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Climate and Weather Services

March 14th / CSA GLEE / Kevin Coffey USAID

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PRESENTATION LEARNING OBJECTIVE(S)

1. Introduce Session/Presenters
2. Define Climate Services
3. Three Key Bottlenecks:
    - Capacity (Observation Networks)
    - Communication
    - Equitable Services (reaching everyone)

CLIMATE SERVICES DEFINITION

"Climate services involve the Production, Translation, Transfer, and Use of Climate Knowledge and Information in climate-informed decision making and climate-smart policy and planning."

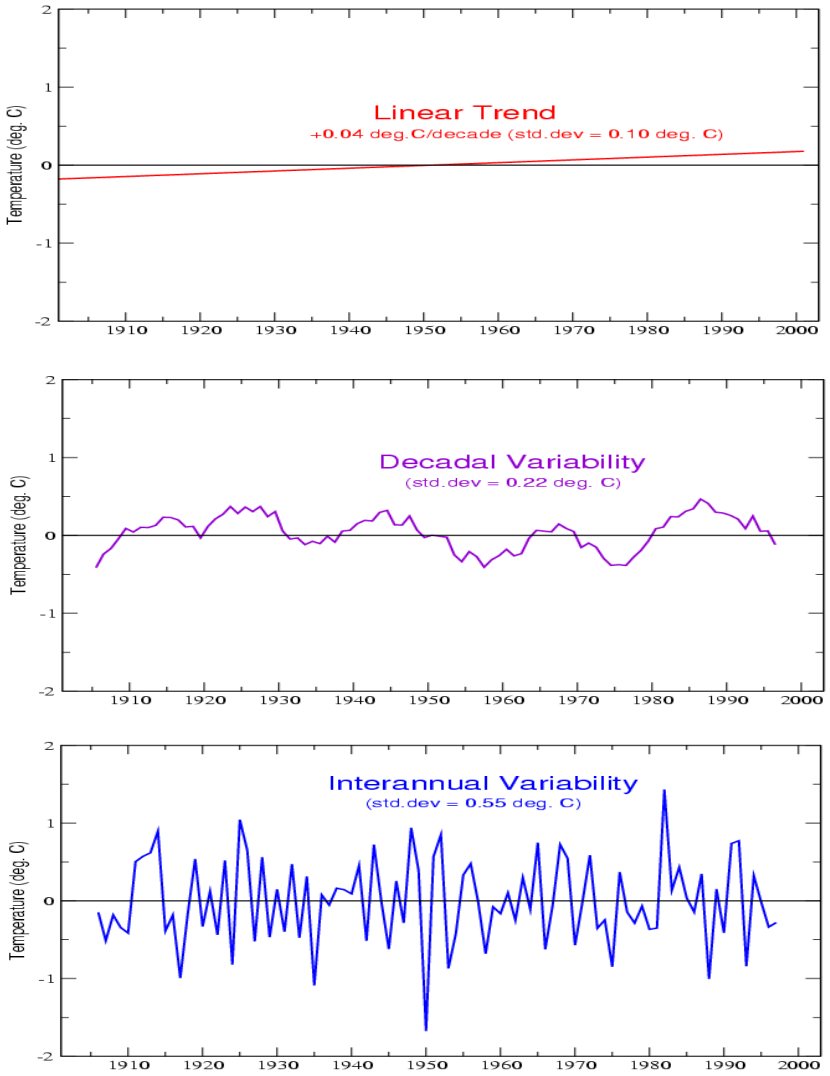
Climate Service Timescales

Weather – Will in rain in tomorrow?

Seasonal – Will it rain more than normal in the next growing season? (el Nino)

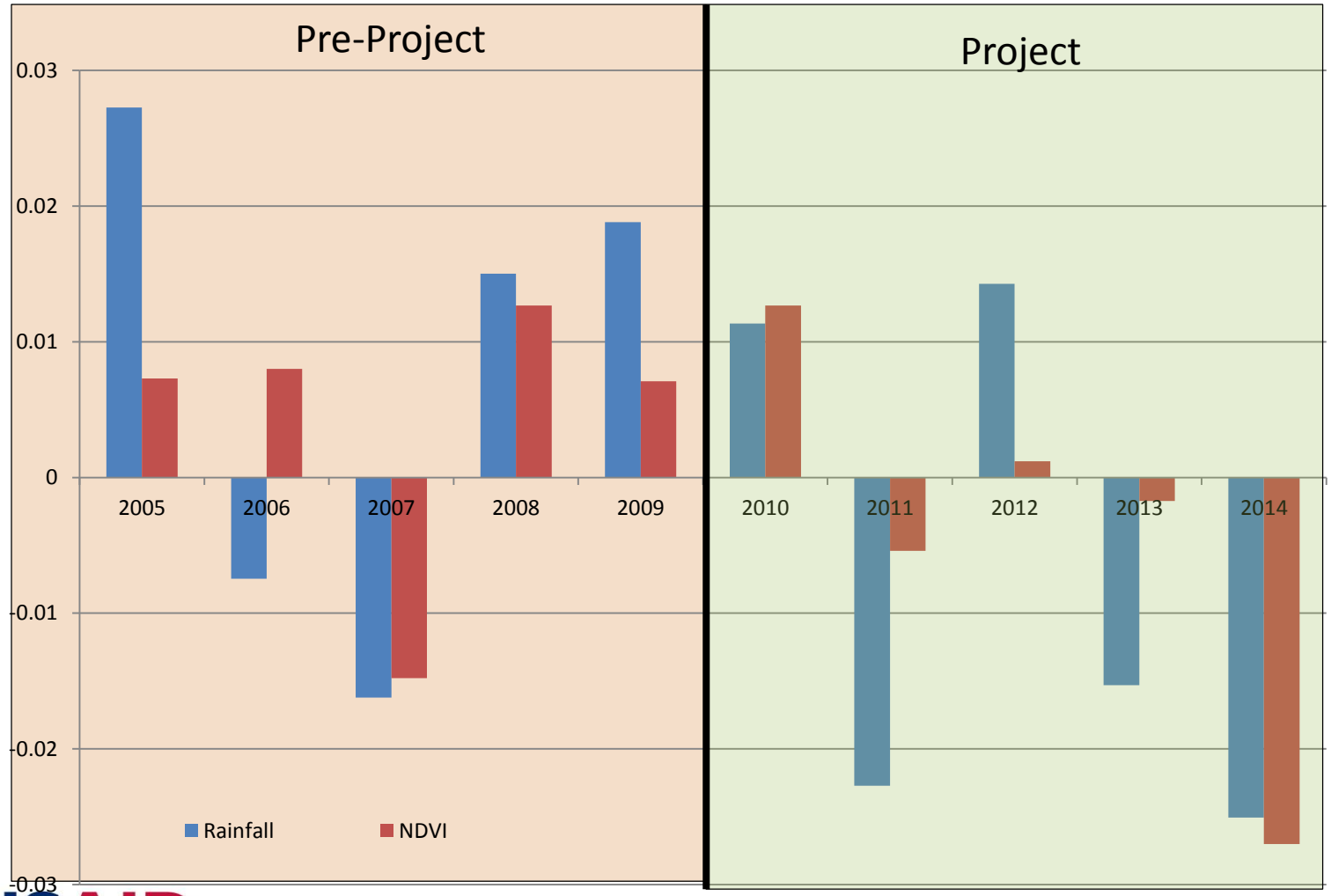
Historical – What is the average onset date over the past 30 years?

