

Identifying current research priorities and needs in sustainable agriculture intensification and climate change: AAS and CIRCLE experience

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- Current research priorities of CIRCLE Visiting Fellows
- Research of CIRCLE Fellows in Agriculture
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The African Academy of Sciences

- The AAS is a pan African organisation driving sustainable development in Africa through science technology and innovation.
- Tripartite mandate
 - Recognising excellence
 - Providing scientific advisory to policy makers
 - Implementing key science, technology and innovation programmes
- Programme Areas
 - Climate Change.
 - Health and Wellbeing
 - STEM (Science, Technology, Engineering and Mathematics)
 - Water and Sanitation
 - Food Security and Nutritional Wellbeing
 - Sustainable Energy

CIRCLE Programme

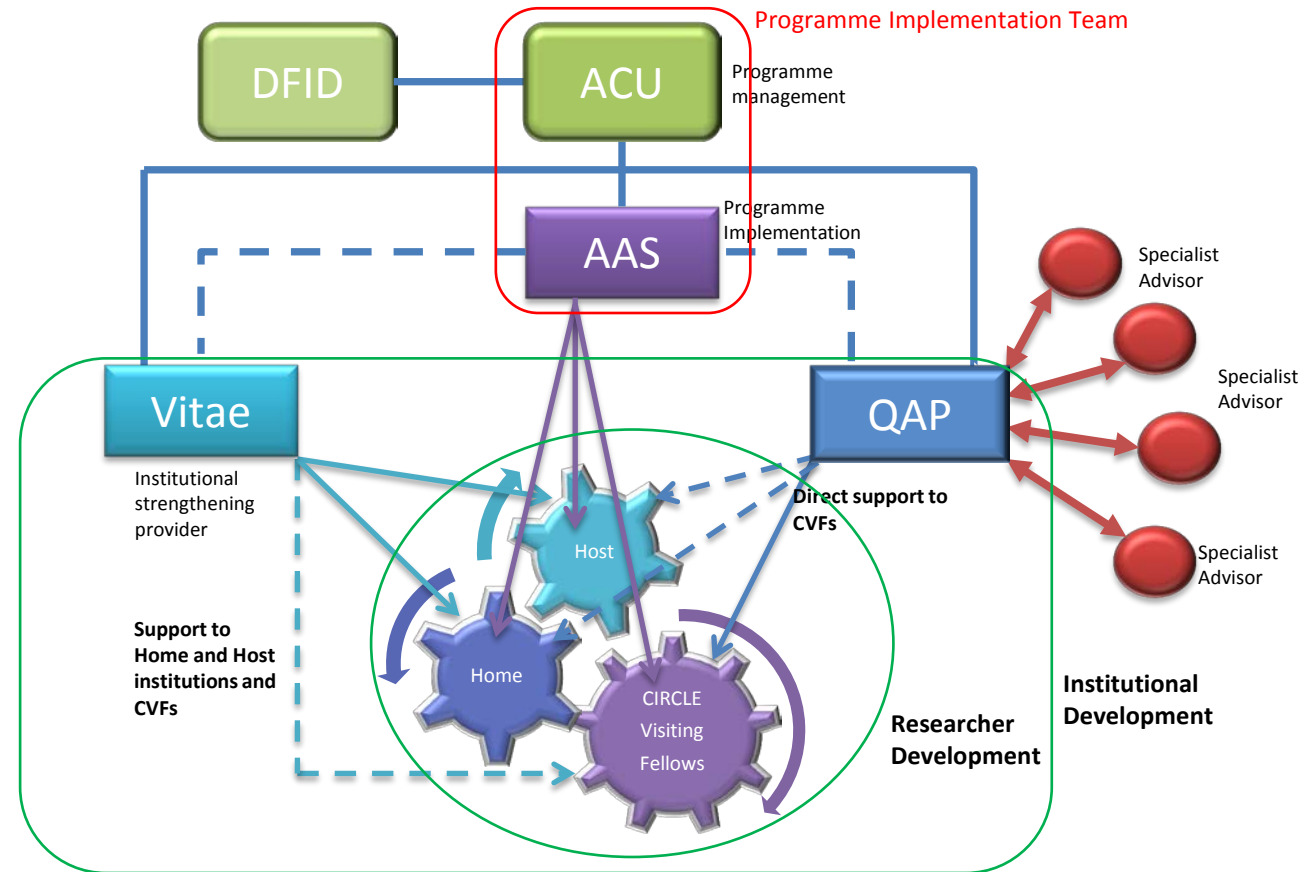
- Climate Impacts Research Capacity and Leadership Enhancement (CIRCLE) programme implemented by AAS and ACU; funded by DFID
- CIRCLE has become a cross-cutting platform allowing researchers with different expertise and experience to converge.
 - Water
 - Agriculture
 - Health and livelihoods
 - Energy
 - Policy

