



Addressing Africa's soil health challenges through the ten-year African Fertilizer and Soil Health Action Plan (2024-2034) and the longer-term Soil Initiative for Africa Framework

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About AUDA-NEPAD

The African Union (AU) Development Agency-NEPAD (AUDA-NEPAD) is Africa's first-ever continental technical and development agency. The foundation of AUDA-NEPAD is built on the New Partnership for Africa's Development (NEPAD) that was established as Africa's continental renewal and development programme by the AU in 2001 and championed through the then NEPAD Secretariat, based in Midrand, South Africa. The NEPAD vision represented a common pledge by African leaders to eradicate poverty and foster Africa's sustainable economic growth and development through the promotion of regional and continental integration, through the inclusion of Africa in global processes and through the empowerment of socially disadvantaged groups, such as women and children.



About AICCRA

The Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) project contributes to the construction of an African future that is climate-smart and driven by science and innovation in the agricultural field. It is led by Alliance of Bioversity International and CIAT and supported by a grant from the World Bank's International Development Association (IDA).

AICCRA works to increase access to climate-smart agriculture (CSA) technologies for millions of smallholder farmers across Africa. When farmers have improved access to technology and advisory services they can plan for climate-related events, thereby safeguarding their livelihoods and ensuring food security. However, women farmers and other marginalised groups, do not access the climate information and climate-smart technology and practices to the same extent as men due to entry, structural and systemic barriers. To address this disparity, AICCRA adopts a socially inclusive and gender-transformative approach, working to understand the power dynamics and social contexts that influence the scaling of CSA and climate information services (CIS). Explore AICCRA's work at aiccra.cgiar.org.



The main objective of CA4SH is to improve global soil health by addressing critical implementation, monitoring, policy, and public-private investment barriers that constrain farmers from adopting and scaling out healthy soil practices.





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Africa's soil health challenge

Agricultural productivity in Africa is severely constrained by extensive land and soil degradation, a challenge that has persisted for decades. Approximately 75%-80% of the continent's cultivated area is reportedly degraded, resulting in a loss of 30kg-60kg of nutrients per hectare annually. This affects more than 485 million people (65% of the population)¹. Further, projections indicate that over half of the currently arable land may become unusable by 2050. Various factors contribute to the continent's soil degradation, including the loss of organic matter, erosion from water and wind, acidification, biodiversity loss, and salinity.

Soil degradation not only affects agricultural productivity but also jeopardises food and nutrition security, rural livelihoods, and environmental sustainability. The compromised health and fertility of

Africa's soil hinders its response to yield-enhancing inputs like fertilizers and improved crop varieties, thereby increasing the vulnerability of smallholder farmers and rural communities to the impacts of climatic shocks.

Since the 2006 Africa Fertilizer Summit in Abuja, Nigeria, the African fertilizer and soil health landscape has undergone significant changes. The private sector has invested over USD 15 billion, primarily in local manufacturing and fertilizer consumption steadily increased until 2019 (after which the recent global fertilizer crisis caused a decline of 25% in fertilizer consumption). Despite the progress made, most African countries remain net importers of mineral fertilizers and smallholder farmers struggle to access quality fertilizers due to financing and distribution challenges.

BOX 1: The 2006 Africa Fertilizer Summit

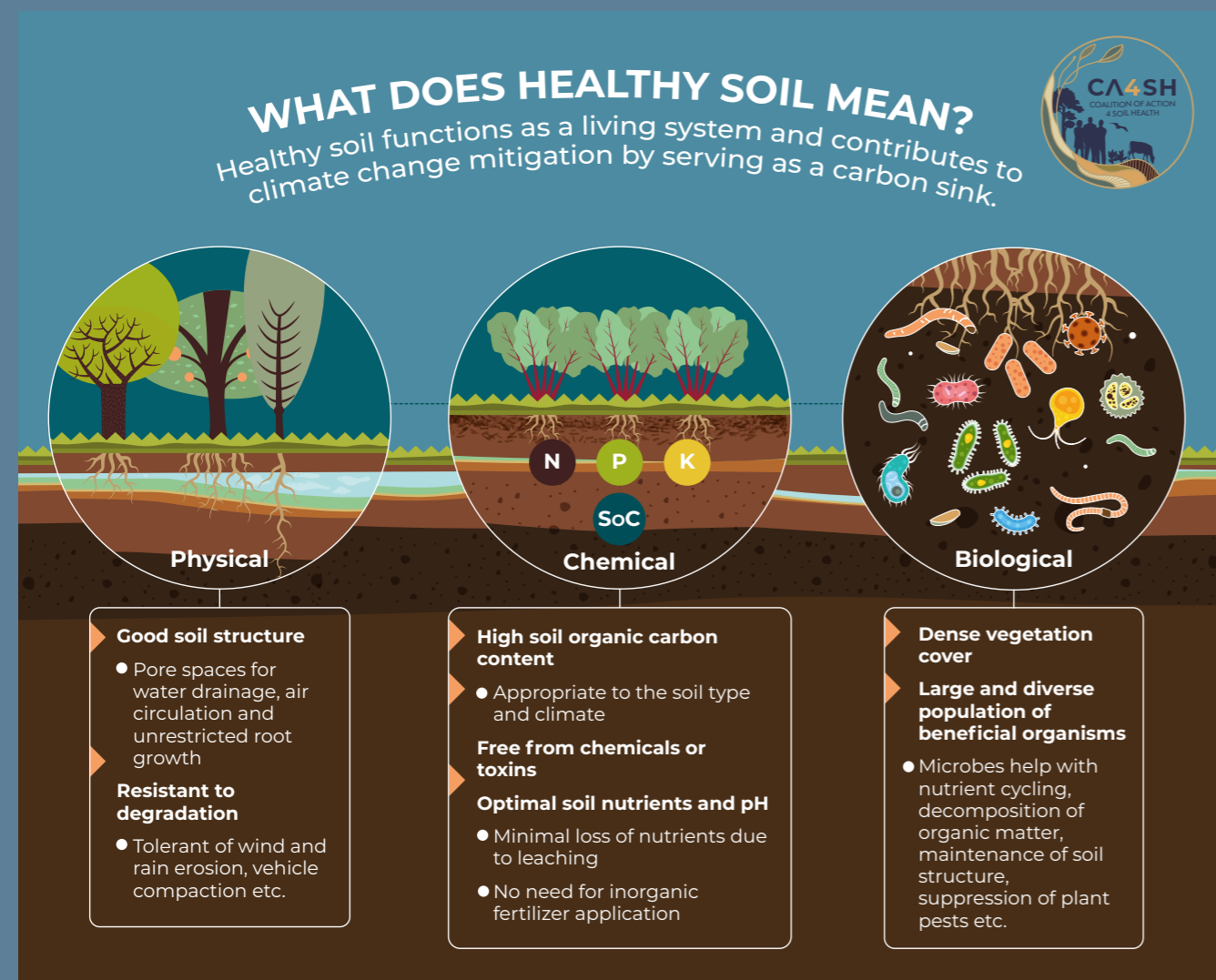
The Africa Fertilizer Summit, held in Abuja, Nigeria, in June 2006, identified the critical need to increase the use of fertilizer and complementary inputs to stimulate sustainable agricultural productivity growth and economic development and to reverse declining soil fertility. The Abuja Declaration positioned fertilizer and complementary inputs as vital and

