



Forum for Agricultural Research in Africa

# Mapping agricultural institutions to improve efficiency of TAE systems:

## ***The eCapacities initiative***

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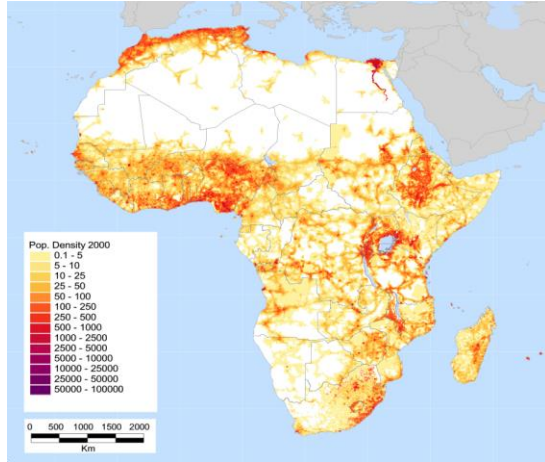
Forum for Agricultural Research in Africa (FARA)

*InnovATE meeting – Washington DC 18– 20 Sept, 2013*

# Outline

1. Background
2. The innovation dynamics and the changing role of the university and HE institutes
3. Agricultural skills and competences and shifting locus of labor demand for
4. Opportunities and decision support for reform – the eCapacities platform in Agriculture for Africa
5. Lessons and Looking forward

# Background



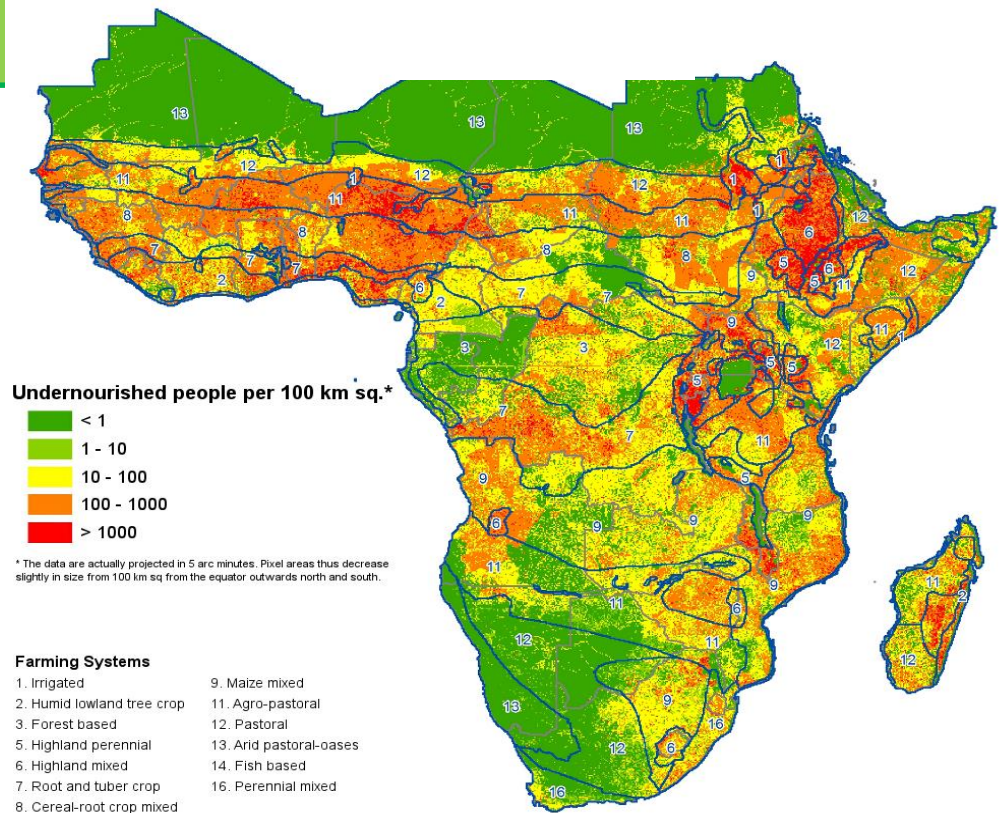
Source: United Nations Environment Programme  
Global Resource Information Database,  
<http://na.unep.net/siouxfalls/datasets/datalist.php>

- **Africa : Second most populous continent**
- Population increased by 23% between 2008 & 2009
- This rapid growth in population comes with cumulative costs



- 25% food deficit today, yet expected to produce enough for the 1.8 bn. in 2050

# Density of undernourished people by farming system



- 218m live in extreme poverty
- Increase in dependency ratio due to high unemployment and vulnerable employment
- Highest density of under-nourishment in Eastern & Southern Africa is in high potential areas

Source: Garrity et al, 2012

- 72% youth population live on less that \$2 per day
- Poverty is still rife in Africa



Source: Modern Ghana, [www.modernghana.com](http://www.modernghana.com)



# New dynamics in higher education, research and innovation

- Systems of knowledge production covering vast range of entities
  - **(universities, public laboratories, research centres and think-tanks run by policy and civil society groups, industry and the private sector etc)**
- Need more flexibility in organized research systems and pragmatic approaches which promote “Big Science”
- Agricultural development policy on the continent is increasingly informed by the use of “agricultural innovation systems (AIS)”
- Strategies, curricula, and policy shifts need to emphasize and include women as role models and leaders in agriculture

# Challenges in building research & scientific capacity

## Key issues

- resources to provide access, equity, quality, relevance, ownership, governance and international networking
- The role of research in universities and linkage to research institutes
- How to balance investments across various levels of the education system
- The optimization of scarce resources
- How to invest in basic conditions for research, as opposed to high-profile projects
- How to ensure the utilization of research findings to stimulate innovation

# The need for TAE to be better integrated in the AIS

## Engaging with rural communities:



Need new curricula for :

- scientists and extension agents that is co-created with farmers (especially women) and rural entrepreneurs
- appropriate knowledge and skills frameworks for crafting rural institutions that are responsive to the needs of poor people
- project execution and management skills to be applied in family and community enterprises

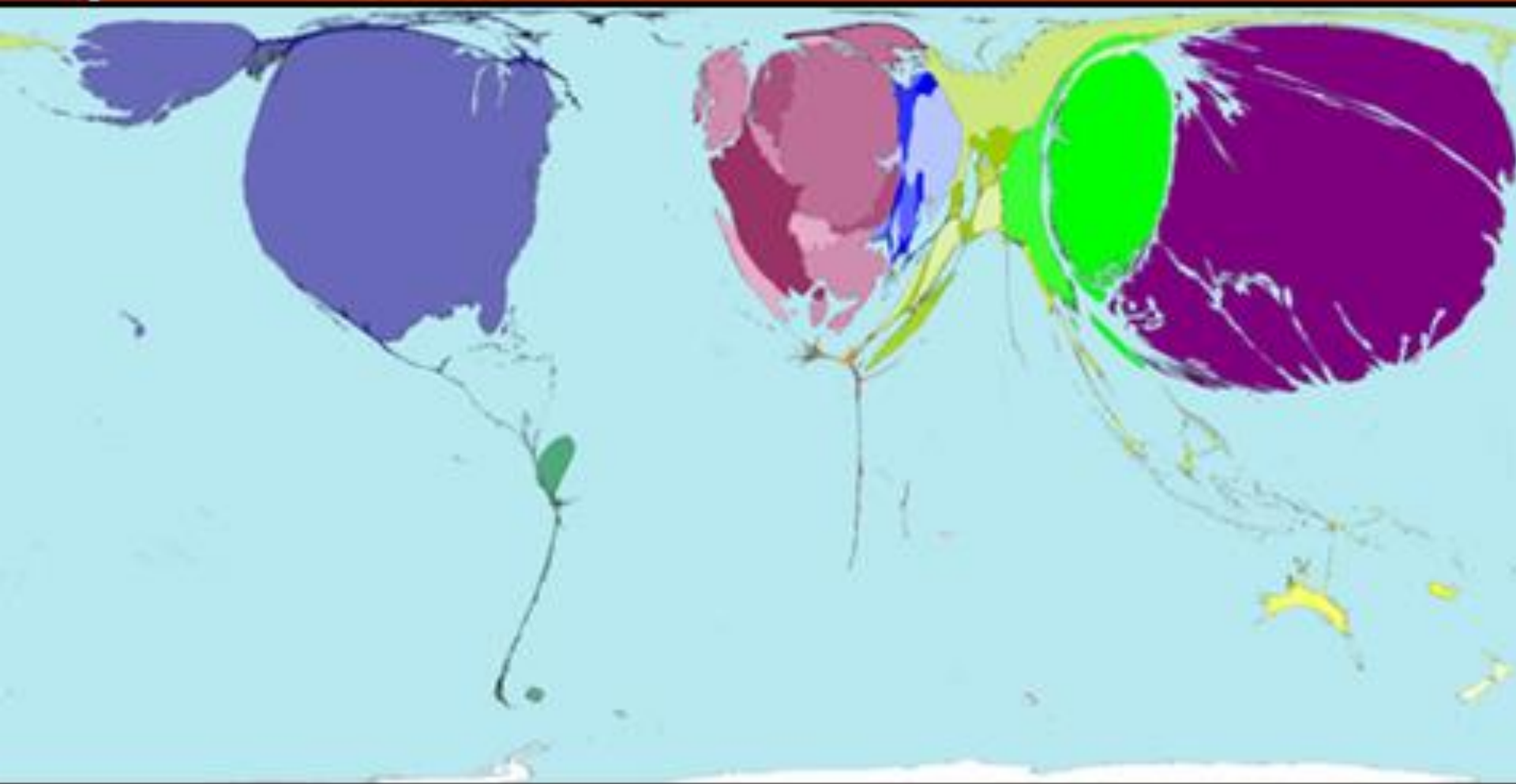
# Reality of Education and training in Africa

