

# POLICY BRIEF

## Making Climate Smart Agriculture Innovations One Health Sensitive

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## SUMMARY

Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) is a project that helps deliver a climate-smart African future, driven by science and innovation in agriculture. As the world strives to feed the increasing human population through improved agri-food systems, it is important to ensure that we are combating climate change and sustaining the health of the ecosystem. Climate Smart Agriculture (CSA) innovations enhance our adaptation and mitigation of climate change by making these CSA practices One Health sensitive. That is, the CSA practices ensure a healthy ecosystem (humans, animals and plants, and their shared environment). This policy brief highlights CSA and One Health concepts and outlines how CSA innovations and for that matter, any innovation can be made One Health sensitive. Ensuring CSAs are One Health sensitive brings great benefit to our agri-food systems, livelihoods as well as to the ecosystem.

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## INTRODUCTION

To meet global demands of increasing population, especially food and nutrition, there have been increase in production either by expanding area under cultivation or increasing productivity of existing cultivated lands. However, efforts to increase production are severely impacted by biotic and abiotic stresses including pests, diseases and climate change resulting in excessive use of agrochemicals, habitat destruction and ecosystem changes. To address the challenge of climate change, global and regional policy frameworks such as the SDGs and the AU Agenda 2063 among others captured climate change adaptation and mitigation measures. Several other initiatives such as UNFCCC Paris Agreement on Climate Change, UN Decade on Ecosystem Restoration and Africa Adaptation Initiative among others are being implemented. In line with the above efforts, the Consultative Group for International Agriculture Research (CGIAR) with support from the World Bank initiated a project titled – Accelerating Impact of CGIAR Climate Research for Africa (AICCRA). The AICCRA project is aimed at driving scientific innovations for climate change mitigation and adaptation into African agri-food systems. This policy brief highlights measures to ensure that the climate-smart agriculture innovations being introduced under this project are one health sensitive.

# CLIMATE SMART AGRICULTURE AND THE ONE HEALTH CONCEPT

## Climate Smart Agriculture

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According to the Food and Agriculture Organization (FAO), Climate Smart Agriculture (CSA) is an approach that helps guide actions to transform agri-food systems towards green and climate resilient practices. CSA supports reaching internationally agreed goals such as the SDGs and the Paris Agreement. It aims to tackle three main objectives: sustainably increasing agricultural productivity and incomes; adapting and building resilience to climate change; and reducing and/or removing greenhouse gas emissions, where possible. What constitutes a CSA practice is context-specific, depending on local socio-economic, environmental and climate change factors and may include innovations that reduce agricultural water use, adapt production systems to climate related stresses and reduce greenhouse gas emission among others.

The CGIAR considers CSA as an integrative approach to address the interlinked challenges of food security and climate change that explicitly aims for three objectives: 1. sustainably increasing agricultural productivity, to support equitable increases in farm incomes, food security and development; 2. adapting and building resilience of agricultural and food security systems to climate change at multiple levels; and 3. reducing greenhouse gas emissions from agriculture (including crops, livestock and fisheries). Different elements which can be integrated in climate-smart agricultural approaches include: management of production systems (farms, crops, livestock, aquaculture and capture fisheries) for sustainable resource utilization to produce more with less while increasing resilience; ecosystem and landscape management to conserve ecosystem services for increased to increaseingd resource efficiency and resilience; and services for farmers and land managers to enable them to implement the necessary changes.