strategic resources to increasing crop yields and addressing the associated challenges of food insecurity and poverty faced by smallholder farmers in Africa. Africa as a whole has not yet reached the target of 50 kg/ha of fertilizer consumption that was set in the Abuja Declaration.

¹ AGNES. 2020. [Land degradation and climate change in Africa](#). Policy brief no. 2.

Soil health refers to the condition of the soil and its potential to support biological functioning, maintain environmental quality, and sustain plant and animal health. Soil health encompasses the physical, biological, and chemical properties of soil². Healthy soil is a key component of the One Health approach. This approach recognises the interconnectedness of human health, animal health, plant health, and ecosystems, including

soils. Enhancing soil health in Africa extends beyond boosting agricultural productivity; it also contributes to water, food, and nutrition security, rural livelihoods, and environmental sustainability. Various initiatives have been implemented to address soil degradation, but local-level successes have not been scaled up. This underscores the need for coordinated continental attention and resources to reverse the widespread degradation.



A renewed emphasis on soil health, sustainable soil management, balanced fertilizer use, and nutrient use efficiency is emerging on the continent. Market shifts align public and private sector incentives, creating opportunities for stakeholders to address soil health constraints, fertilizer market

development, and farm-level risk management. Further, it is recognised that improving and sustaining soil health is critical for realising the goals outlined in African agendas like the Comprehensive African Agriculture Development Programme (CAADP), the Malabo Declaration, and Agenda 2063. Achieving

these goals requires sustainably increasing agricultural production, without expanding cultivated land, to improve food and nutrition security, mitigate land and soil degradation, enhance rural livelihoods, build resilience to climate change, as well as conserve biodiversity. As such, meeting these goals necessitates improving soil health across all agricultural sub-sectors through sustainable practices and increased, balanced, and efficient use of mineral and organic fertilizers.

To address Africa's soil health and associated food security crisis, the African Union Commission (AUC) tasked the Forum for Agricultural Research in Africa (FARA) and the other xPillar4 agencies³ in collaboration with specialised Agencies, especially the Food and Agriculture Organization of the United Nations (FAO), to develop a long-term framework for a Soil Initiative for Africa (SIA). The SIA Framework is to improve and

maintain the health and productivity of Africa's soils across all agricultural sub-sectors (e.g. arable, fisheries (inland), forestry and livestock). To ensure the SIA is effectively implemented, the African Fertilizer and Soil Health (AFSH) Action Plan (2024-2034) was developed. The 10-year plan details the actions to be implemented within the first decade of the SIA Framework with an emphasis on addressing the outcomes of the Africa Fertilizer and Soil Health Summit (proposed for March 2024). The AFSH Action Plan includes specific actions to launch and implement the SIA Framework and support improved agricultural productivity through improved soil health and balanced and efficient fertilizer (organic and inorganic) use. The SIA Framework will continue through the implementation of subsequent 10-year Action Plans, following a review of progress and lessons learnt during the first 10 years of implementation.

BOX 2: Africa Fertilizer and Soil Health Summit (2024)

The Africa Fertilizer and Soil Health (AFSH) Summit will be held to deliberate on Africa's recent widespread decades-long decline in soil quality of farmland - a phenomenon that continues today and negatively impacts the agricultural production capacity and food security in the continent. In June 2006, the Heads of State and Governments of the African Union endorsed the Abuja Declaration on Fertilizer for the Africa Green Revolution, a continental strategy to reverse the worrying trend of poor productivity of the African soils. The Declaration focused on key targets required for agricultural growth, food security, and rural development in Africa, with a focus on the role of fertilizers. It recommended raising the use of fertilizers from 8kg/(nutrients)/

ha to 50kg (nutrients) /ha in 10 years and the establishment of an African Fertilizer Financing Mechanism (AFFM) with the objective of improving agricultural productivity by providing financing required to boost fertilizer use in Africa to achieve the target of 50kg of nutrients per hectare, as mandated by the Abuja Declaration.

Fifteen years after the Abuja Declaration, Africa's agriculture and food security narrative has evolved significantly. The fertilizer market itself has changed, including the roles that private and public sector actors are playing. Another major change since Abuja, is the increased recognition of the critical role of sustainable soil management. The decline in soil health has hindered the efficiency of fertilizer use and

² CA4SH. 2022. *What does healthy soil mean?* Coalition of Action for Soil Health. CA4SH. 2023. *Why achieving soil health is so critical.* Flyer. Coalition of Action for Soil Health.

³ The West and Central African Council for Agricultural Research and Development (CORAF), Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA), and the African Forum for Agricultural Advisory Services (AFAAS).

hampered agricultural productivity growth, food security, and environmental sustainability across the continent. As a result, economic growth and well-being—particularly for the rural population, who derive their livelihoods directly from agriculture – in the continent have been hampered. It is therefore, timely to review the state of Africa's soil health to recalibrate the strategies being deployed for boosting the productivity of soils towards higher and sustainable gains in crop yields as well as economic growth and transformation, and overall well-being.

The objective of the Summit is to bring together all relevant stakeholders to highlight the crucial role of fertilizer and soil health in stimulating sustainable pro-poor productivity growth in African agriculture and to agree on the 10-year AFSH Action Plan, as well as the SIA Framework.