Climate Change - Can you grow crop x in this location in 2070?



Courtesy L. Goddard, IRI

Latmingue, Senegal – Zone of Influence (edge to edge)



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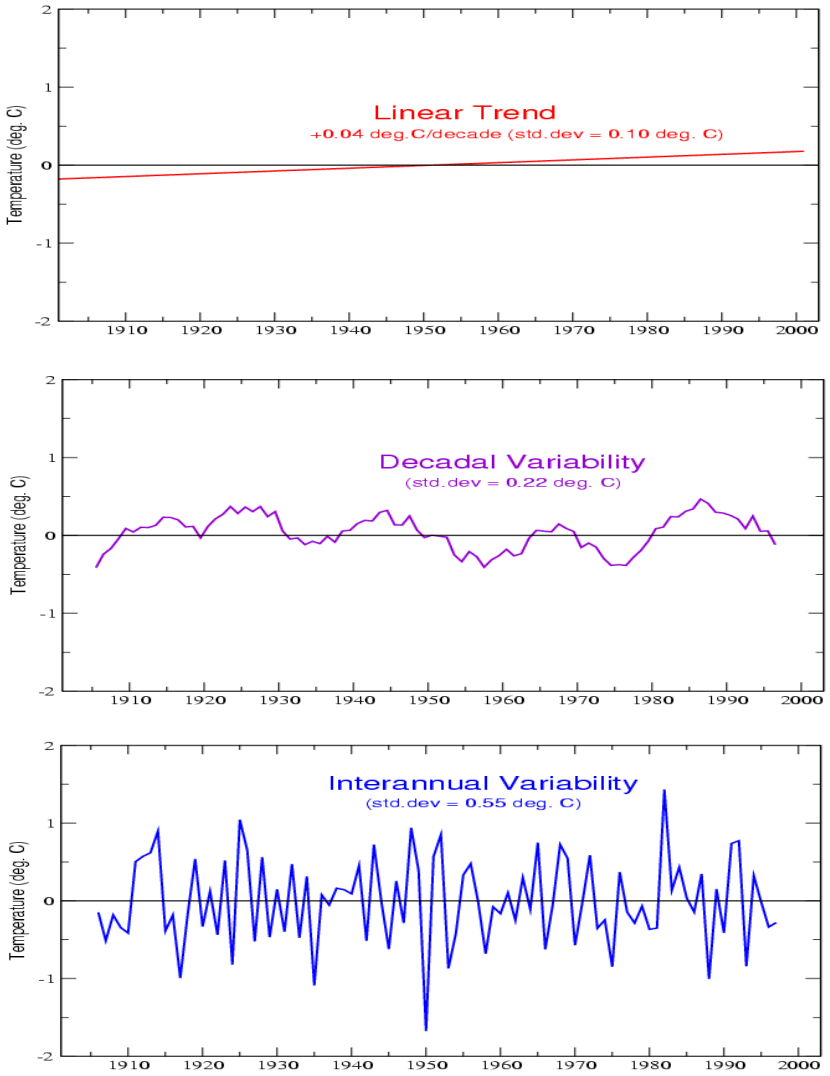
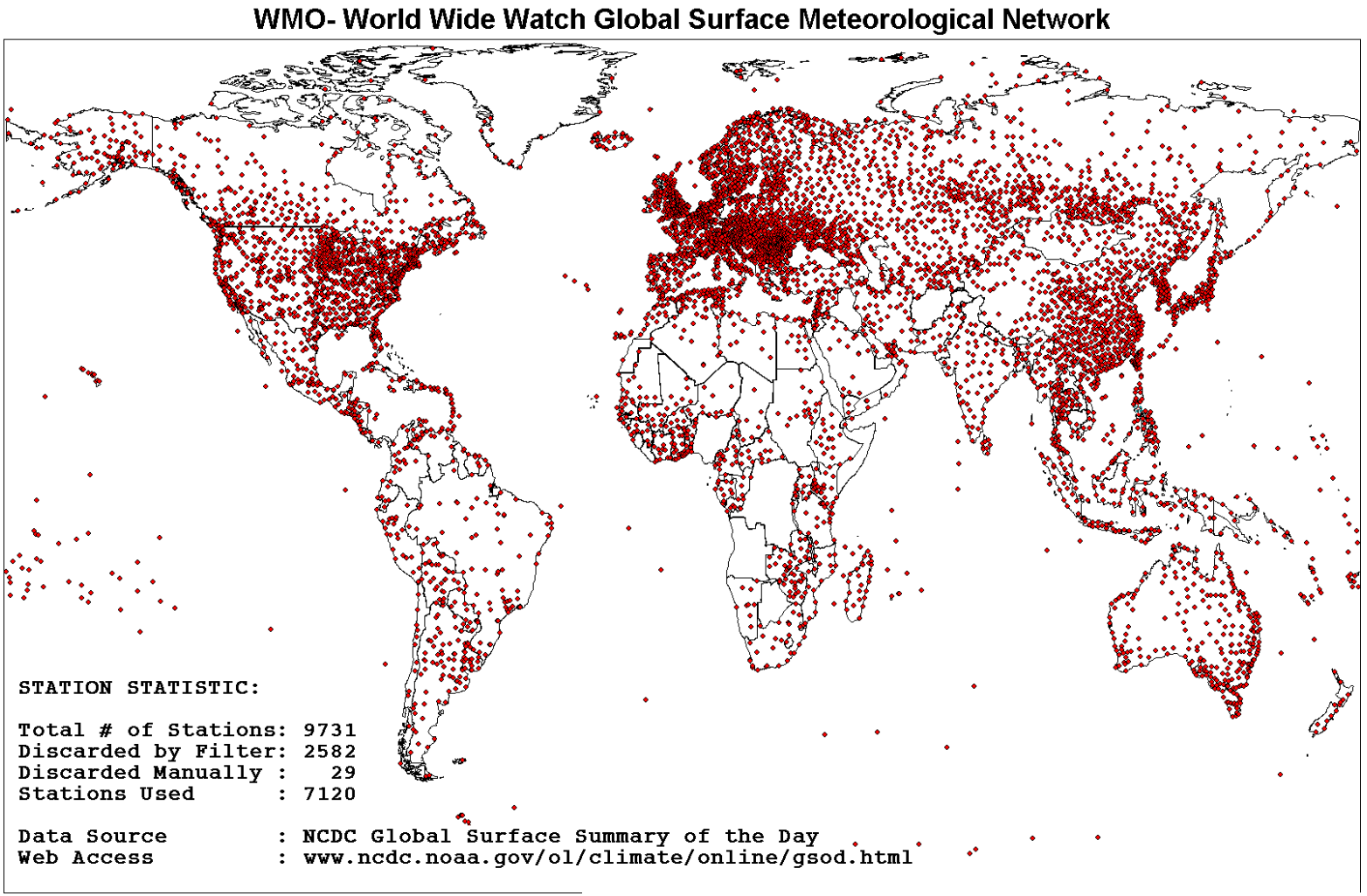