- Africa's top university is 324<sup>th</sup>
- *Université de Ouagadougou* is 4984<sup>th</sup>
- **2013 Liberia university entrance results underscores the linkage to the entire education system!!!!**
- Africa's share of world science is **decreasing!!!!!!**



# New Patents

(source: [www.worldmapper.org](http://www.worldmapper.org))



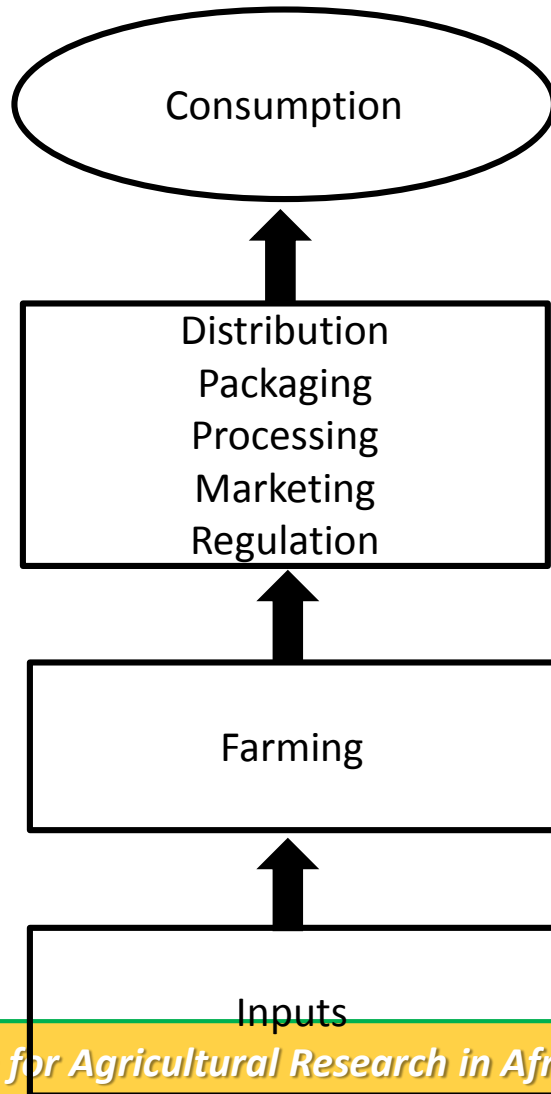
# Competences demanded by Agricultural industry

	<b>Skills and competencies Required</b>
<b>Certificate Level</b>	Hands-on skills/experience, communication skills, general agricultural knowledge, attitudes, leadership ability, understanding of financial issues
<b>Diploma Level</b>	Hands-on experience, theoretical knowledge, supervisory skills, communication skills, farm management skills, financial management skills, leadership ability
<b>BSc Level</b>	Professional and technical knowledge, general agricultural/NRM knowledge, specialization in a particular field, adequate theory,, hands-on/practical skills, managerial/supervisory skills, analytical skills
<b>MSc/PhD</b>	Strong theory and research skills, good understanding of industry with business management skills, good communication skills, ICT skills, leadership ability, policy analysis skills, and good proposal and report writing skills

*(After Blackie et al. 2011)*

# The shifting Locus of Labor Demand

## Food value chain



### Skill requirements

Growth,  
2010-2050

Employment  
sector

- Food policy
- Nutrition
- Food safety
- Packaging
- Food biochemistry
- Logistics mgmt
- Supply chain mgmt
- Financial mgmt

5-6X

Mostly  
Private

- Plant breeding/agronomy
- Entomology
- Animal science
- Vet. medicine
- Extension

2-3X

Mostly  
public

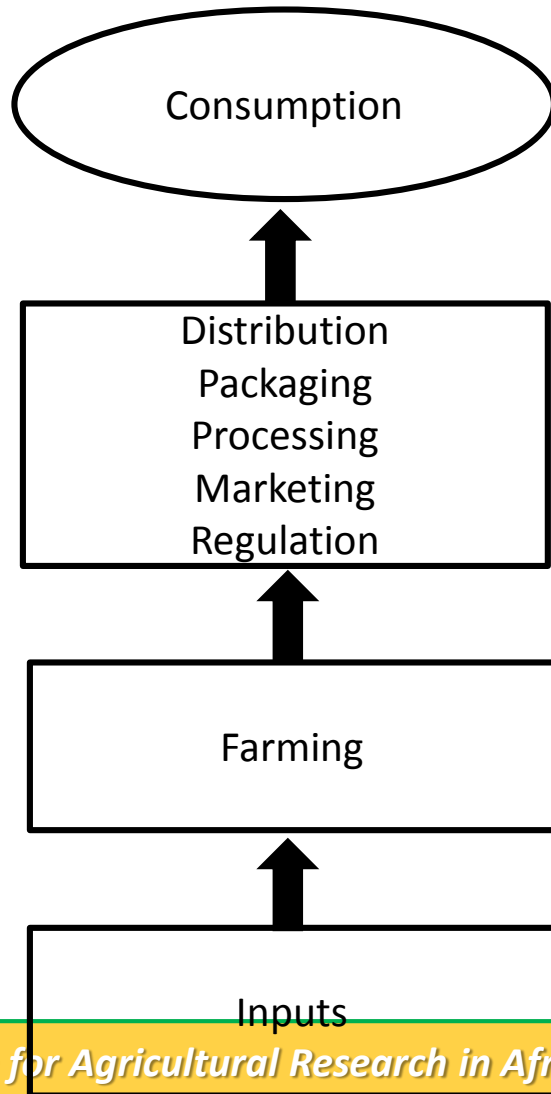
- Chemistry
- Engineering
- Marketing

10X

Mostly  
private

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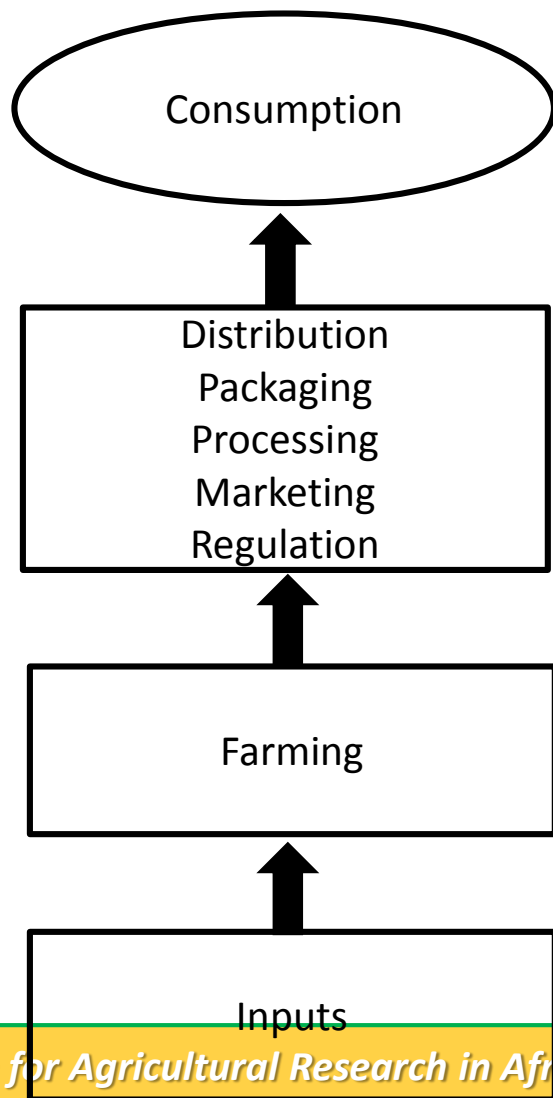
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# The shifting Locus of Labor Demand

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- Supply chain mgmt
- Financial mgmt