Expected outcomes

It is expected that the AFSH Action Plan will be endorsed, which will deliver concrete recommendations for steps to be taken by African leaders and stakeholders over the next 10 years. The AFSH Action Plan will provide a focus for new policies and investments that will enable farmers to work toward re-building soil health and ultimately increase yield responses and profitability of fertilizers. It is also expected that the AFSH Action Plan will be endorsed by leading private and public sector partners across all African countries, with the following:

- Nairobi Declaration;
- AFSH Action Plan;
- SIA Framework; and
- Mechanism to finance the AFSH Action Plan (post-Summit implementation process).

This briefing note summarises the AFSH Action Plan, it highlights the first 10-year targets and gives detail on the outcomes, outputs and actions of the results chain. It outlines the proposed means for implementation with a focus on leadership and coordination, stakeholder engagement and partnerships, and monitoring and evaluation. The next section gives an overview of the long-term SIA Framework, it describes its goals and the

four priority investment areas, it then outlines the implementation approach, describing how the framework will be implemented at different levels, the financial resource needs, importance of multi-stakeholder partnerships and monitoring and accountability. The briefing note concludes by indicating the linkages between the AFSH Action Plan outcomes and outputs and the SIA Framework priority investment areas.

Overview of the African Fertilizer and Soil Health Action Plan (2024-2034)

The vision of the AFSH Action Plan is to accelerate inclusive agricultural growth and transformation and contribute to ending hunger and poverty. The key strategy to successfully implement the AFSH Action Plan is to harness multi-stakeholder partnerships and investments to drive policies, finance, markets, research and development (R&D), extension and capacity for efficient use of fertilizer and sustainable soil health management. The following targets are to be achieved in the first 10 years of implementation:

- An Africa Fertilizer Financing Mechanism (AFFM) that will meet the requirements of the various actions in the AFSH Action Plan;
- A soil health fund for research, innovation, capacity building, and start-ups on efficient fertilizer use and soil health management actions implemented as part of the existing provisions of the AFFM;
- Significantly increased investments in the local manufacturing and distribution of mineral and organic fertilizers, biofertilizers and biostimulants, and reused and recycled nutrient sources for local supply and towards 'climate-smart farming' that better matches fertilizer types/ formulas with varied soil types, crop and climatic conditions;
- Significant investment to enhance capacities of countries in soil and fertilizer analysis and soil mapping and monitoring;
- Significant investment in improved integrated planning and management of soil health interventions across agricultural sub-sectors to support increased production of self-sufficiency and high-value agricultural plant and animal products;
- Significant investment in sustainable soil health management practices, including water supply and use efficiency through infrastructure and innovative techniques of smart irrigation;
- Triple fertilizer use from 18 kg/ha in 2020 nutrients to 54 kg/ha 2033 and significantly improve fertilizer use efficiency and adapt fertilizer rates and sources to specific soil and crop needs to offset nutrient depletion, achieve cereal self-sufficiency;
- Contribute to doubling cereal crop productivity from 1.7 t/ha in 2020 to 3.5 t/ha by 2033, along with investments in sustainable soil management by other partners;
- Maintain cropland nitrogen use efficiency to at least 60% to support profitable farming and environmental sustainability;
- Contribute to doubling agricultural annual growth rate from 4% in 2023 to 8% in 2033;
- Develop extension and last-mile delivery services to enable 70% of the farmers to access effective agronomic, sustainable soil and fertilizer management advice; and
- Expand the agricultural land under sustainable soil management practices from 8.2% in 2021 to 30% in 2033.

Successful implementation of the AFSH Action Plan will be evident in increased soil health, increased crop productivity and production, sustainable agri-food systems, enhanced resilience to climate change, and a food and nutrition secure continent.

AFSH Action Plan results chain

The AFSH Action Plan has four key outcomes with associated outputs and actions that when implemented contribute to the overall impact.