Courtesy L. Goddard, IRI

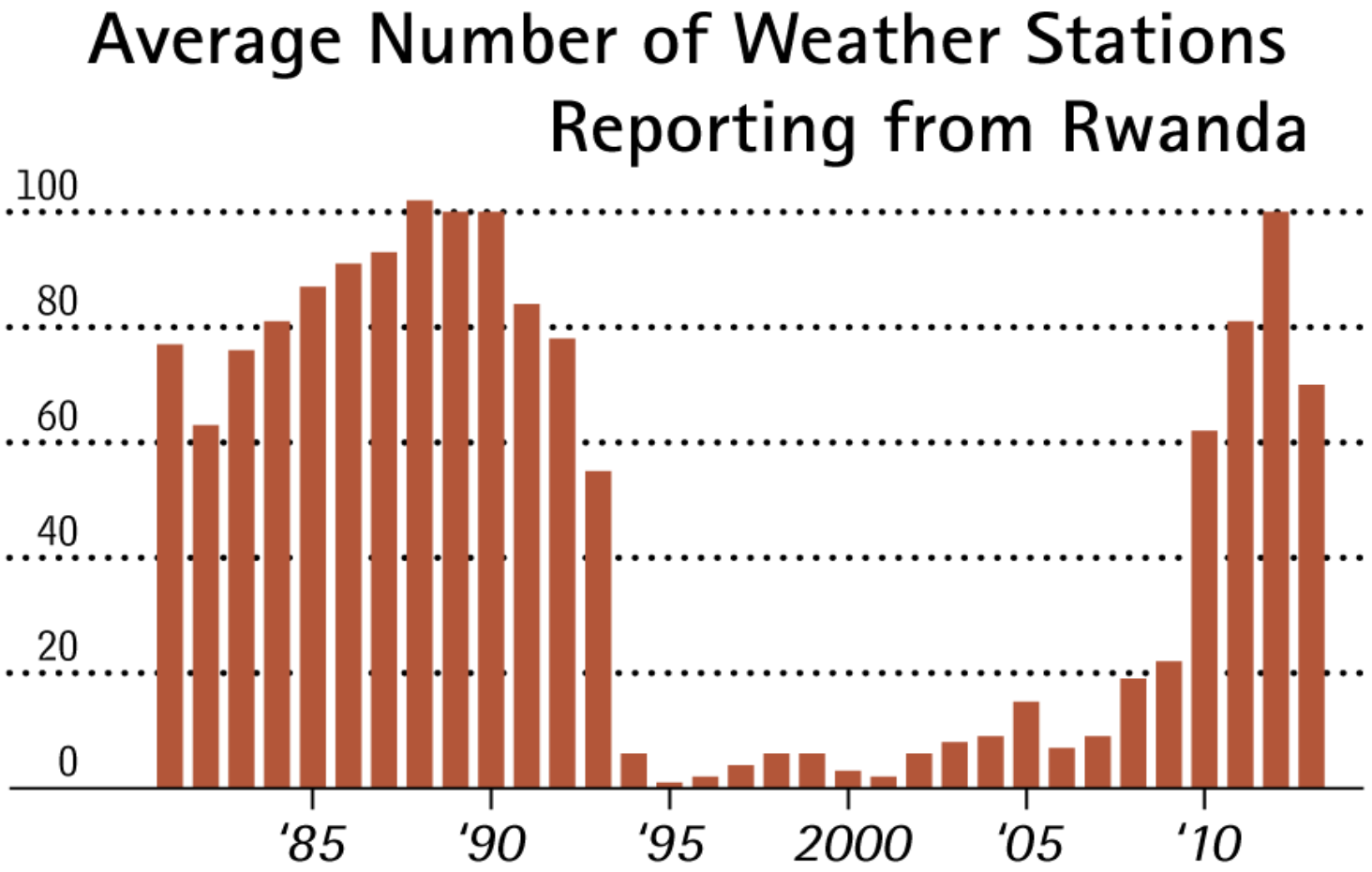
- Managing ups and downs

- Maximizing good years and Minimizing bad years

- Imagine the perfect climate information system

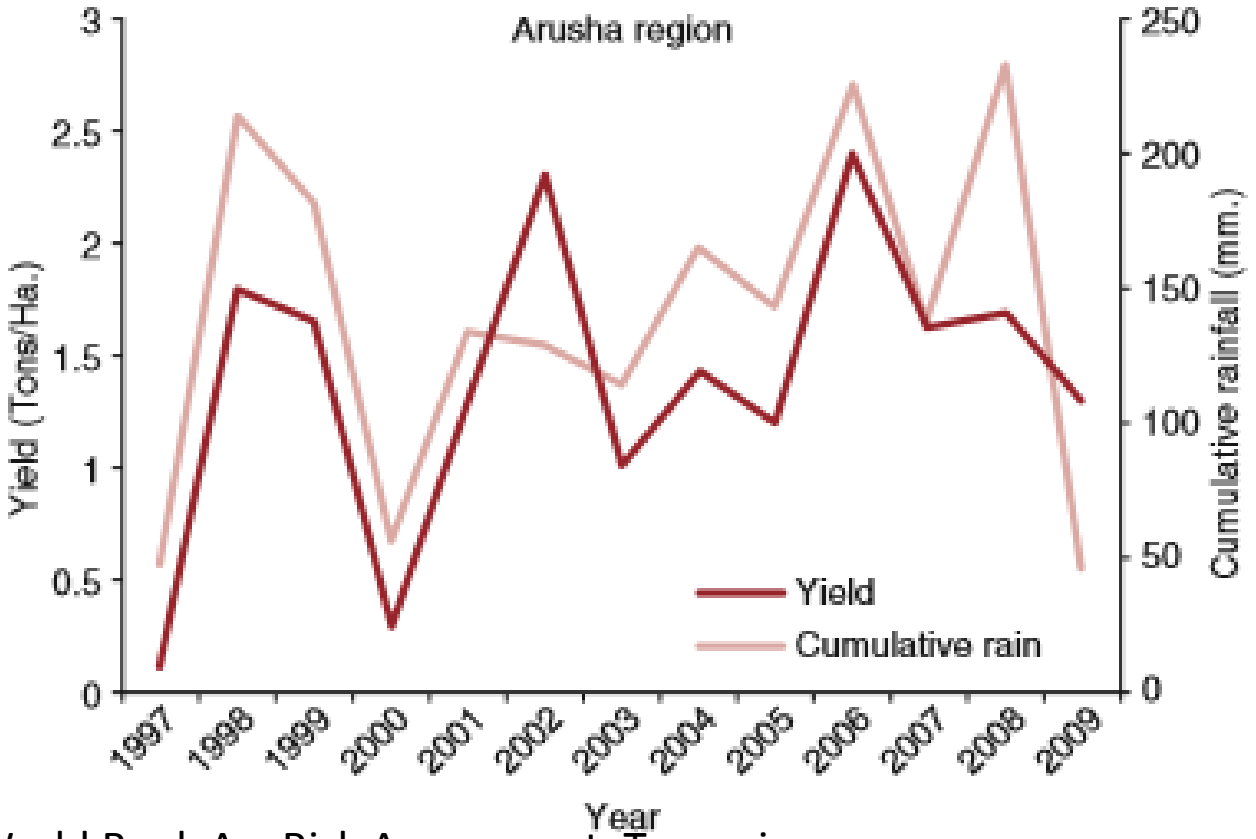


Bottleneck: Observation Networks



Bottleneck: Observation Networks

SOWING SEASON RAINFALL AND YIELD TIME SERIES



Source: 2015 World Bank Ag. Risk Assessment: Tanzania

Bottleneck: Communication

HIGH CAPACITY! REACHING FARMERS?

Tanzania Daily News (Dar es Salaam) »

7 MARCH 2016

Tanzania: TMA Forecasts Win Global Recognition

Tagged: Climate • East Africa • Environment • Tanzania

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By Alvar Mwakyusa

The accuracy of weather forecasts by the Tanzania Meteorological Agency (TMA) during the October-December 2015 rainy season, which was characterised by the El-Niño phenomenon, was 85.8 per cent, far beyond the established global standard of 70 per cent.

