaling innovation across the continent.
- **RECs & Member States:** Are responsible for **implementation**, coordinating the National Financing Windows, and ensuring national budgets allocate necessary counterpart funding.

5. Resource Mobilization Ambition

The mechanism is driven by ambitious resource mobilization targets, emphasizing the need to significantly leverage private sector investment over time:

Timeframe	Public & Donor Funds (USD Millions)	Private Sector Leverage (USD Millions)	Total Projected Resources (USD Millions)
Short-term (2025–2027)	800	400	1,200
Medium-term (2028–2032)	1,500	1,000	2,500
Long-term (2033–2040)	2,000	1,500	3,500

The strategy anticipates that **every dollar of public/donor funding will be increasingly successful at crowding in private sector capital**, reflecting a shift towards market-driven sustainability for soil health investments.

Acknowledgements

The development of the toolkit for country domestication of the Soil Initiative for Africa (SIA) and the Africa fertilizer and Soil health Action Plan (AFSH-AP) draw inputs from broad range of actors, experts and organizations that are involved in soil management issues in Africa.

A small team of experts work together to develop the key topics and draw input from several experts virtually. This was followed by convening a two to three-day workshop of key experts on each topic to discuss and develop the draft chapter. A knowledgeable expert on the subject matter was engaged to facilitate the discussion and develop the draft chapter, in some instances, other experts that participated in the workshop took the responsibility of drafting the chapter. Each draft chapter went through a peer review process to ensure scientific rigor and relevance to country domestication of AFSH-AP.

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