CIRCLE Programme

Objectives:

- Individual Researcher development
- Institutional development

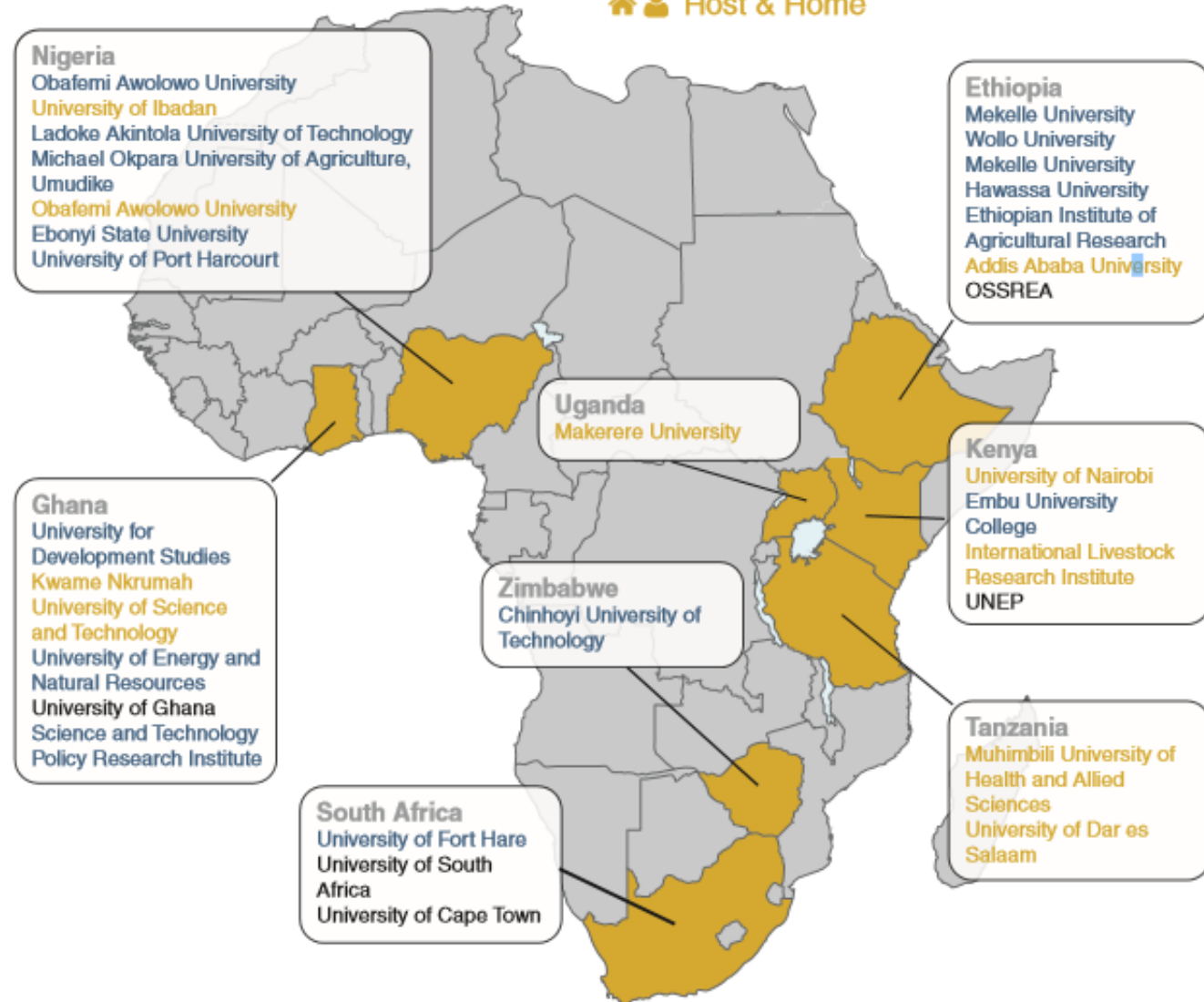
CVFs			
Country	C 1	C 2	C3
Ethiopia	5	4	6
Ghana	5	6	5
Kenya	4	0	3
Nigeria	12	13	12
S. Africa	2	2	3
Sudan	1	0	1
Tanzania	3	2	4
Uganda	1	1	1
Zimbabwe	1	1	2
Total	34	29	37