"Reviews conducted after that season indicate that our forecasts were correct by 85.8 per cent and this is excellent given the fact that the World Meteorological Organisation (WMO) has pegged 70 per cent as accepted standard," the Director General of TMA, Dr Agnes Kijazi, has disclosed.

During the October-December rainfall season known as "Vuli" in Kiswahili, a big chunk of the country received average to above average rains as had been predicted by TMA.

The TMA boss made the revelation during a two-day seminar for journalists from print and electronic media in the lakeside city of Mwanza on the review of the 'Vuli' rains and an outlook for the March-May rainfall season, best known as 'Masika.'

RELATED TOPICS

Climate »
- South Africa: KwaZulu-Natal Announces Water Restrictions
- Ethiopia: Rushing to Relieve Shortage of Maize, Wheat Seeds
- Africa: El Niño History Raises Fear of Cholera Outbreak
- Zimbabwe: Fresh UN Appeal as Drought Crisis Deepens

East Africa »
- South Sudan: Rights Body Pushes for Hybrid Court to Try Juba War Crimes
- Burundi: Opposition Not Amused With African Union
- Uganda: Rival Produces Evidence Challenging Museveni Win

- Tanzania Met wins WMO award for Seasonal Forecast
- Accuracy of 85.8 percent
- Global standard is 70%

Bottleneck: Communication

GENDER AND VULNERABLE GROUPS

Understand the user

1. Woman often make different decisions
2. Woman sometimes use different communication channels
3. The poorest often don't have mobile phones
4. The poorest often lack the resources to act on information

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A process for engaging in co-exploration of climate decision-making

Anna Steynor

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"Here is a report containing some data on climate change impacts for agriculture in Tanzania"

"Thanks? I can't use this in the decision I'm making"

OR

"Thanks! All our decisions should be driven by this data"

OR

"Thanks, I'll add it to the pile of other reports that I'll never have time to read"

"You need to tell me what climate information you need"

"But what can you provide?"

"No, first tell me what you need, then I'll tell if you we can provide it"

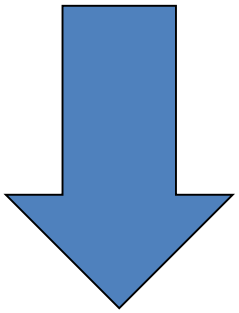
"Okay… I need to know if its going to get wetter in the future"

"Oh… darn, we can't tell you that. Ask another one"

"Hello?"

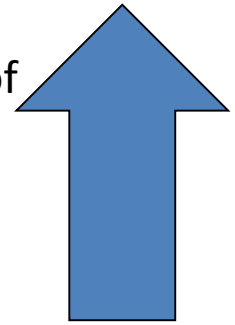
"Anyone there?"

Current paradigms for integrating climate information into decision making are not optimal:



Data driven/impacts driven approaches are dominated by the science and are characterised by a disconnect between the science and context

User driven methods are stunted by “users” struggling to articulate needs in the framing of a discipline that is not their own



TESTING AN APPROACH

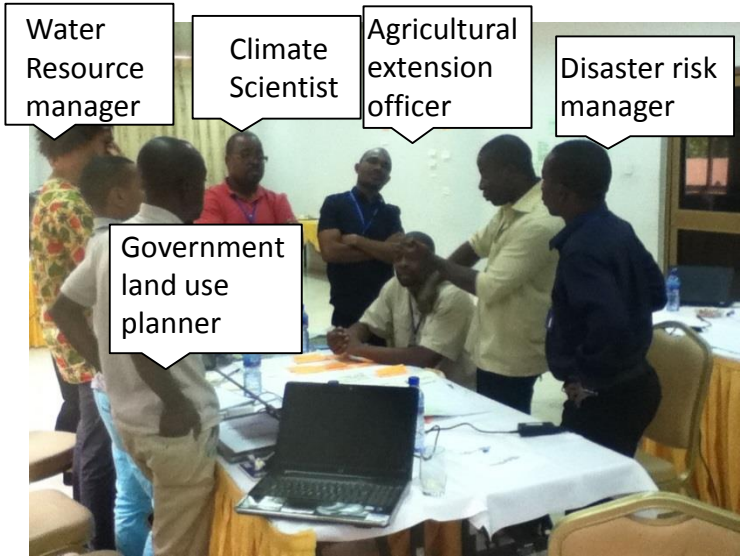
Testing an approach to collaborative decision-making

Tested through workshops:

- Series of workshops in the Berg Rivier Muncipality – South Africa
- Dar Es Salaam 5 cities workshop: peri-urban focus
- Accra 2 cities workshop: urban focus on coastal flooding