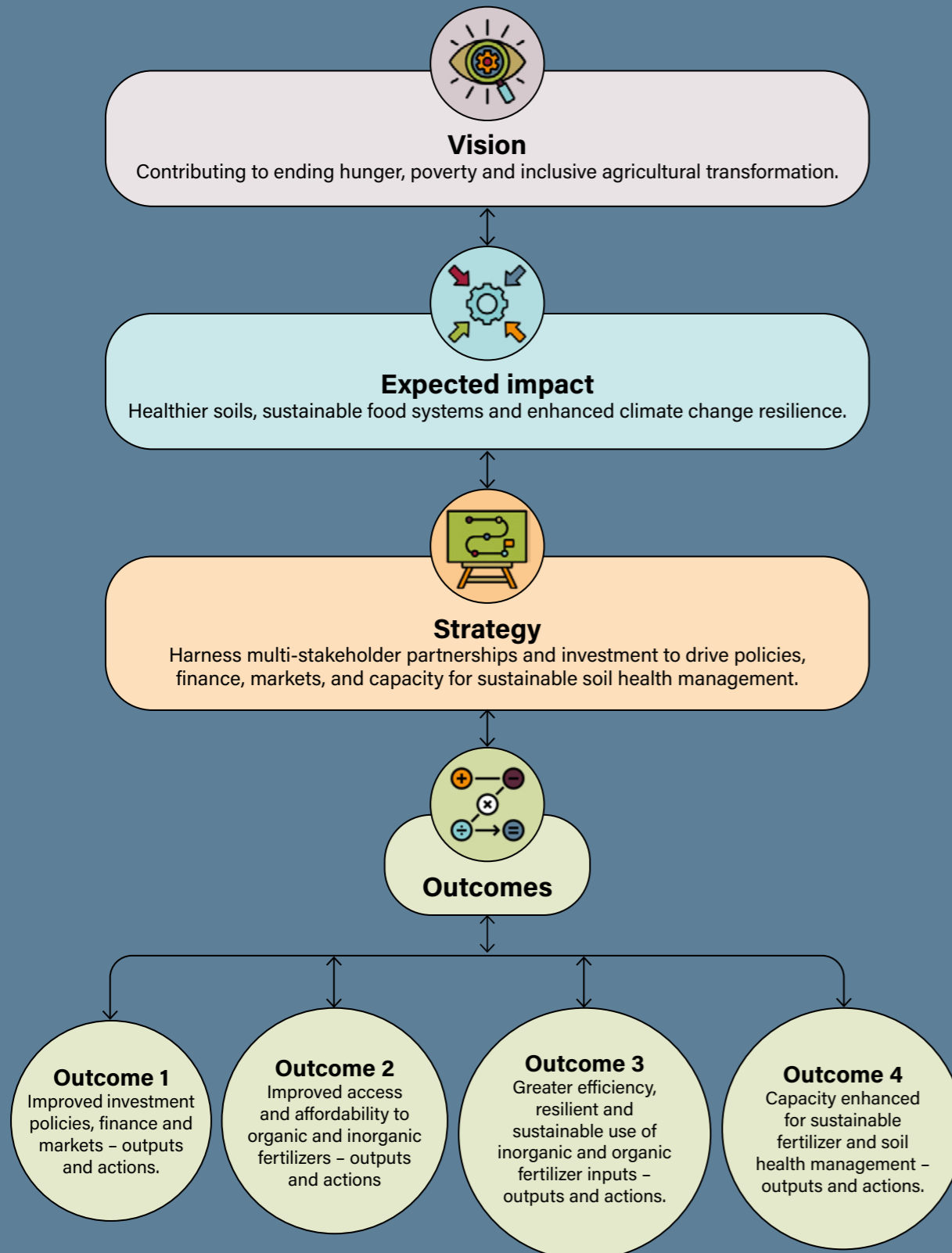


Figure 1: AFSH Action Plan results chain



Outcomes, outputs and actions

OUTCOME 1: Improved policies, investment, finance and markets for sustainable soil health and fertilizer management

OUTPUT 1.1 Improved policy environment

- **Action 1.1.1** Develop context-specific, continent-wide guidelines for the formulation and implementation of relevant national policies that enable sustainable soil health and efficient fertilizer management.
- **Action 1.1.2** Harmonise national policies and regulatory frameworks on fertilizer efficiency and soil health solutions to ensure cross-sectoral coherence and promote regional and continental trade.
- **Action 1.1.3** Support smallholder farmers to access viable commodity markets and support improved security of land tenure and use rights to enable individual investments in efficient fertilizer use and soil health.
- **Action 1.1.4** Enact policies and regulation to support/promote the use of local food products.

- **Action 1.1.5** Identify areas of high agricultural or ecological importance for protection, restoration, and sustainable management to improve soil health.

OUTPUT 1.2 Improved financing and investment

- **Action 1.2.1** Widen the scope of the Africa Fertilizer Financing Mechanism (AFFM) to improve the low-carbon production, procurement, distribution, and efficient use of organic and mineral fertilizers, and soil health interventions.
- **Action 1.2.2** Incentivise enhanced private sector investments in low-carbon fertilizer production, R&D, trade and farmer advisory services, towards “smart farming” that better matches various fertilizer types/ formulas with local soil types.
- **Action 1.2.3** De-risk farmer investments in yields and soil health of current and targeted food security crops.

- **Action 1.2.4** Support financing of infrastructure and logistics assets to improve availability of organic and mineral fertilizers, biofertilizers and biostimulants, and reused and recycled nutrient sources, and access to food markets for farmers.
- **Action 1.2.5** Strengthen the soil health fund for research, innovation, and start-ups on efficient fertilizer use and soil health actions, including private sector investments, under the AFFM.
- **Action 1.2.6** Deploy innovative incentive support mechanisms for Member States' greater use of technology to improve the efficiency of existing subsidy programmes, with the end goal of encouraging soil health investments by smallholder farmers.
- **Action 1.2.7** Establish the minimum threshold for the optimal functioning of AFFM and convene a partner's roundtable by the end of 2024, to mobilise the required resources.

OUTCOME 2: Improved access and affordability of organic and mineral fertilizers

OUTPUT 2.1: Increased low-carbon domestic production and distribution

- **Action 2.1.1** Boost local production and blending of mineral fertilizers and lime using locally available raw materials.
- **Action 2.1.2** Enable SME ventures, especially by youth and women, oriented to the production, distribution, and efficient use of mineral fertilizers.
- **Action 2.1.3** Support Research and Development to produce organic fertilizers, biofertilizers and biostimulants, and reused and recycled nutrient sources and novel fertilizers with low carbon, including green ammonia.
- **Action 2.1.4** Strengthen access, especially to women and youth, through market linkages and promote agro dealerships.

OUTPUT 2.2 Enhanced intra-regional fertilizer trade

- **Action 2.2.1** Leverage the African Continental Free Trade Agreement (AfCFTA) increase intra-Africa fertilizer trade and enact sovereign guarantees agreements between importers and manufacturers.

OUTCOME 3: Greater efficiency, resilience and sustainable use of mineral and organic fertilizer inputs and enhancement of soil health interventions

OUTPUT 3.1 Recommendations developed targeted to specific crops, soils and climatic conditions

- **Action 3.1.1** Develop digitally enabled context-specific efficient fertilizer and soil health advisory recommendations.
- **Action 3.1.2** Develop and deploy standardised and appropriate tools for assessing soil fertility, soil health, and context-specific sustainable soil management and nutrient requirements.

OUTPUT 3.2 Agronomic fertilizer use efficiency increased to optimal levels

- **Action 3.2.1** Promote integrated soil fertility management practices to enhance crop response.
- **Action 3.2.2** Promote context-specific solutions for the use of the right sources of nutrients at the right rates, time, and place
- **Action 3.2.3** Promote access and affordability of liming for ameliorating acidic soils to enhance crop productivity and fertilizer use efficiency.

OUTPUT 3.3 A digital information platform and database established

- **Action 3.3.1** Establish and operationalise continental, regional, and national soil health monitoring and soil information systems.

Action 3.3.2 Establish and operationalise a soil health, fertilizer, crop, and climate dashboard for decision support on sustainable soil management.

Action 3.3.3 Establish and operationalise analytical and decision support tools to guide investments at farm, national, regional, and continental level.

OUTPUT 3.4 Soil health and water management optimised across agricultural sub-sectors and landscapes

Action 3.4.1 Promote integrated soil and water conservation, planning, and management across agricultural sub-sectors and landscapes/ watersheds.

Action 3.4.2 Promote investments in smart irrigation as part of integrated water resource management for enhancing nutrient use efficiency and soil health conditions for climate change resilience.

Action 3.4.3 Promote context-specific sustainable agricultural practices to support increased biomass, crop, and animal production in croplands, rangelands, forest lands and inland fisheries.