### Growth, 2010-2050

5-6X

2-3X

10X

### Employment sector

Mostly Private

Mostly public

Mostly private

**Next 40 years**





# Yet Demand is not driving supply side in human capital formation

## Demand side      workforce      Supply side      Capacities

Research institutions,  
Public sector,  
Banks,

Private sector,  
industries, food  
processing,  
input suppliers

Policy makers,  
scientists,  
researchers,  
managers

Universities  
, colleges

knowledge &  
technology  
Generation

Entrepreneurs,  
traders, processors,

Technical  
institutes, NGOs,  
public extension ,  
apprenticeship

Extension workers

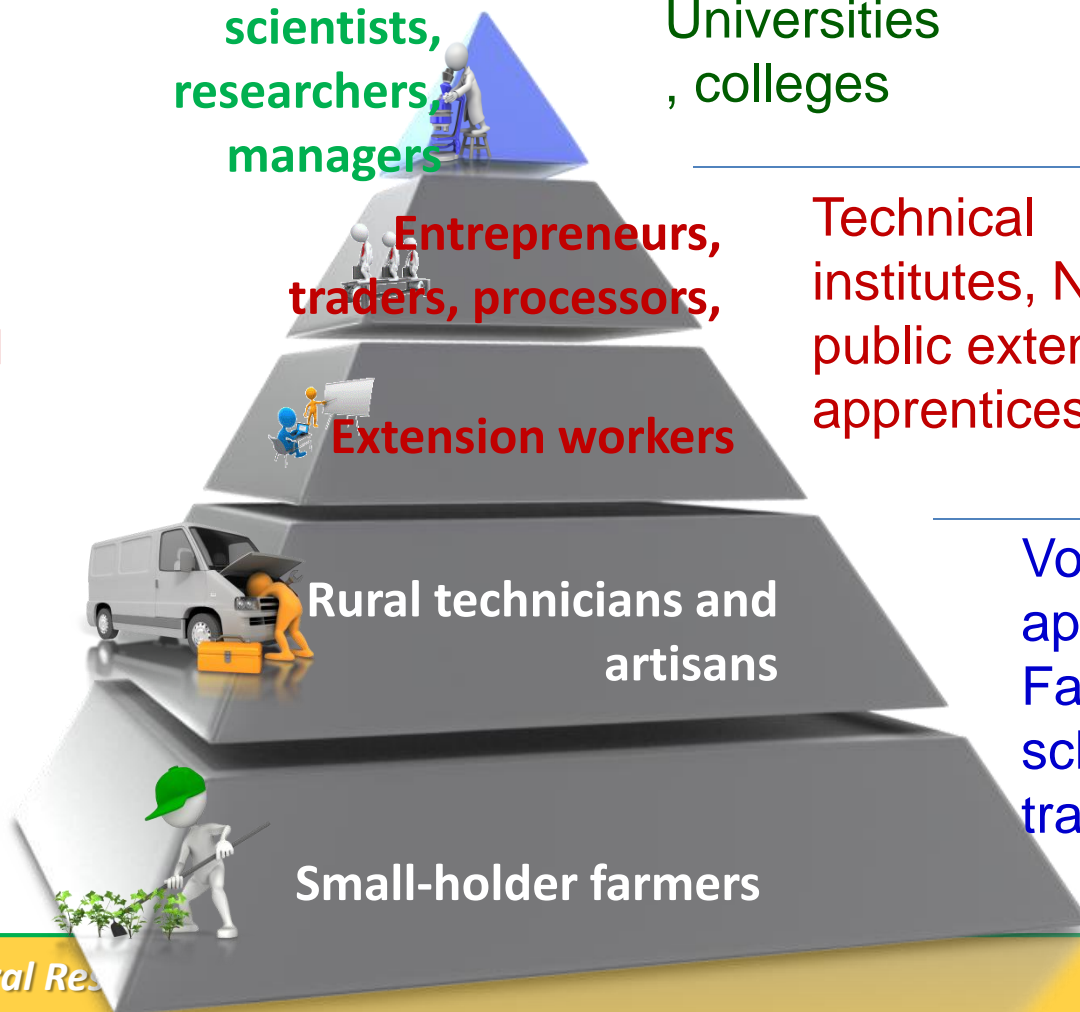
Dissemination

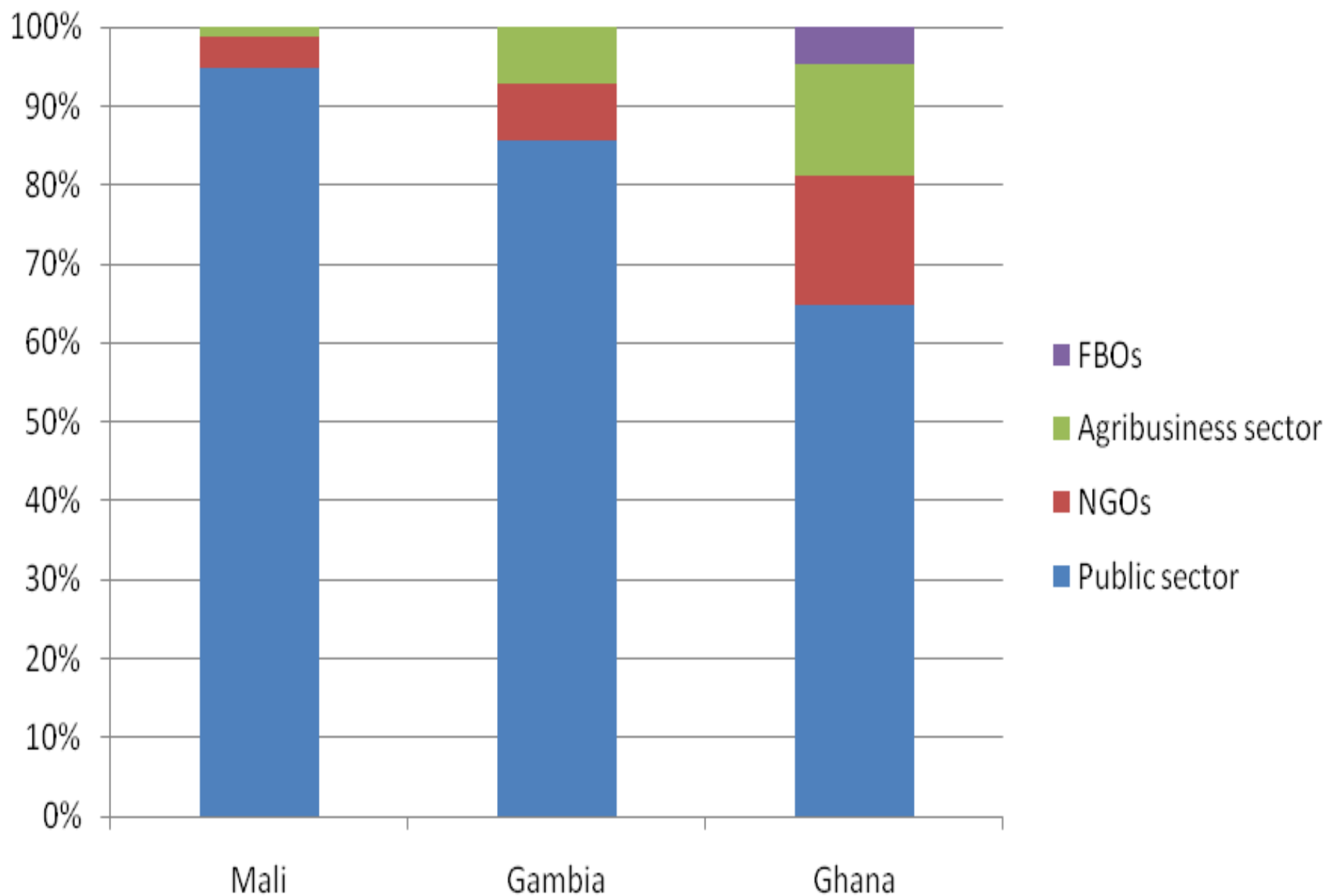
Rural technicians and  
artisans

Vocational institutes,  
apprenticeship,  
Farmer Field  
schools, informal  
training

Small-holder farmers

Adoption





**Graduate absorption sectors**

*(After Blackie et al. 2011)*

# Need for radical reforms - FAAP

**The Framework for African Agricultural Productivity (FAAP) calls for;**

**1. Strengthening Individual, organizational and institutional capacities**

- Strengthen the enabling environment to address challenges (policy, farmers, CSOs)
- Governance, management, infrastructure, responsiveness to demand
- Integration all relevant actors into the innovation system (Innovation Platforms at all levels)