ELEMENTS OF THE CO-EXPLORATION APPROACH

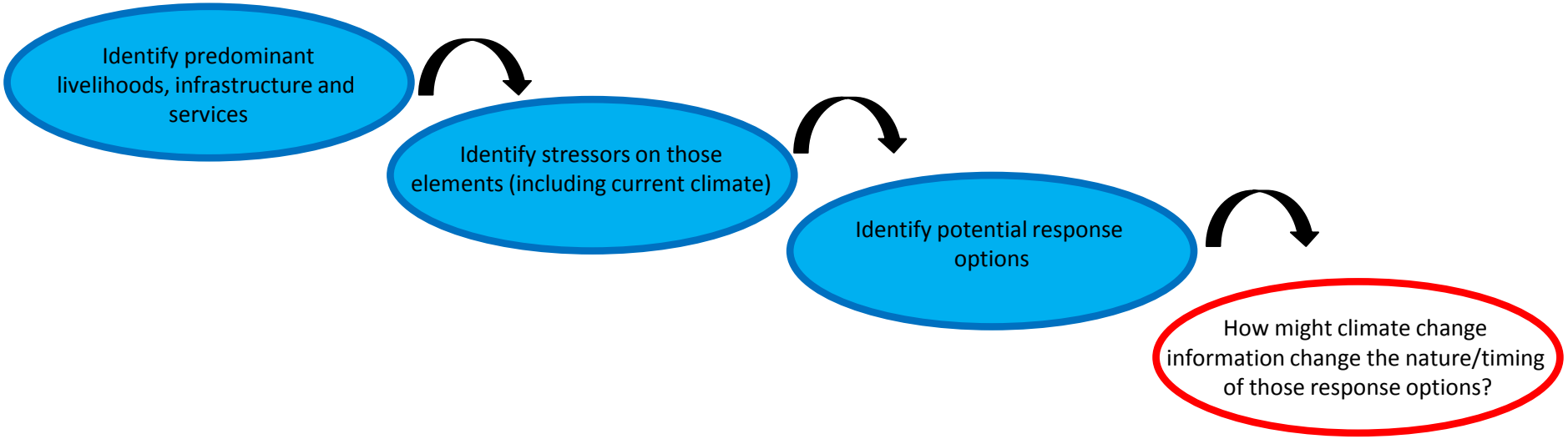
- Creation of a multi-disciplinary team including producers and users of information
- Set up a dialogue of equals in solving a common problem
- Place-based
- Led by vulnerabilities, not climate information



CO-EXPLORATION: A NUANCED APPROACH

Philosophy: Climate information has a place in decision-making but should not (and does not) lead decision-making

Reflected in the steps taken in co-exploration:



OUTCOMES OF CO-EXPLORATION

- Collaborative decision-making. Similar to co-production but doesn't presuppose the "production" part.
- Develops an inherent understanding and respect of both the producer and user needs
- Uses data and tools to create new dialogue more than provide answers
- Provides a means to strengthen climate data "literacy"
- A replicable process for different places

BUT IT HAS LIMITATIONS…..

- Need to overcome terminology issues when engaging multi-disciplinary groups eg uncertainty, resolution…..
- Once off workshops are very limited and potentially harmful. How do we *actually* sustain long-term engagement?
- Learning in workshops has limited potential for uptake in the “real world”
- Resource and time intensive

GENERAL LESSONS ON STAKEHOLDER ENGAGEMENT

- Engage the appropriate users