CIRCLE Programme

- Post-Masters fellowships
- Post-PhD fellowships
- Intra-African collaboration
- Exposure to new research systems and idea
- Exposure to new research systems and idea
- Time off normal workloads to think and create
- Specialist Advisors carefully selected and well briefed
- Institutional research needs/gaps assessment
- Long-term relationships and network development
- Research Uptake funding

🏠 Home
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Current research priorities - CIRCLE Fellows

Breakdown by thematic area

Thematic Area	Cohort 1	Cohort 2	Cohort 3	Total
Agriculture	18	14	11	43
Energy	2	2	4	8
Health and Livelihoods	6	8	8	22
Policy	5	4	9	18
Water	3	1	5	9
TOTAL	34	29	37	100

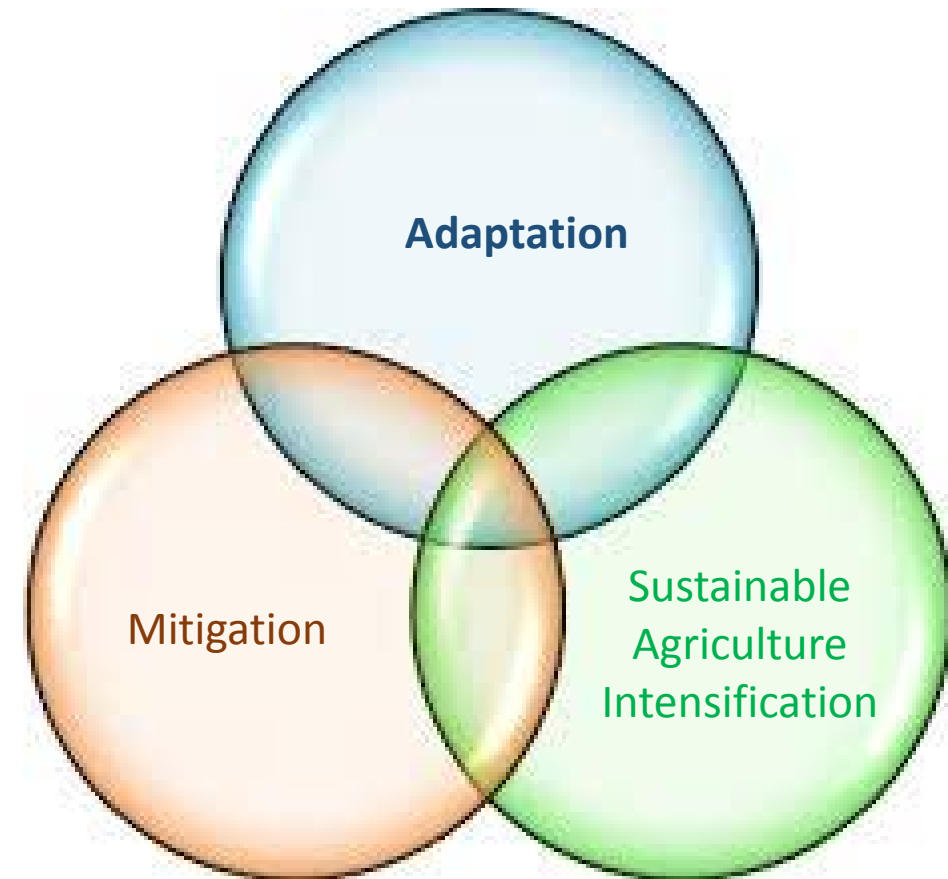
Research of CIRCLE Fellows in Agriculture