OUTCOME 4: Institutional and Human Capacity Enhanced for Sustainable Soil Health and Fertilizer Management

OUTPUT 4.1 Locally relevant soil health and fertilizer management technologies developed and promoted

Action 4.1.1 Strengthen regional and national research and education institutions and capacity in soil health and sustainable soil management.

Action 4.1.2 Strengthen national extension systems and public-private partnerships for soil health and efficient fertilizer advisory integrated with other farmer services (input and output markets, finance) to improve the quality of support to smallholder farmers.

Action 4.1.3 Building the capacity of national Research and Development and Extension

systems that will need to support and enable the implementation of the activities specified in the Action Plan.

Action 4.1.4 Review and upgrade tertiary training programmes for soil science and agronomy to include subjects relevant to sustainable soil management and efficient fertilizer use.

Action 4.1.5 Develop a database coupled with a decision support system to promote locally, nationally and regionally relevant fertilizer and soil health management technologies.

Action 4.1.6 Strengthen informal and in-service training modalities to strengthen research, extension, and implementation expertise on sustainable soil management.

OUTPUT 4.2 Scale appropriate advisory services on soils and crops available and affordable to smallholder farmers

Action 4.2.1 Build, strengthen, and standardise soil analysis capacity of laboratories to rapidly and accurately analyse large sample volumes.

Action 4.2.2 Establish public-private partnerships to foster innovation towards scalable, affordable, and localised soil and crop-specific advisory.

OUTPUT 4.3 Regional networks for knowledge exchange established

Action 4.3.1 Establish regional research and development networks for the exchange of knowledge and technologies within the continent and with the North-South-South (global) regions

Action 4.3.2 Establish and convene a biennial Continental Fertilizer and Soil Health Summit.

OUTPUT 4.4 Fertilizer analytical services available for fertilizer quality assurance

Action 4.4.1 Build, strengthen, and standardise the fertilizer analysis capacity of national and regional laboratories in accordance with fertilizer quality standards.

Implementation framework

The AFSH Action Plan presents the priority actions for the next 10 years to be implemented in the context of the SIA Framework.



Leadership and coordination

The AUC will have ownership of the AFSH Action Plan. The AUC and AUDA-NEPAD will coordinate the different stakeholder organisations within and outside the continent to ensure effective implementation of the AFSH Action Plan. In carrying out its coordination role with regards to implementation of the AFSH Action Plan, an AU Secretariat will, amongst others, have the following responsibilities:

- Establish the modalities for knowledge management, risk management, monitoring and evaluation for each of the implementing stakeholders.
 - Support the domestication of the AFSH Action Plan into continental, regional, and national processes for development and investment planning.
 - Support and facilitate effective communication and advocacy to generate public awareness, involvement, support, and ownership of the AFSH Action Plan by the African population and all relevant stakeholders in its execution.
 - Establish a Monitoring, Evaluation, Accountability, and Learning process to track progress in the implementation of the AFSH Action Plan.
- Details of how a coordination mechanism would function and how all the above processes will be managed, coordinated, and carried out will be developed during the implementation of the AFSH Action Plan.



Stakeholder engagement and partnerships

Stakeholders at the continental, regional, national, and local levels will be engaged through effective partnerships. The Guidelines for Non-State Actor participation in CAADP processes will be utilised to guide the effective establishment of partnerships and support accountability in the implementation of the AFSH Action Plan. Responsibilities will be devolved to stakeholders with the required capacity to deliver the outputs.



Monitoring, evaluation, accountability, and learning

Implementation of the AFSH Action Plan will be incorporated into the AUC CAADP monitoring and evaluation system, including incorporation into the digital CAADP Biennial Review (BR) dashboard. Appropriate indicators will be defined with an emphasis on leveraging existing indicators as far as possible. This will require additional support to the CAADP processes to accommodate the requirements to support country-level domestication, monitoring, evaluation, accountability, and learning. The monitoring plan will include tracking of private sector contributions.

BOX 3: CAADP indicators relevant to soil health

- **Level 2** – Agricultural transformation and sustained agricultural performance and growth
 - **Result area 2.1** – Increased agriculture production and productivity
 - **Indicator 2.1.5** – Change in input use (fertilizer; mechanisation; seed and other purchased inputs)
 - **Result area 2.5** – Sustainable natural resources management (environmental resilience)
 - **Indicator 2.5.1** – Hectares of land protected or restored under agroecosystems (Land and water, agro-forestry, agro-ecology)
 - **Indicator 2.5.6** – % increase in hectares under sustainable land and water management (SLWM) annually disaggregated by country, land-use type, and target area



Phased implementation

The AFSHS Action Plan will be implemented in two phases:

Phase 1: Preparatory 18-month post-summit phase. The Inception Phase will be used for defining and establishing the coordination mechanism, aligning implementation with future developments under Agenda 2063 and CAADP, establishing necessary partnerships and alliances, capacity building, piloting some interventions, and more. In line with continental

coordination, country-specific action plans will be developed with the engagement of public-private partners and development stakeholders. Phase 1 will be essential for final planning, budgeting, and resource mobilisation.

Phase 2: The main implementation phase will be initiated following the Summit.

Overview of the Soil Initiative for Africa Framework

The AUC mandated the development of the SIA Framework in an effort to improve the health and productivity of Africa's soils through the application of scientifically sound soil interventions at scale. The SIA Framework acknowledges that Africa's soil challenge is not due to a lack of soil science but rather its reach and adoption. The challenge is to ensure that sustainable soil management practices are accessible by smallholder farmers, who, by combining them with local and indigenous knowledge, can ensure the practices are locally adapted. In this light, the SIA Framework emphasises the importance of continued investment in soil science research to further improve understanding of Africa's soil as part of a climate-resilient agricultural ecosystem and the changes that will accompany the transition.

The SIA Framework notes that many local-level initiatives working to improve Africa's soil health, fertility, and productivity have been successful, albeit over relatively small geographic areas. The challenge is therefore to scale the successful soil interventions and their impacts. This requires developing or strengthening relevant processes and institutions at the local, national, regional, and continental level to connect science at scale with service provision at the farm and landscape level; and to scale farmer capacity development and local know-how. As such, the goals of the SIA Framework are to: Eliminate the duplication and lack of coordination that has hampered previous approaches to reverse the decline in soil health at scale.