- Language within a common language
- Awareness of socio-cultural context
- Long term engagement centred on real trust relationships have the potential to be very powerful.
- Decision processes are complex, nuanced, and often quite opaque
- Integrating climate information into decision processes is not easy, much value is still lost
- “Good” development often (but not always) aligns with climate resilience

TAKE AWAY MESSAGES

- Engaging stakeholders in using climate information has to go beyond simple data / report delivery
- Climate is often just one of many factors stressing a system, this should be acknowledged when incorporating climate information into decision-making.
- Engaging in equal dialogue between producers and users can help build the trust relationship required to start to unpack the complexity of using climate information

ADDITIONAL RESOURCES

- Future Climate for Africa Policy Brief: Using climate information to achieve long-term development objectives in coastal Ghana and Mozambique www.futureclimateafrica.org

- Steynor, A., J. Padgham, C. Jack, B. Hewitson and C. Lennard. 2016. *Co-exploratory climate risk workshops: Experiences from urban Africa.* Climate Risk Management. Under Review

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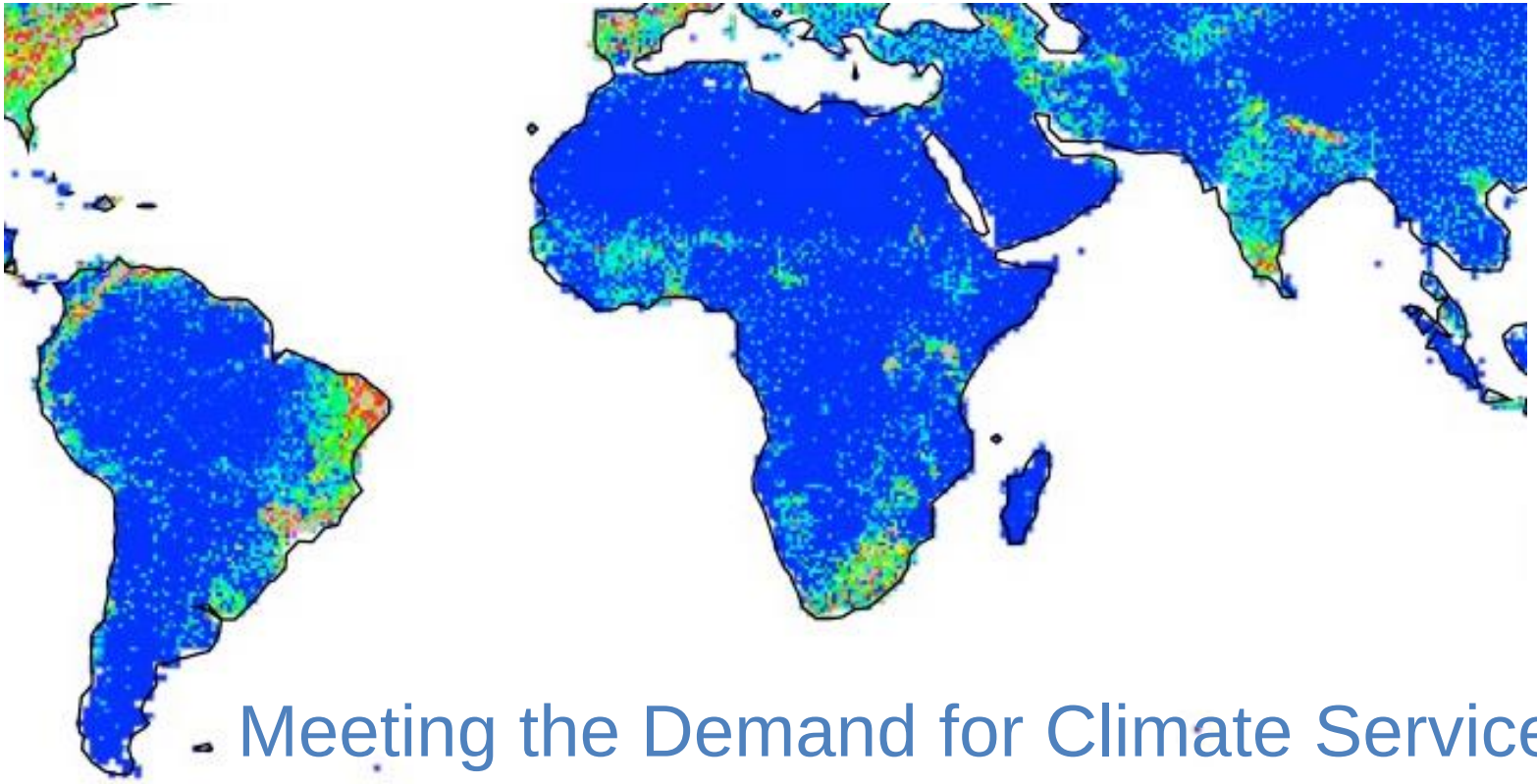