**2. Increased domestic investment**

**3. Increased harmonisation of external support**

# Opportunities for reform - CAADP

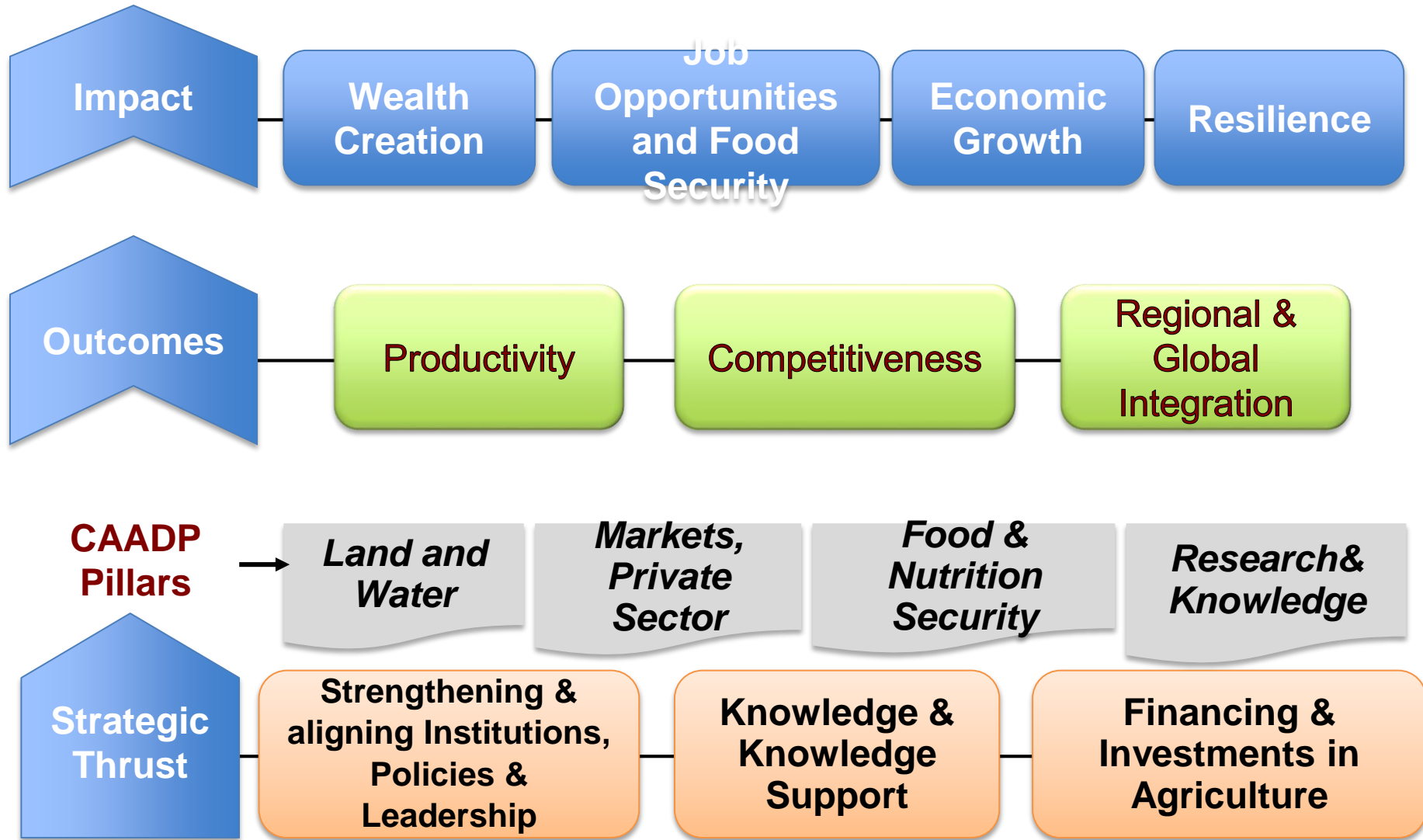
## The Comprehensive Africa Agriculture Program (CAADP)

- is an integrated agricultural organizing *framework*
- It affords nations and regions the space to develop policies and programs for strategic investments based on locally determined priorities

## New CAADP orientation *Sustaining the CAADP Momentum places*

- emphasis on country level implementation
- Need for country level articulation of capacity demands

# Sustaining the CAADP Momentum





# CAADP's Strategic Thrust on Knowledge & Knowledge Support

**Knowledge and knowledge support**  
for public and business stakeholders, including farmer and  
commodity associations

**Knowledge,  
Information  
and Skills (KIS)**

**Agriculture  
Science Agenda**

**ICT in  
Agricultural  
Transformation**

**Agriculture  
Education and  
Training**

# Engaging universities in agricultural development

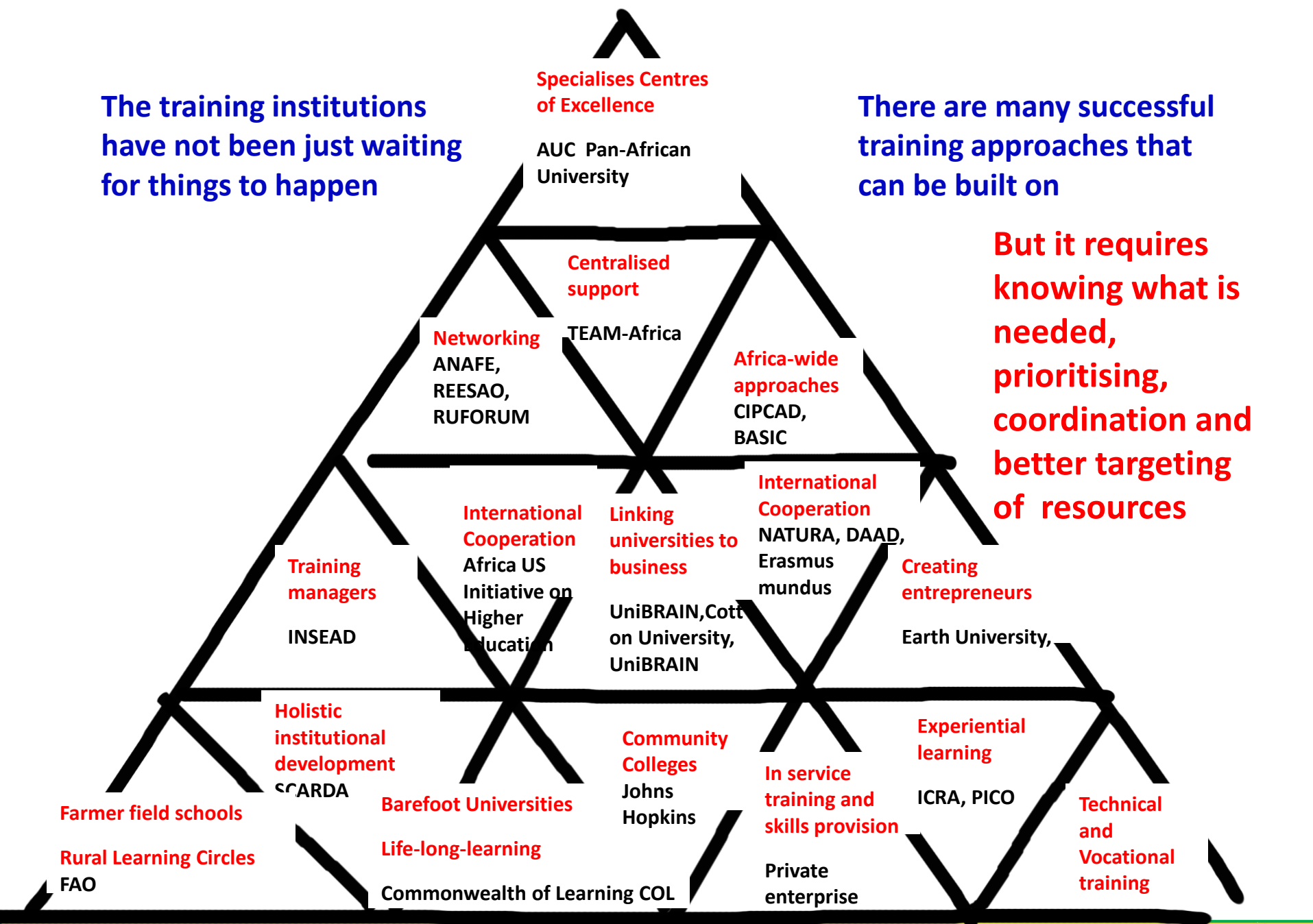
## CAADP will position universities

- to attract resources to obtain better equipment and facilities produce better trained graduates and to conduct quality research
- To reform and create more relevant and competitive programs, produce graduates with good job prospects and *agripreneurs* and attract potential students