- Place empowerment of all land users at the heart of all agreed soil health goals; recognise that farmers and other land users are the key change agents to reverse soil degradation and improve soil health.
- Improve farmers' and other land users' (e.g. herders, pastoralists, forest users, inland fisherfolk) access to policy information and research results to incentivise and support on-farm and landscape-level improvements in soil management based on local context, knowledge, and innovation.
- Establish programmatic, institutional, and human capital support to identify and address gaps that constrain effective soil management at every level.

- Enhance the development, availability, and use of digital products, tools, and services to optimise planning, and implementation.
- Create momentum and provide clear guidelines and opportunity information via an investment dashboard that disseminates information on investable projects and programmes in Africa's soil health sector.
- Place the scaling of science-based soil health capacities, information, and practices at the centre of the initiative to reach millions of land users across the African continent with the best practices, research, information, and technologies for soil health and adaptive management decisions.

To achieve these goals, the SIA Framework prioritises four investment areas and associated actions:

- **Priority Area 1. Optimise integrated soil health and water management planning and implementation** to address soil degradation in croplands, grazing lands and forest lands, enhance soil health, agricultural productivity, and livelihood benefits achieved at the farm, plot, or field level, and ensure protection of important soil resources from sealing, overexploitation, and pollution. Key elements of a strategy for making this possible are:

- To encourage and support integrated natural resource planning for sustainable soil management and soil and water conservation across landscapes/ watersheds and where relevant, across agricultural sub-sectors.
 - To ensure and facilitate farmers' expanded access to contextualised scientific information to complement their grasp of local context and local/indigenous knowledge to better inform sustainable soil management decisions they need to make on their own farms and fields.
 - To ensure the availability and, where appropriate, harmonisation of methods, approaches, tools, techniques, technologies, best practices, and more to enable improved sustainable soil management for improved soil health.
 - To ensure farmers' expanded access to agricultural inputs, technologies, and services to support sustainable soil management and improve agricultural productivity.
 - To ensure the assessment of soil status (i.e., health, fertility, production limiting factors or risks, etc.) to inform integrated soil health and water management planning.
 - To ensure sharing of experiences within and between the African regions on sustainable soil and water planning and address any important trans-boundary issues.
- local soil management practices through local/indigenous knowledge increasingly combined with science-based evidence.
- To encourage the availability of processes to enable feedback from farmers/ communities and extension agents to communicate their experiences, challenges, solutions, and priorities to inform the development of training programmes, research priorities, and support services based on local needs.
 - To ensure farmers' (especially women and youth) expanded access to tailored advice for the optimal use of agricultural inputs and technologies, as well as access to updated input and output market and related information to support adaptive soil management decisions and minimise risk (i.e. risks related to return-on-investment, climate change, and more).
 - To leverage digitally enabled products and services, to the extent operationally and financially sustainable, including privately provided products and services.
 - To identify successful examples of sustainable soil management implementation and approaches for learning, sharing, and scaling.
 - To establish or strengthen agricultural research institutions and extension services to ensure the generation, availability, and delivery of up-to-date and tailored research, information, data, and services to inform and support sustainable soil management and policy development.
 - To ensure that extension staff are fully equipped (with knowledge, approaches, resources, etc.) to support farmers to understand and employ scientifically sound, locally adapted techniques to nurture and maintain soil health, fertility, and productivity.
 - To ensure adequate availability of soil laboratories with sufficient capacities and resources, including up-to-date technologies, to provide quality soil and fertilizer information.
- **Priority Area 2. Build human, institutional, and social capital for research, development, education, extension, and support for sustainable soil management** to optimise a chain of support that would enable land users to make adaptive management decisions that optimise soil health and productivity and minimise risks. Key elements of a strategy for making this possible are:
 - To encourage and support farmers' (especially women and youth) involvement and innovation in co-creation of best



- To ensure adequate soil science degree programmes at the tertiary education level and ensure that soil science is embedded into multi-disciplinary programmes related to soil and water management across land use sectors.
- To ensure networking opportunities and structures are in place at the regional and continental level to support coordination, systematic interaction, and partnerships between countries and regions on soil issues in research, extension, development, and implementation and to facilitate scientific and technical cooperation and exchange with nations and regions outside of Africa.

■ **Priority Area 3. Optimise data and information for effective planning and monitoring** to improve and track improvements in soil health, productivity, and sustainable livelihoods. Key elements of a strategy for making this possible are:

- To ensure the development/ availability and harmonisation of methods for systematic monitoring of soil health, water availability (above and below ground), agricultural productivity, and farmers' livelihoods, leveraging any existing and effective approaches (including digital).
- To ensure agriculture market actors at all levels can contribute to, and benefit from national soil information, leveraging publicly and privately available products (adding value and usefulness to the information), and respecting intellectual property rights.
- To encourage the development of national soil information centres/services at an appropriate institution or Ministry.
- To encourage and support the setting of soil health targets to guide planning, support, and implementation, monitor progress against the targets and well as report to international Conventions.

- To facilitate aggregation and standardisation of useful data at the regional level to enable analysis and comparison across countries and regions.
- To facilitate sharing of, and lesson learning from, successful approaches to soil information systems and, where appropriate, provide regional level linkages.
- To encourage the establishment of a continental soil information centre that works with other expert organisations to facilitate setting standards for data harmonisation, and protection of intellectual property and defining and sharing best practices for use of data across borders where useful to identify challenges and progress.
- To develop (or use existing) appropriate indicators to track implementation of the SIA across the continent.
- To leverage CAADP's digitally enabled reporting system for SIA reporting.

■ **Priority Area 4. Ensure enabling policy, legal and regulatory frameworks** to guide, support, and incentivise the sustainable use of soil resources. Key elements of a strategy for making this possible are:

- To encourage and support the identification of areas of high agricultural or ecological importance for protection, restoration, and sustainable management.
- To mainstream soil health and the protection of ecologically important areas (i.e., wetlands and peatlands) into policies, regulatory frameworks, and guidelines.
- To mainstream/ integrate climate resilience through improved soil health in planning, budgeting, and monitoring of development outcomes and processes.

- To support the incorporation of SIA-recommended frameworks, budgets, actions, and policies into soil-related policy environments and investment plans.
- To support the setting of quality and regulatory standards related to soil health and agricultural inputs.
- To support local authorities to develop bylaws that support the implementation of sustainable soil management.
- To ensure that farmers have security of land tenure and use rights to provide increased incentives to invest in the soils, farms, and landscapes available to them.
- To ensure the development of effective policies to improve access to agriculture inputs, services, and markets.
- To ensure that strong centres of excellence on soil science and management issues exist in each region and are available to support related priorities and actions in their respective regions.
- To ensure harmonisation of relevant policies at national, regional, or continental level.
- To ensure the development, maintenance, and updating of materials that express African approaches to soil health and share such materials across the Continent and globally.