- Adaptation is the main theme. Focus have been on:
 - Getting more output from agriculture with same or little input under changing climate
 - Inputs: land, seed, time, labour, money, fertilizer, feed
1. Molecular characterization and evaluation of elite maize germplasm for drought tolerance.
 2. Evaluation of genetic variability within African-Yam- Bean accessions for food security in a climate changing scenario using Single Nucleotide Polymorphism
 3. Collection, Characterization and Evaluation of Farmers' Landraces of Maize (*Zea mays* L.) for adaptation to Climate change in Ghana
 4. Influence of climate on sweet potato nematodes
 5. Evaluation on the yield of vegetable crops grown under selected drought tolerant tree species in Wukro, Tigray Region
 1. Simulating the impacts of climate change on yield of maize (*Zea mays*) in savanna agroecological zone
 2. Climate smart technologies for improving crop yield & reducing yield variability and vulnerability
 3. Exploiting biochar and rhizobial inoculants as climate – smart agricultural options in enhancing soybean productivity in smallholder farms in Ghana.
 4. Analysis of climate change adaptation measures and constraints faced by cocoyam farmers in Southeastern Nigeria
 5. Smallholder climate change adaptation opportunities through integrated livestock and water management.

Identified gaps/needs related to sustainable agriculture intensification and climate change

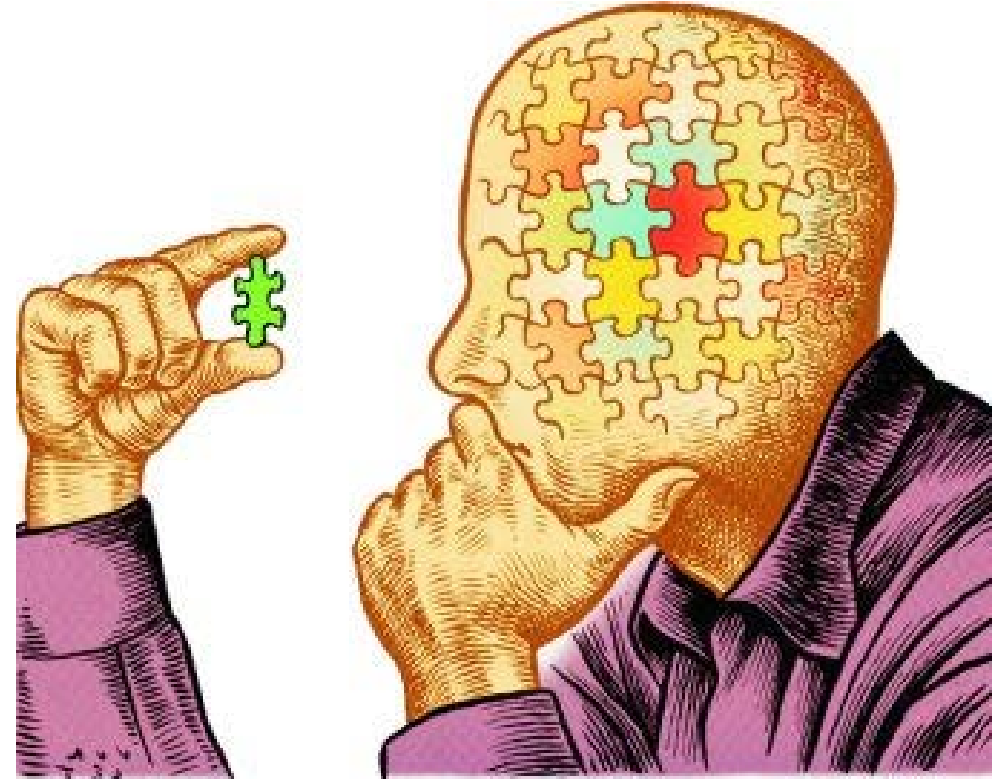
Identified gaps/needs related to sustainable agriculture intensification and climate change