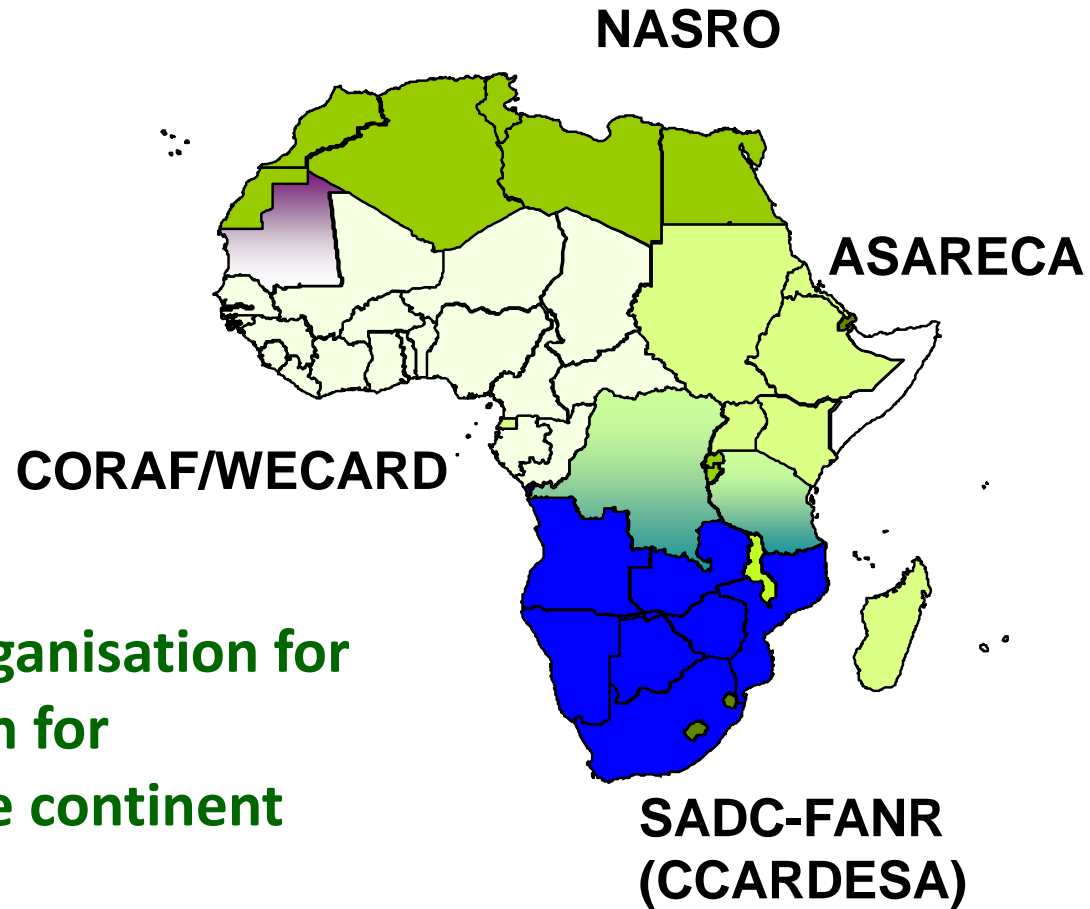
The training institutions  
have not been just waiting  
for things to happen

There are many successful  
training approaches that  
can be built on

But it requires  
knowing what is  
needed,  
prioritising,  
coordination and  
better targeting  
of resources

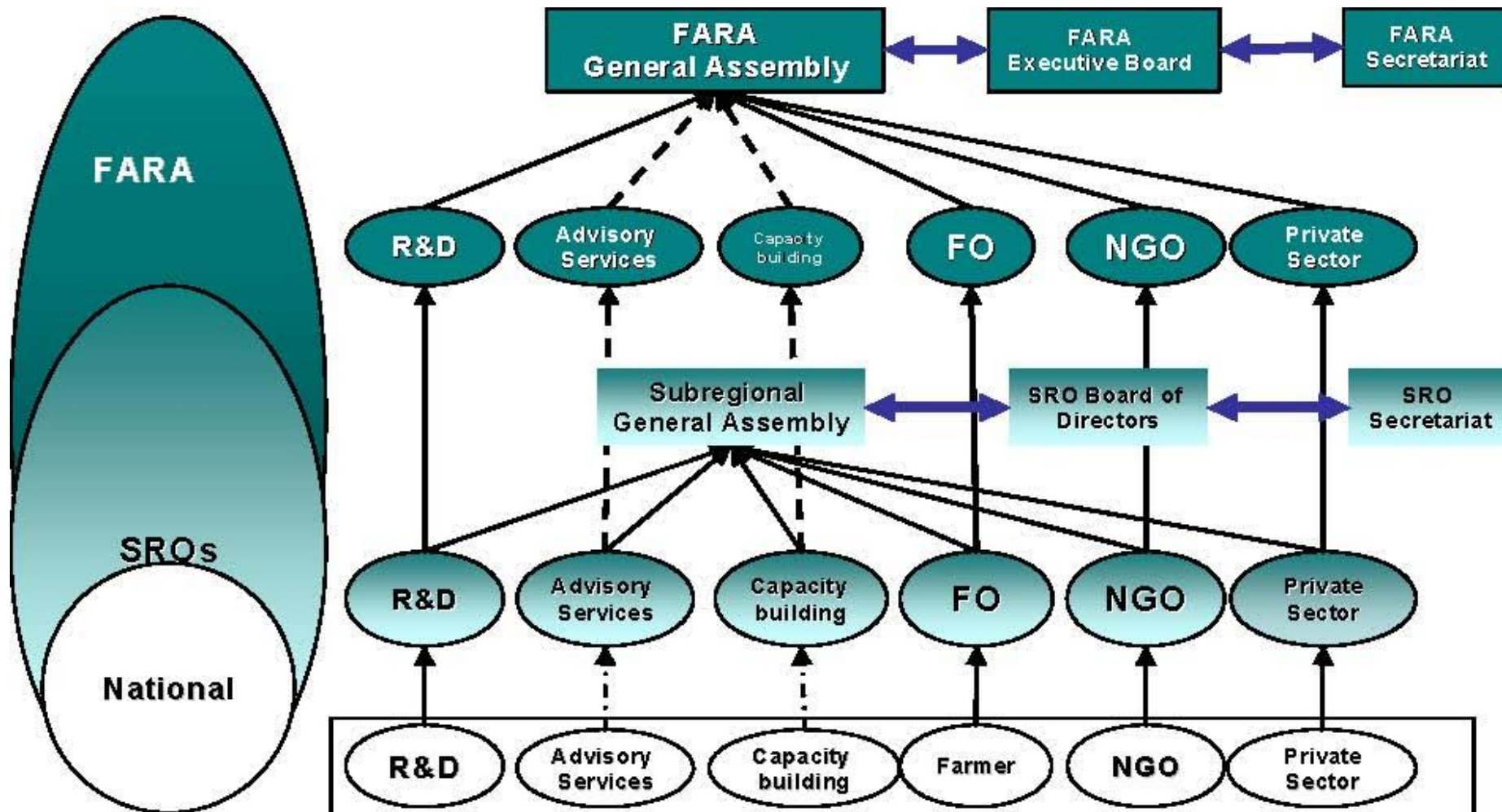


# About FARA: Building Blocks



**FARA is the apex organisation for agricultural research for development on the continent**

# FARA's stakeholders





# Why FARA ?

- Continental collective action
- Continental Policy Frameworks
- Pan-African voice in global forums

Global

Continental/  
Regional

Sub regional

National



# What FARA is doing

**FARA's hands-on experience**

**Actors**

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**SCARDA**  
**SABIMA**

**RAILS**  
**Africa Adapt**

**DONATA**

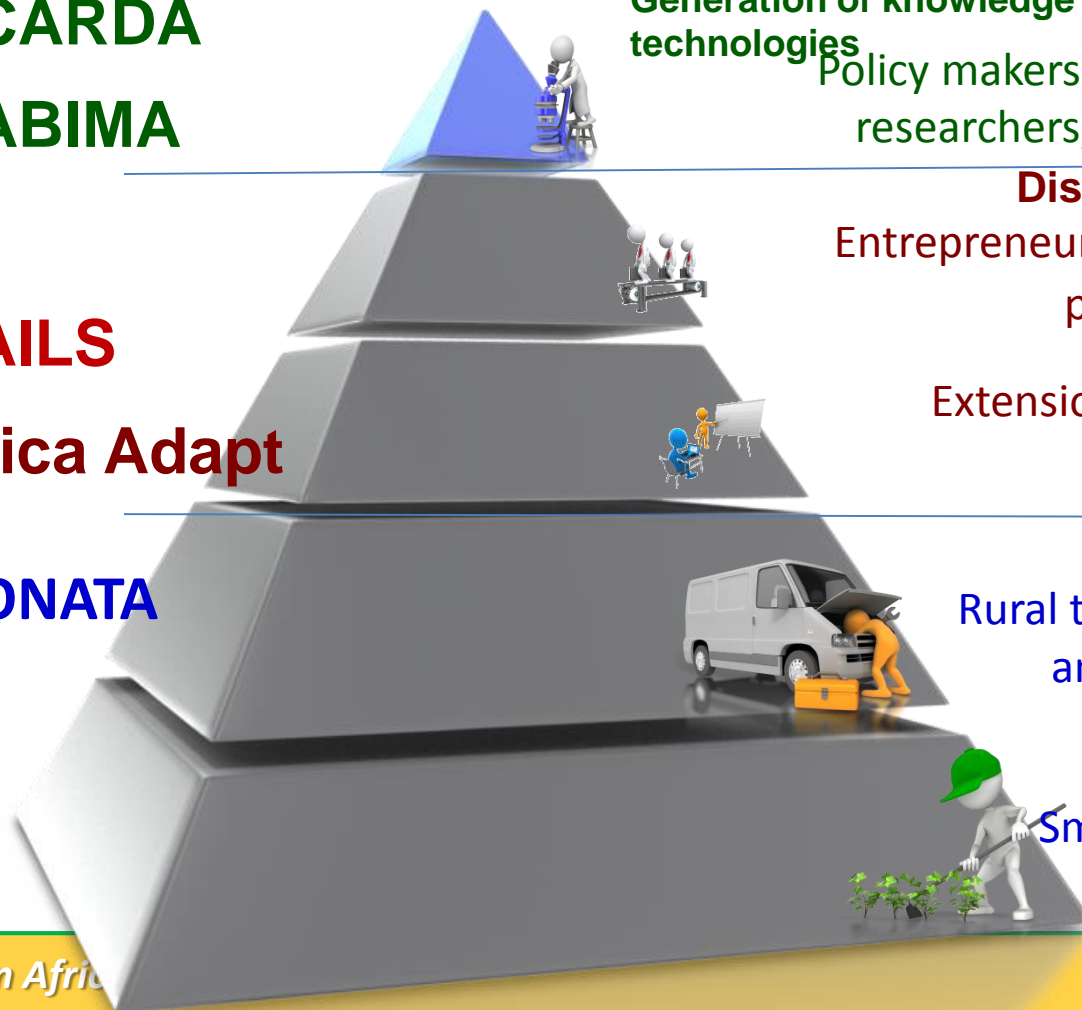
**Generation of knowledge and technologies**  
Policy makers, scientists, researchers, managers