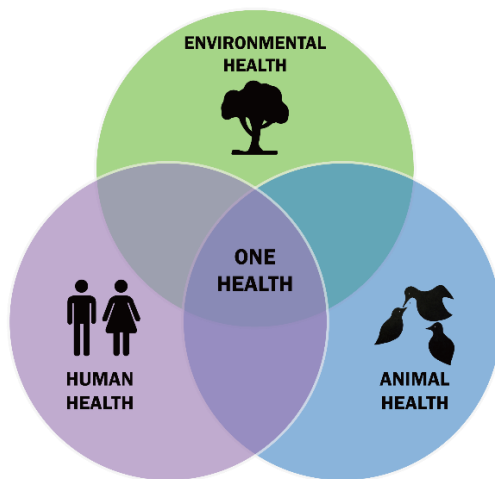
## The One Health Concept

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The World Health Organization (WHO) defines 'One Health' as an approach to designing and implementing programmes, policies, legislation and research in which multiple sectors communicate and work together to achieve better public health outcomes. The FAO provides a more inclusive definition as an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems. It recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent. FAO promotes a One Health approach as part of agrifood system transformation for the health of people, animals, plants and the environment. This involves a spectrum of actors and work on sustainable agriculture, animal, plant, forest, aquaculture health, waste management, antimicrobial resistance (AMR), food safety, food security, nutrition and livelihoods. Ensuring a One Health approach is essential for progress, to anticipate, prevent, detect and control diseases that spread between animals and humans, tackle AMR, ensure food safety, prevent

environment-related human and animal health threats, as well as combatting many other challenges. A One Health approach is also critical for achieving the global, regional and national goals.

The One Health concept has been overly focused on human and animal health, with little focus on plant and environmental health and most importantly, the link with agriculture (crops, livestock and aquaculture). Apart from the impact of antibiotic use in livestock production, general agrochemical (insecticides, weedicides, fungicides, plant growth regulators and fertilizers) use has huge impact on human, animal and environmental health. It is important to identify these impacts and manage the risks associated with them as part of a wholistic One Health approach to the implementation of any programme. Ghana's draft National One Health policy expects the Ministry of Food and Agriculture to provide technical support for safe, hygienic and nutritious crop production, pest control, disease management and animal health as the Ministry's role in the implementation of the policy.



[The One Health Triad](#)

As we implement programmes to improve our agri-food systems, it is important to ensure that the systems are also One Health sensitive. Being One Health sensitive means that the innovations are proven to have no adverse effects on human, animal and environmental health and not only improvement of crop/livestock health. For example, in implementing a livestock production system, selection of feed source that has low greenhouse gas emission, managing antibiotic use to prevent residues in meat and the environment, managing waste to reduce greenhouse gas emissions and transmission of zoonotic diseases among others make the production system climate smart and One Health sensitive.

## **Ecosystem Benefits of One Health Sensitive CSAs**

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The efforts to integrate agri-food systems, One Health and climate change, especially specifically seeking out opportunities to link adaptation and mitigation efforts results in holistically maximizing multiple

outcomes and minimizing tradeoffs in management. CSA practices and technologies aim to improve food security, resilience, and low emissions development, where possible and appropriate. Beyond the benefits of CSAs, ensuring they are One Health sensitive makes agri-food systems sustainable, environmentally friendly and economically viable, resulting in sustainable livelihoods, healthy people, animals and plants. Economically, it reduces excess money spent on the outcome of input-use and savings on managing human, animal and environmental health problems.