Implementation of the SIA Framework



A scaling approach

The SIA Framework adopts a new scaling approach focusing on farmers' capacities and systems innovation. This requires a holistic systems-wide approach to bring about human capacity growth and lasting change. The SIA Framework is to be implemented under the CAADP, with action at multiple levels – plot, farm, community, country, region, and continent. The AUC will have ownership and leadership of the SIA Framework with a potential mechanism established to coordinate, facilitate, and support the institutional services, programmes, policy initiatives, investments, projects, and activities that are needed at each of the levels.



Country-level domestication

The Regional Economic Communities (RECs) will be encouraged and supported to contextualise the SIA Framework recommendations to their respective situations – and to formulate an approach to address soil challenges within their CAADP Regional Agricultural Investment Plans (RAIPs). Similarly, the African Union (AU) member states will be encouraged to formulate solutions to national soil issues within their CAADP National Agricultural Investment Plans (NAIPs). AU member states will need to take ownership of the SIA Framework for its successful implementation as only national authorities and institutions have the mandates, authority, and ownership to drive the systemic changes. The AU and development partners will mobilise technical, political, and financial resources to support the development and implementation of soil-related aspects of the NAIPs, CAADP RAIPs, and corresponding plans at the continental level that are consistent with the SIA Framework recommendations.

Contextualised SIA Framework recommendations are incorporated in CAADP for implementation at multiple levels

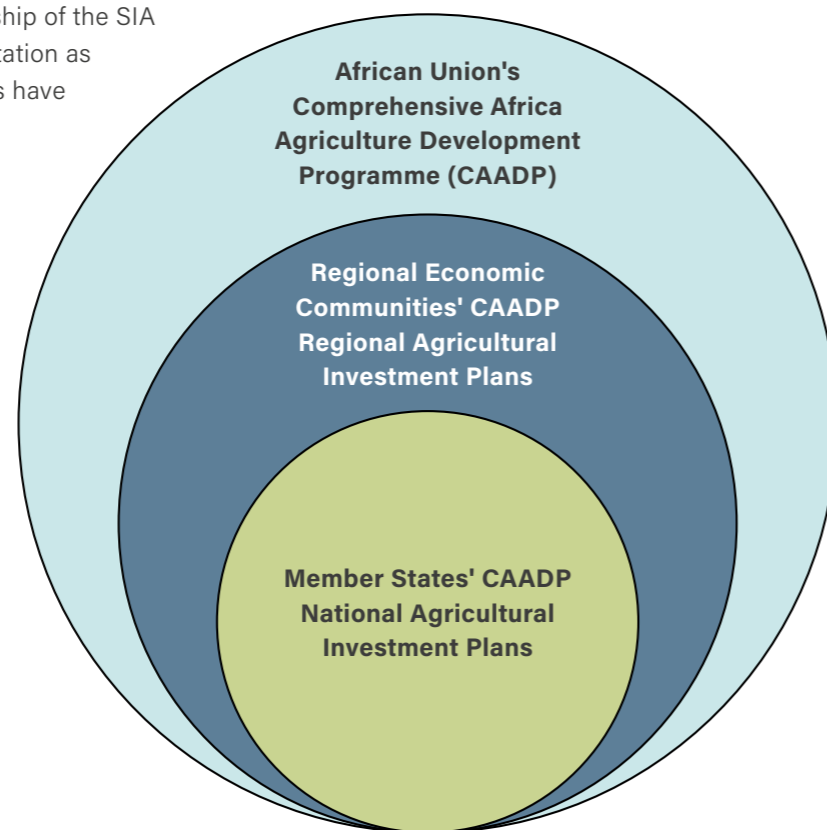


Figure 2: Incorporation of the SIA Framework into CAADP across multiple scales

BOX 4: Implementation principles and approaches

The design and implementation of the SIA Framework are based on the following principles:

- **Landscape approach** – The potential gains in soil erosion prevention and water retention are greater when addressed at the landscape or watershed level than solely at the plot level.
- **Farmer and community-centric** – Working with communities can impact all farmers and community members and foster a more conducive social and biophysical environment for individual farmers to invest in and improve soil and water management at the plot-level.
- **Building on local successes** – The SIA Framework aims to build upon existing local and grassroots successes to scale the impacts on soil health, agricultural productivity, and sustainable human livelihoods.
- **Leveraging existing institutions and systems** – The SIA Framework builds on existing local / national / regional / continental planning systems and processes as the mechanism for aligning the SIA Framework to national/regional/continental plans.
- **Agility** – The SIA Framework is a long-term, flexible instrument and a living document to be adjusted according to exigencies of the time.
- **Subsidiarity** – The implementation of the SIA Framework is according to four layers – local, national, regional, and continental – at each layer, tasks will be assigned and performed by whomever is the most efficient and effective at doing so.
- **Accountability and transparency** –
 - **Results driven** – The SIA Framework will be results driven, with realistic and measurable targets and an effective monitoring, evaluation, accountability and learning framework.
 - **Evidence driven** – All decisions relating to prioritisation or focus areas, allocation of resources amongst others should be based on objectively defined criteria to ensure convergence / acceptance by all stakeholders and the building of the African knowledge base and the collection of data and statistics, to underpin implementation and monitoring of plans.
- **Diversity** – The SIA Framework takes account of Africa's diversity and defines trajectories and addresses issues related to that diversity.



Financial resources

The SIA Framework asserts that financial resources allocated to improving soil health in Africa have been insufficient. Public budgets for local and national level action are inadequate and smallholder farmers typically cannot afford the recommended agricultural inputs and investments in soil health. Additionally, the private sector has not been incentivised to finance the field-level activities nor the research and outreach activities needed to assist smallholder farmers in improving their soil management. Furthermore, support from African and global development partners has not focused on soil health.

The SIA Framework therefore highlights the need to develop an innovative, effective and targeted financing mechanism or instrument that would enable investment from a variety of funding sources. This includes the need for additional support to the CAADP processes. There is also a need to work with development partners to define funding areas that suit their priorities as well as those of the SIA.