**Dissemination**  
Entrepreneurs, traders, processors,

Extension workers

**Adoption**  
Rural technicians and artisans

Small-holder farmers



# What FARA is doing

## example of the *e-Capacities* decision support

- Little investment is allocated to developing the required capacity and agriculture related institutions particularly training institutions cannot meet today's demand
- A credible capacity to support effective implementation of development strategies and plans is required
- A plan on such a scale must be preceded by stock taking and mapping of the relevant institutions to generate the relevant data and information to provide a credible basis for prioritizing investments



# eCapacities

An online marketplace for the supply and demand of capacities in strategic human capital formation

- The platform provides a real-time review of the levels of capacity and demand in each participating country
- and dynamically estimates the capacity gaps for use in priority setting and targeting of investments

# Africa AgJCD group

The e-Capacities platform is operated by

the Africa Agriculture Joint Capacity Development Group  
(Africa-AgJCD group)

– a community of practice for learning, monitoring and joint action for institutional change in Africa.

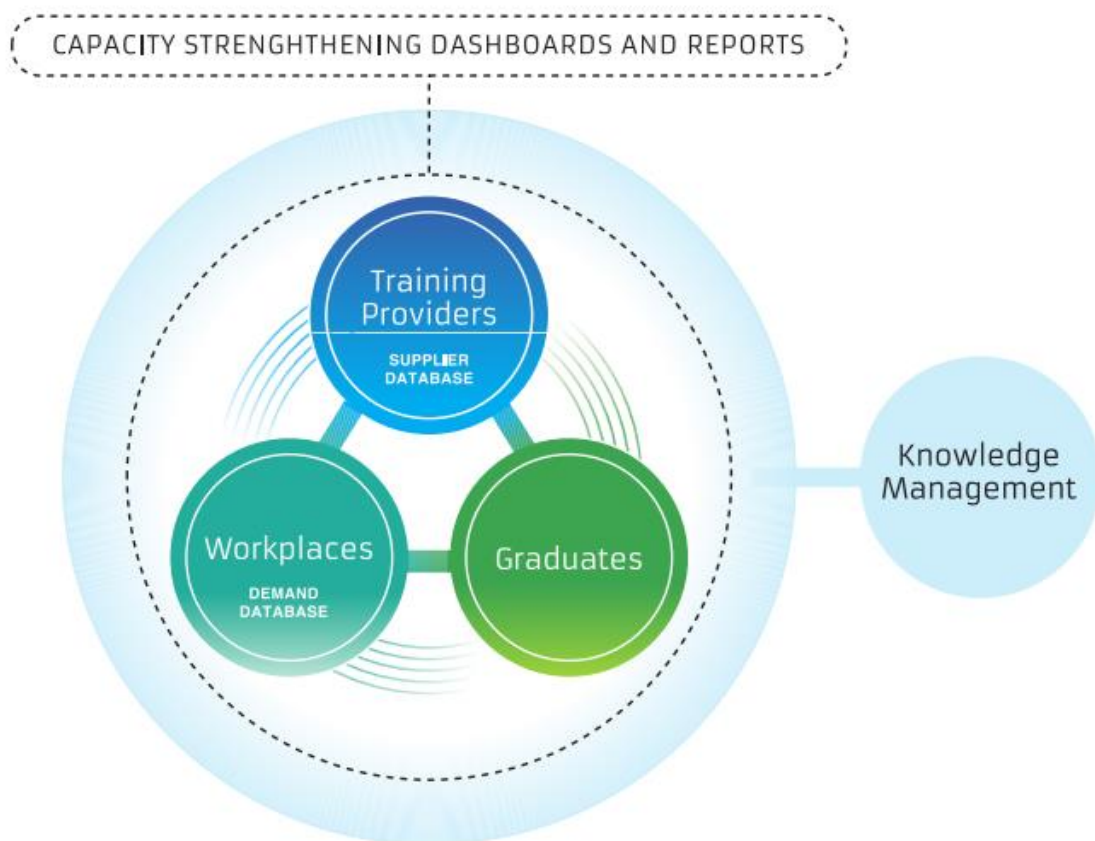
The Africa-AgJCD partners include: NPCA, FARA, ASARECA, CORAF/WECARD, CCARDESA, TEAM-Africa, RUFORUM, ANAFE, REESAO, AAU, ACBF, LENS CD.





# How e-Capacities Works

**e-Capacities connects training providers, workplaces and graduates -- and allows them to interact with each other in contextualised and mutually beneficial ways**



# What eCapacities does

eCapacities is a platform that **collates, tracks** and **reports on** the supply and demand of skills and competencies in the agricultural sector, in order to identify the **gaps** and the **needs** for support and investment in:

- capacity strengthening
- assist employers with identifying and recruiting people with relevant skills and competencies
- help guide career path planning
- facilitate graduate tracking

# Who is eCapacities for?

1. **Supply side organisations** including public and private tertiary agricultural education and training institutes such as:
  - Universities,
  - Colleges
  - Other training providers



# Who is eCapacities for?

**2. Demand side organisations**, i.e. employers of graduates from the tertiary education and training institutes including

- Government
- private sector and agribusiness organisations
- agricultural research institutes
- non-governmental organisations
- farmer based organisations





# Who is eCapacities for?

**3. Graduates**

**4. Development Partners**



# Benefits for Training Providers

- Monitor the industry demand for specific agricultural competencies and skills in order to inform, policy, governance curriculum review and new course design
- Track graduates, and report on their employment trends
- Mobilize support to upgrade training capacity to better address identified shortages
- Promote knowledge products, i.e. innovations, patents and publication

# Training Provider Directory

## Search

## Browse by Region

[Kenya](#)  
[Ghana](#)  
[South Africa](#)  
[Zambia](#)

## Result Set (Showing Providers from South Africa)

<a href="#">University of Kwa Zulu Natal (UKZN)</a>	Durban, South Africa
<a href="#">University of Cape Town (UCT)</a>	Cape Town, South Africa
<a href="#">Durban University of Technology (DUT)</a>	Durban, South Africa

## Map (Showing all Providers)



## Related Links

[New Provider](#)  
[Generate Capacity Reports](#)



# Benefits for Employers

- Record the requirements for specific agricultural competencies within the organisation
- Access profiles of graduates with relevant competencies and skills
- Review the knowledge products uploaded by the providers
- Document the needs / problems experienced within the organisation which will help guide the kinds of research being undertaken
- Identify providers to facilitate in-house lifelong learning