Meeting the Demand for Climate Services

March14, 2016/Haresh Bhojwani/International Research Institute for Climate and Society

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Earth Institute | Columbia University

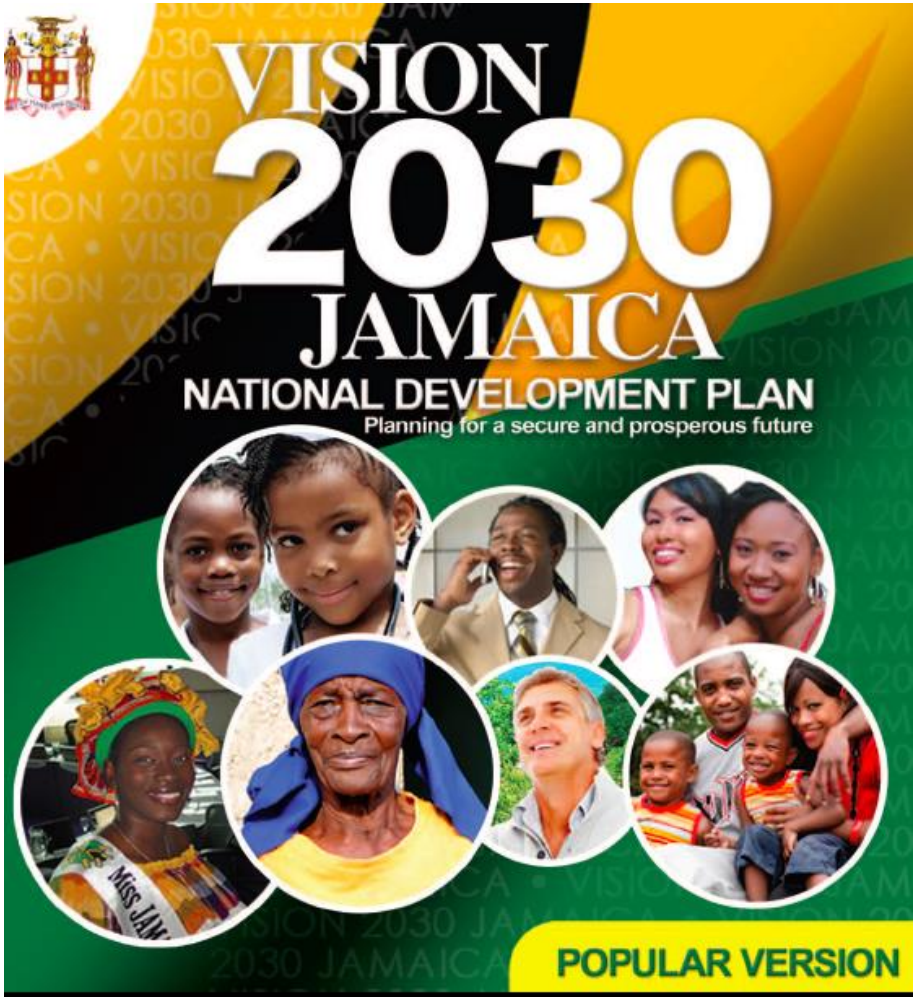
PRESENTATION LEARNING OBJECTIVES

Building a climate service in a difficult place:

The Jamaica experience was built on years of success and failure globally – some critical steps are: high level buy-in, addressing specific capacity constraints, stakeholder engagement, validation of use. These steps are