Multi-stakeholder partnerships

Effective implementation of the SIA Framework requires strong multi-stakeholder partnerships. As such, African stakeholders within and across national and regional borders will be encouraged to collaborate on relevant soil interventions. Likewise, development partners will be encouraged to support activities relevant to the SIA Framework and to do so with other development partners. The implementation of the SIA Framework is to be a decentralised process with different partners implementing different aspects of the SIA according to their strengths, mandates, and comparative advantages.

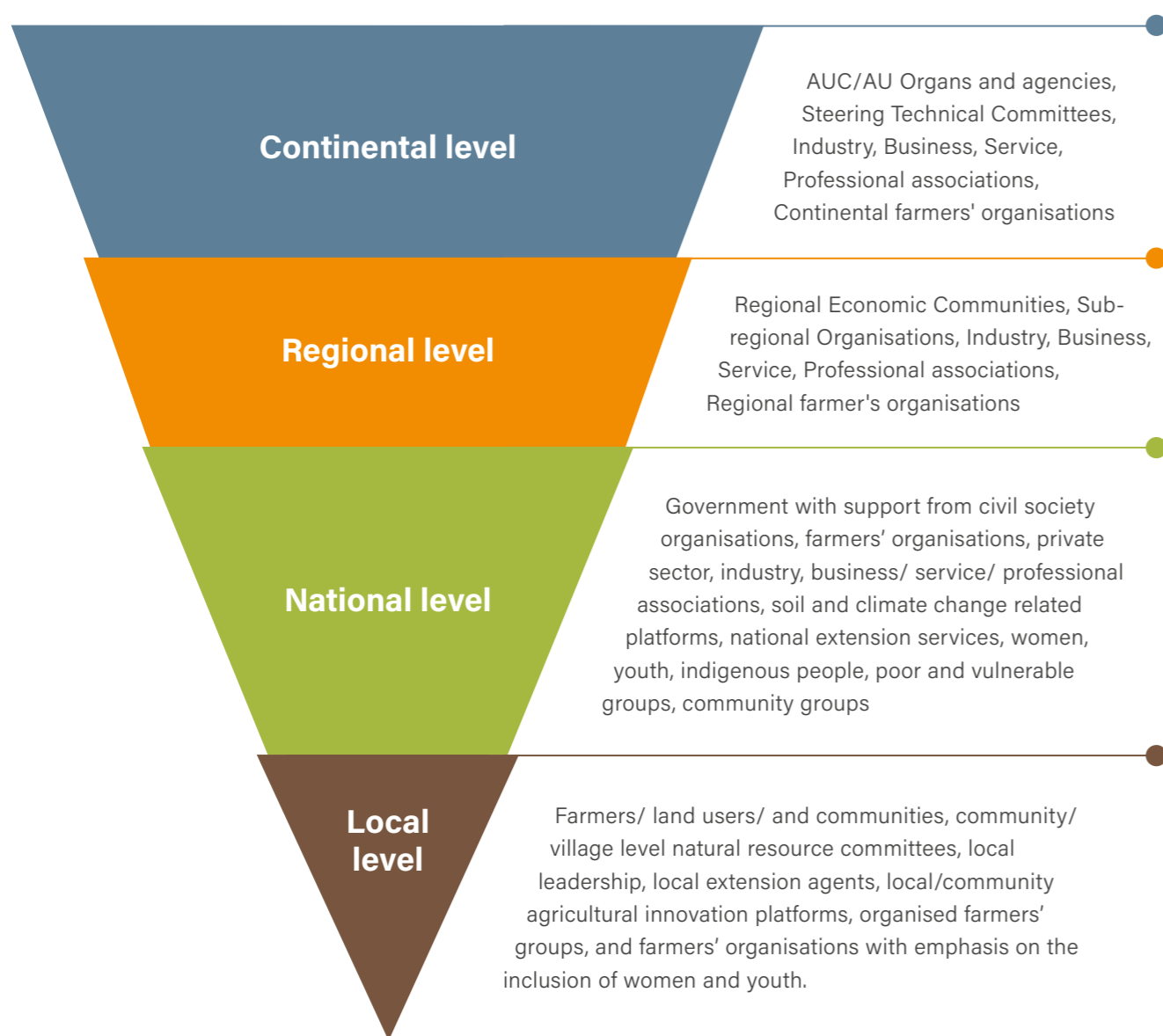


Figure 3: Effective partnerships will be established/ strengthened to ensure participation and inclusiveness by involving all stakeholders at the different levels



Monitoring, evaluation, accountability and learning

The performance of the SIA Framework will be reported using a digital dashboard so that the public, African institutions, and countries across Africa have access to the information. Progress under the SIA will be monitored through the AUC BR process.

Linkages between the AFSH Action Plan outcomes and outputs and the SIA Framework priority investment areas

SIA Priority Investment Areas	AFSH Action Plan Outcome	AFSH Action Plan Output
1. Optimise integrated soil health and water management planning and implementation	3. Greater Efficiency, Resilience and Sustainable Use of Mineral and Organic Fertilizer Inputs and Enhancement of Soil Health Interventions	3.1 Recommendations developed targeted to specific crops, soils, and climatic conditions
		3.2 Agronomic fertilizer use efficiency increased to optimal levels
		3.4 Soil health and water management optimized across agricultural sub-sectors and landscapes
	2. Improved access and affordability of organic and mineral fertilizers	2.1 Increased low-carbon domestic production and distribution
		2.2 Enhanced intra-regional fertilizer trade
2. Build human, institutional, and social capital for research, development, education, extension, and support for sustainable soil management	4. Institutional and Human Capacity Enhanced for Sustainable Soil Health and Fertilizer Management	4.1 Locally relevant soil health and fertilizer management technologies developed and promoted
		4.2 Scale appropriate advisory services on soils and crops available and affordable to smallholder farmers
		4.3 Regional networks for knowledge exchange established
		4.4 Fertilizer analytical services available for fertilizer quality assurance
3. Optimise data and information for effective planning and monitoring	3. Greater Efficiency, Resilience and Sustainable Use of Inorganic and Organic Fertilizer Inputs and Enhancement of Soil Health Interventions	3.3 A digital information platform and database established
4. Ensure enabling policy, legal and regulatory frameworks	1. Improved Policies, Investment, Finance and Markets for Sustainable Soil Health and Fertilizer Management	1.1 Improved policy environment
		1.2 Improved financing and investment



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