# University of Kwa Zulu Natal (UKZN)

Contact Number 031 300 000  
Email info@ukzn.co.za

Contacts

Susan Smith  
Student Administrator

George Brown  
Student Administrator

Students

31 Students Currently Enrolled

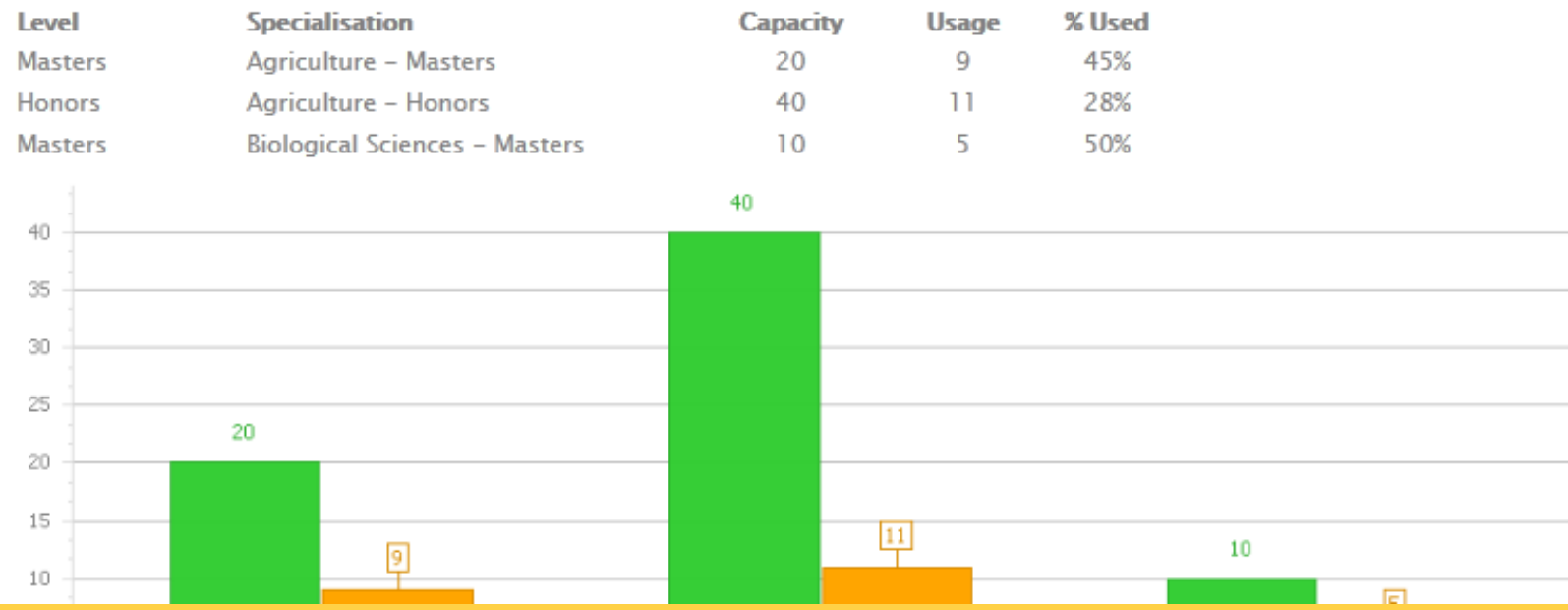
[Enroll a Student](#) | [View Student Directory](#)

Graduates

Currently tracking 46 Graduates  
61% are employed  
72% are employed in their field of study  
84% are employed in their country of study

[View Graduate Directory](#)

## Capacity Utilisation Review



# Benefits for Graduates

- Identify career paths based on market demand for specific skills
- Access work opportunities
- Connect with mentors and peers to promote career progression and personal growth

# UZKN Graduate Directory

## Employment Summary

Show Graduates who are

☒ Employed ☒ Unemployed

With the following qualifications

☒ Bachelors ☒ Honors ☒ Masters ☒ Doctorate

21 Results Found



### Andile Dlamini

Graduated in 2011 with a Masters in Agriculture

Currently employed in Greytown, South Africa as a Consultant at SAPPI



### Susan Williams

Graduated in 2011 with a Masters in Agriculture

Currently unemployed



### John Borland

Graduated in 2011 with a Masters in Agriculture

Currently unemployed

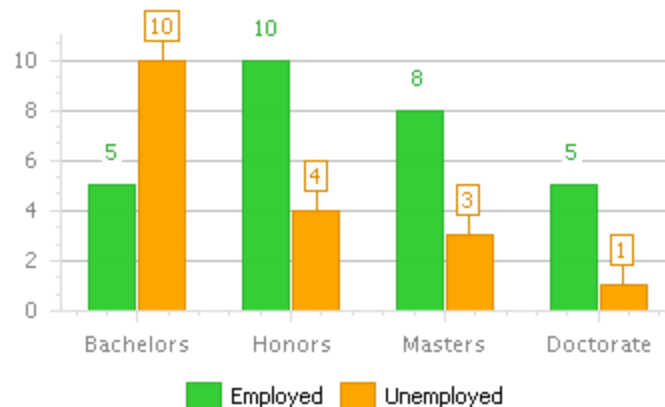


### Zanele Mkhize

Graduated in 2011 with a Masters in Agriculture

Currently unemployed

## Executive Summary



# Development Partners

- Targeted capacity strengthening support based on identified needs and gaps
- Monitor the impact of investments

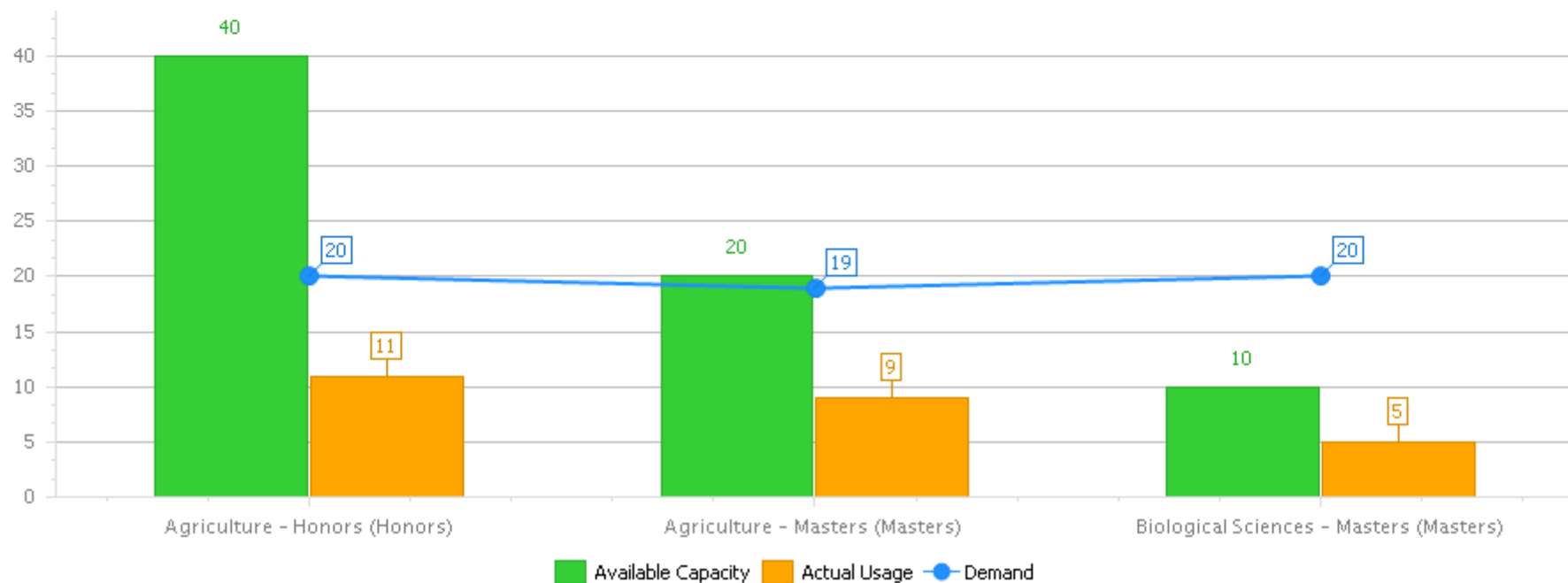
# Capacity Analysis

Select the region you'd like to review

South Africa

## Summary

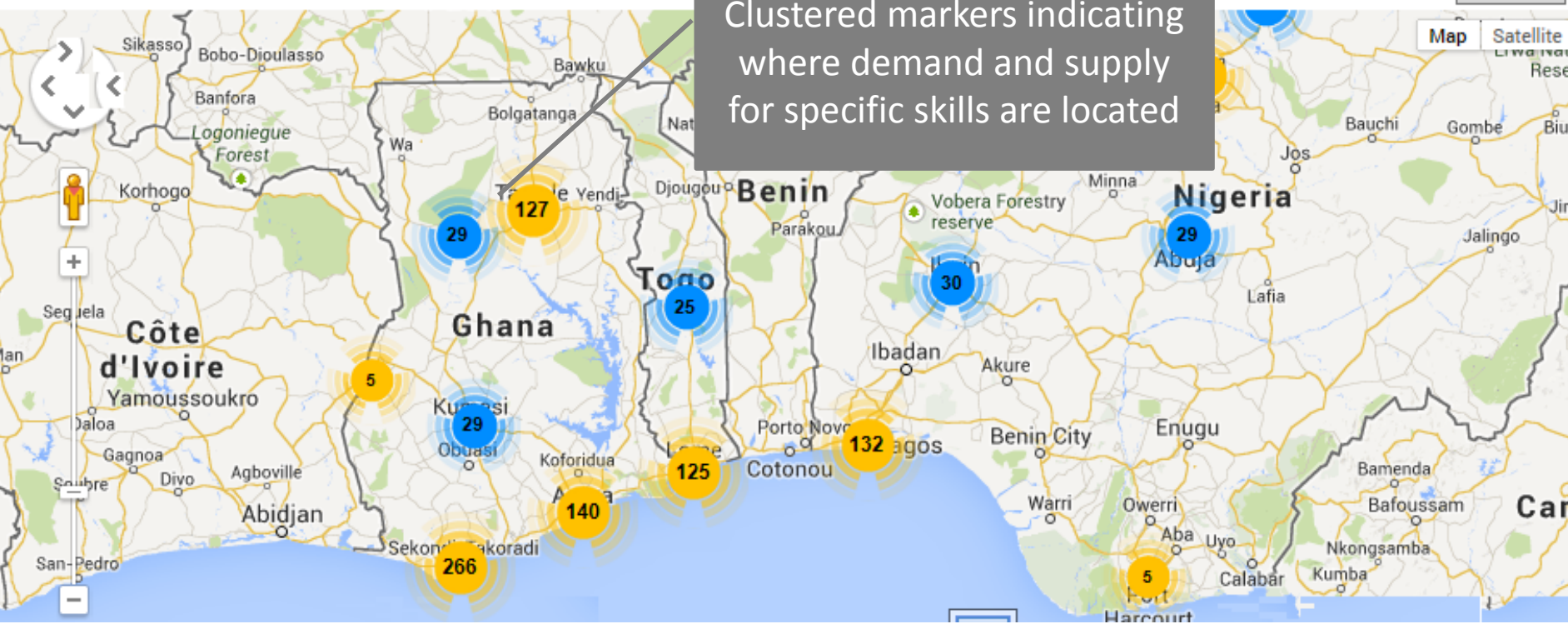
Level	Specialisation	Capacity	Enrolled	% Used	Demand	
Honors	Agriculture – Honors	40	11	28%	20	<a href="#">More</a>
Masters	Agriculture – Masters	20	9	45%	19	<a href="#">More</a>
Masters	Biological Sciences – Masters	10	5	50%	20	<a href="#">More</a>