- Consciously exploring interlinkages between adaptation, mitigation, and sustainable agriculture intensification (SAI); not mutually exclusive
 1. SAI can contribute to adaptation: building ecosystem services, increasing farm incomes
 2. SAI concerns reduced emissions per unit of output, through lower direct emissions and less land cover change



Identified gaps/needs related to sustainable agriculture intensification and climate change

- Conceptualizing research with innovative end-product in mind to engage the private sector
 - Who knows about this?
 - Who knows what will come out?
 - Who would like to use?
 - Who can afford to use?
 - Who will help to use?



Addressing identified gaps related to sustainable agriculture intensification and climate change

- Consciously exploring interlinkages between adaptation, mitigation, and sustainable agriculture intensification (SAI); not mutually exclusive
- **Rethinking model**
 - Capacity building options
 - Thematic areas
 - Hosting and research leadership options



Addressing identified gaps related to sustainable agriculture intensification and climate change

- Conceptualizing research with innovative end-product in mind to engage the private sector

Research Uptake

Research Dissemination

- Distributing research mainly in academic community; one way process

Research Communication

- Making known outputs to wide range of stakeholders and getting feedback

Research Uptake

- Purposeful activities to stimulate end users to awareness of, access to and application of research

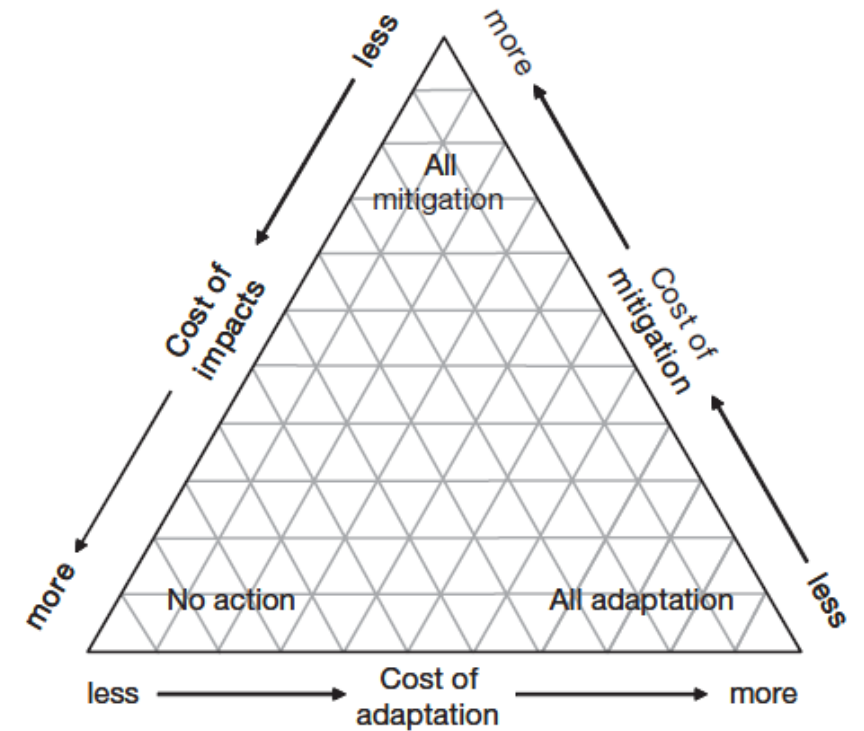
Addressing identified gaps related to sustainable agriculture intensification and climate change

- Conceptualizing research with innovative end-product in mind to engage the private sector
 - **Community or end-user endorsement**
 - **Industrial partnership**
 - **Scalable end-products**



Conclusion

- Innovative climate change interventions integrating sustainable agriculture intensification into adaptation and mitigation would consider the interlinkages to ensure positive consequences are enhanced and negatives minimized.



A schematic overview of inter-relationships between adaptation, mitigation and impacts, based on Holdridge's life-zone classification scheme (Holdridge, 1947, 1967)

Thank you