## ENSURING ONE HEALTH SENSITIVITY OF KEY AICCRA CSA INNOVATIONS

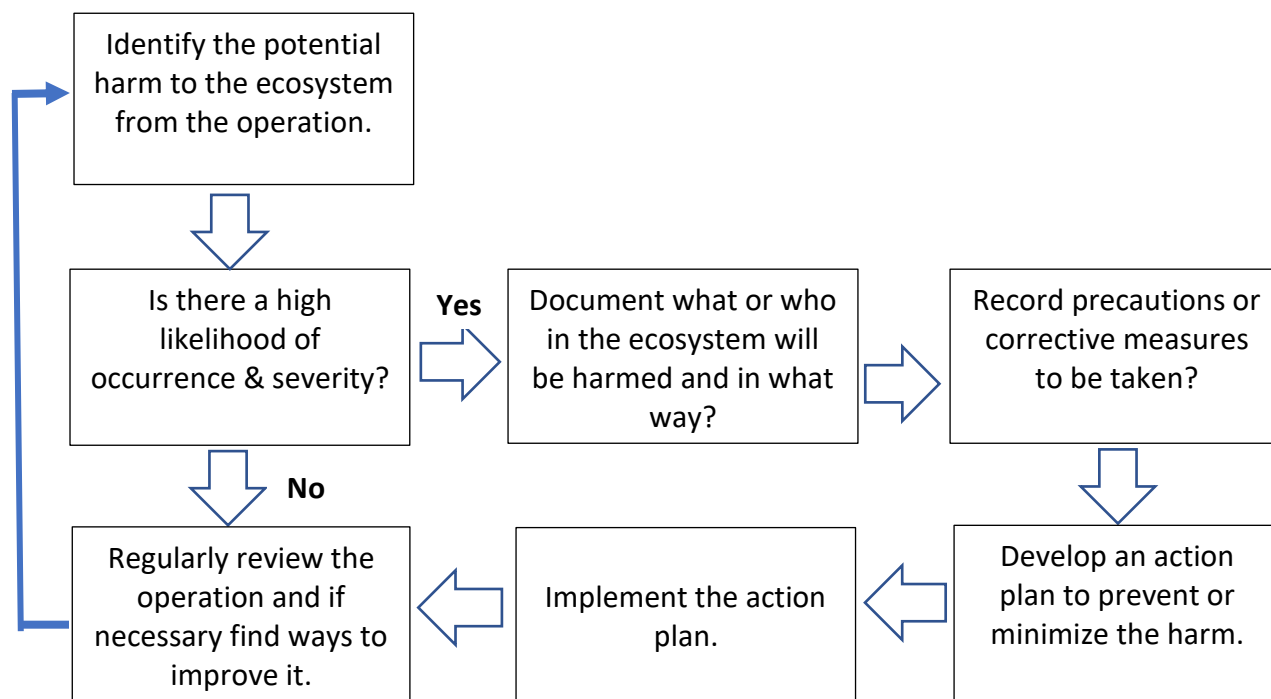
The health of humans, animals, plants and their shared environment (i.e. the health of the ecosystem) should be assessed by their sustainability, financial savings and social resilience achieved during any human economic operation. When assessing a One-Health risk of an operation, it is important to identify **what** might go wrong (hazard) with humans, animals, plants and their shared environment (soil, water and air) now or in future and **how** it can occur due to the operation. The identified hazard is then evaluated and the needed measures to prevent or minimize the negative effects to the ecosystem's health (i.e. sustainability, financial savings and social resilience) are determined.

For the key AICCRA CSA innovations, protocols will be examined for each operation (activities; equipment/products/inputs to use; where/when and how they will be used) and answers to the following questions sought and the set of actions proposed in the steps below taken:

- What is the potential harm this operation will have on other components of nature (the ecosystem)?
- What is the likelihood of it happening and severity on the ecosystem when the operation is undertaken?
- Who or what might be harmed? *Eg. Farm hands, water, useful soil fauna, natural enemies, other beneficial organisms etc can be harmed by a particular pesticide to be used.*
- How will they be harmed? *Eg. Polluted water unwholesome for human and animal use and will cause a fortune to clean it; Targeted pest may develop resistance to the pesticide and call for more frequent and expensive pesticide usage.*
- Evaluate the risks and decide what precautions/corrective measures to take. *Eg. Observe the recommended dosage; Do not use the same active ingredient of pesticides repeatedly beyond 25 successive days on the crop; Alternate pesticides with respect to their different modes of action in order to delay or prevent resistance.*
- Document the findings and develop an action plan to prevent or minimize the harm.
- Implement the action plans (precautions/corrective measures) by incorporating in what are on the protocols.

- Review the implementation and if necessary find ways to improve the operation by repeating the steps.

### Flow Diagram



### CONCLUSION

As we strive to improve agri-food systems towards attaining national, regional and global goals by adopting science, technology and innovation, it is important to keep our eyes on the bigger picture and adopt a systems approach. Innovations should be seen through the lenses of the ecosystem, ensuring that all components are minimally impacted negatively. Thus the focus should not be on maximizing production but rather sustainable optimum production, with present and future of the ecosystem in mind. The AICCRA project has incorporated into all its protocols and manuals a One Health sensitivity check to ensure sustainability.





**AICCRA**  
Accelerating Impacts of CGIAR  
Climate Research for Africa



## About AICCRA

**Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) is a project that helps deliver a climate-smart African future driven by science and innovation in agriculture.**

**It is led by the Alliance of Bioversity International and CIAT and supported by a grant from the International Development Association (IDA) of the World Bank.**

**Discover more at [aiccra.cgiar.org](http://aiccra.cgiar.org)**