SKILLS:

<input checked="" type="checkbox"/> Agricultural Economics	<input type="checkbox"/> Innoculation of Animals	<input type="checkbox"/> Maize Crops	<input type="checkbox"/> Risk Assessment Analysis
<input type="checkbox"/> Risk Assessment Analysis	<input type="checkbox"/> Genetics and Cell Biology	<input type="checkbox"/> Soya Bean Crops	<input type="checkbox"/> Project Management
<input checked="" type="checkbox"/> Plant Pathology	<input checked="" type="checkbox"/> Soil Science	<input type="checkbox"/> Social soft skills	<input type="checkbox"/> Quantitative Methods
<input type="checkbox"/> Pest and Disease Management	<input type="checkbox"/> Livestock	<input type="checkbox"/> Value Chain Management	<input type="checkbox"/> Social soft skills

Clustered markers indicating where demand and supply for specific skills are located





All  
Employed  
Unemployed

Toggle Demand ☒

Toggle HeatMap ☒

SKILLS:

☐ Agricultural Economics

☐ Innoculation of Animals

☒ Maize Crops

☐ Risk Assessment Analysis

☐ Risk Assessment Analysis

☒ Genetics and Cell Biology

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☒ Soil Science

☐ Social soft skills

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☐ Livestock

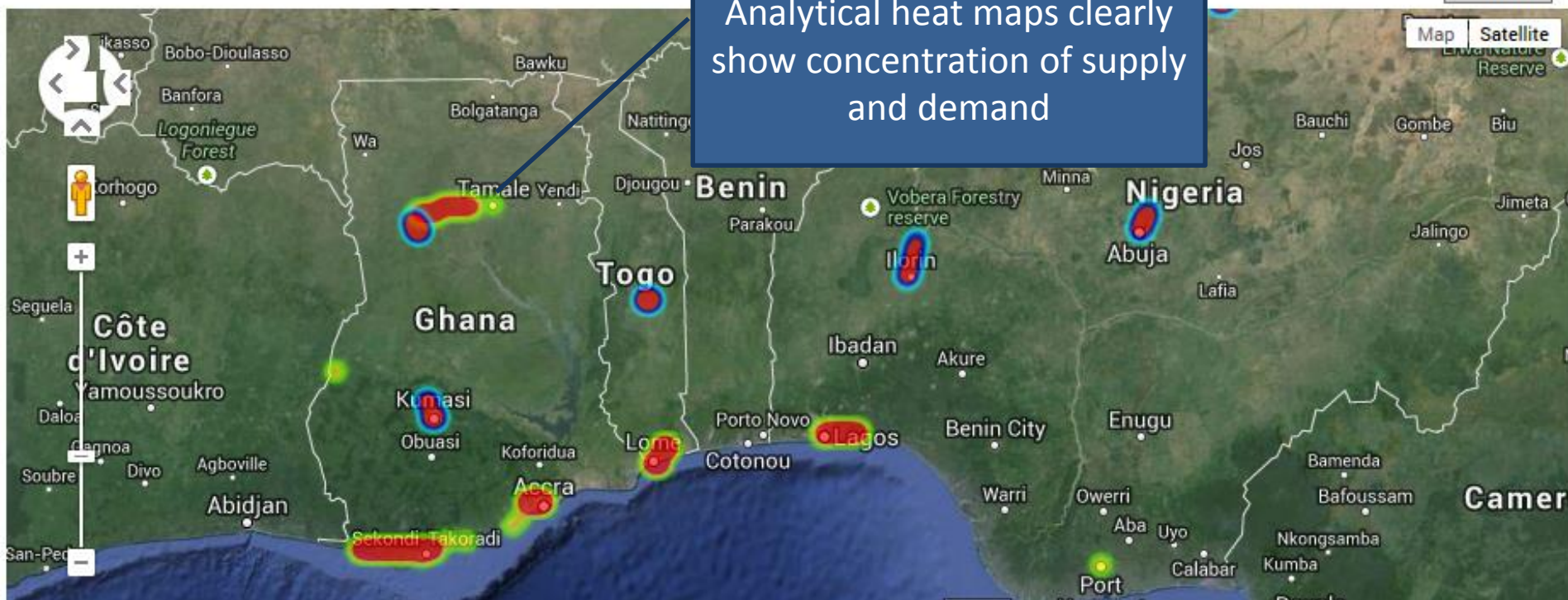
☐ Value Chain Management

☐ Social soft skills

Analytical heat maps clearly show concentration of supply and demand

Search

Map Satellite



# Lessons and looking forward (AET)

- Bringing players together at the farmer's level to increase returns on investments
- improved interaction between training and education, research, industry and government to strengthen scientific capacity

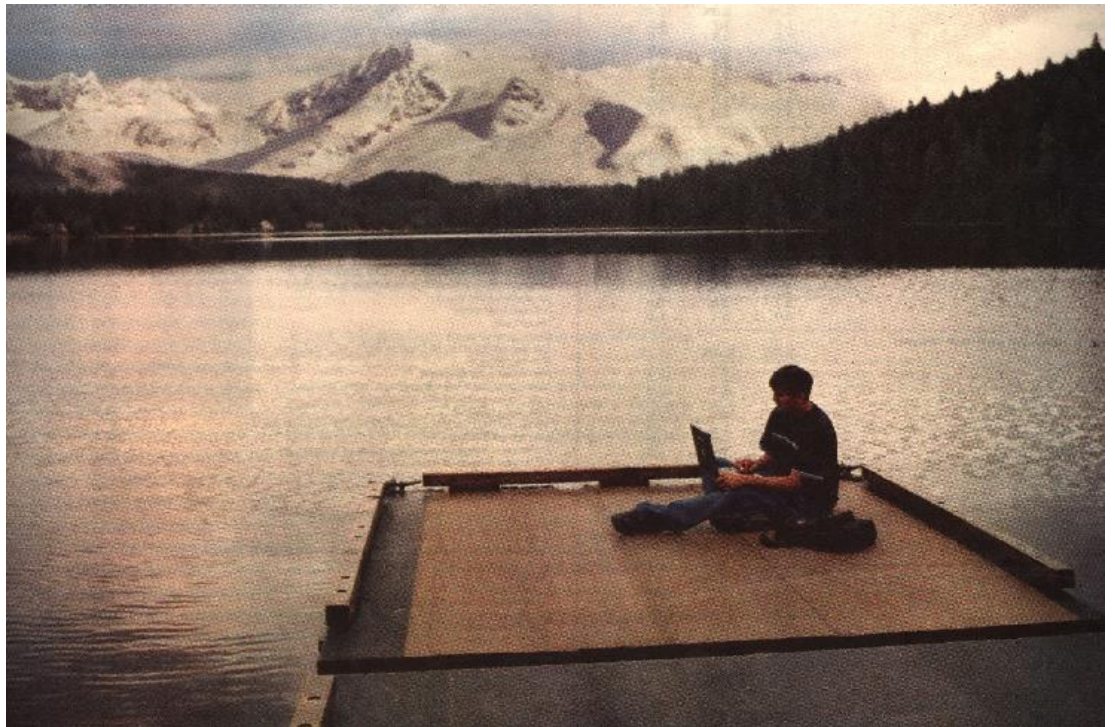
## Internalizing and sustaining capacity pools will be based on:

- documenting and sharing experiences widely to reach the global scale through the wide range of partners
- Need to understand the roles of different types of institutions to build synergies



*"In a world where countries that out-educate us today will out-compete us tomorrow, the future belongs to the nation that best educates its people, period,"*

*Obama, 2009*







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To find out more please log onto:  
[www.fara.ecapacities.com](http://www.fara.ecapacities.com)

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