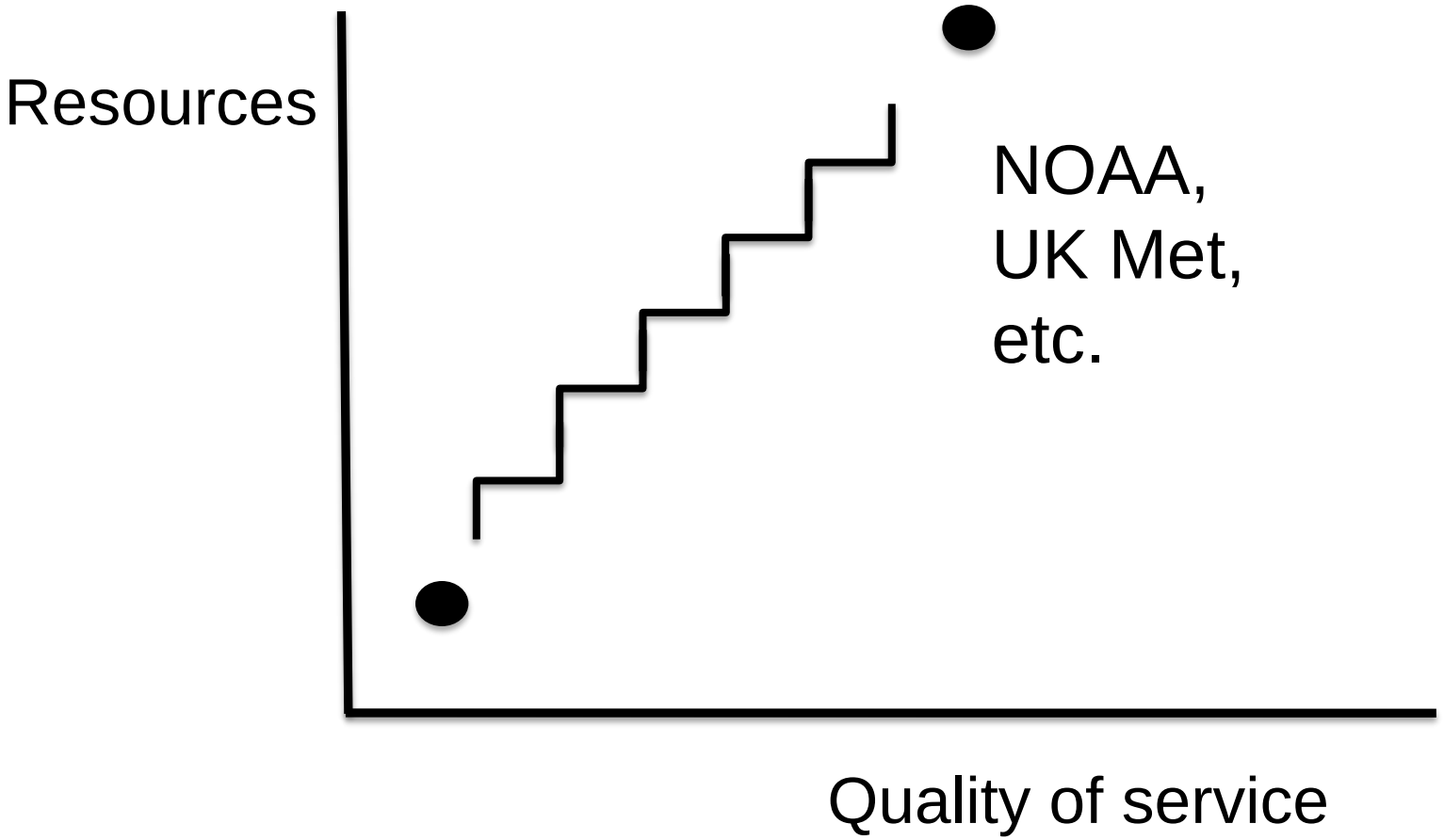
A Climate Service should take advantage of economic opportunities.

Africa – availability, access and use of climate services need to be built at the same time.



National Goals	National Outcomes
1 Jamaicans are empowered to achieve their fullest potential	1. A Healthy and Stable Population
	2. World-Class Education and Training
	3. Effective Social Protection
	4. Authentic and Transformational Culture
2 The Jamaican society is safe, cohesive and just	5. Security and Safety
	6. Effective Governance
3 Jamaica's economy is prosperous	7. A Stable Macroeconomy
	8. An Enabling Business Environment
	9. Strong Economic Infrastructure
	10. Energy Security and Efficiency
	11. A Technology-Enabled Society
	12. Internationally Competitive Industry Structures • Agriculture • Manufacturing • Mining and Quarrying • Construction • Creative Industries • Sport • Information and Communications Technology • Services • Tourism
4 Jamaica has a healthy natural environment	13. Sustainable Management and Use of Environmental and Natural Resources
	14. Hazard Risk Reduction and Adaptation to Climate Change
	15. Sustainable Urban and Rural Development

Table 2: National Outcomes Linked to Goals


Resources
NOAA,
UK Met,
etc.
Quality of service

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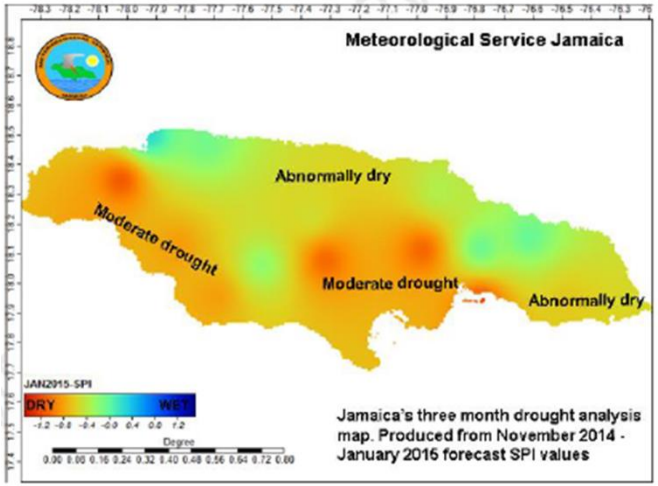
1. Drought Forecast



2. Farmer Forums

3. Information Dissemination

- Phone text messages 2014-15
- Extension offices
- Direct Information requests

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Impacts	
Reported loss in the value of ag production, nationally	30%
Average ag production loss in sampled farmers	57%
Average loss in ag production among the farmers with "climate risks"	72%
Average loss in ag production among farmers with "climate risks" attending farmer forum	46%
Average loss in ag production among farmers with "climate risks" attending farmer forum and texts in 2014	39%

Mechanism of Impact of Information Service

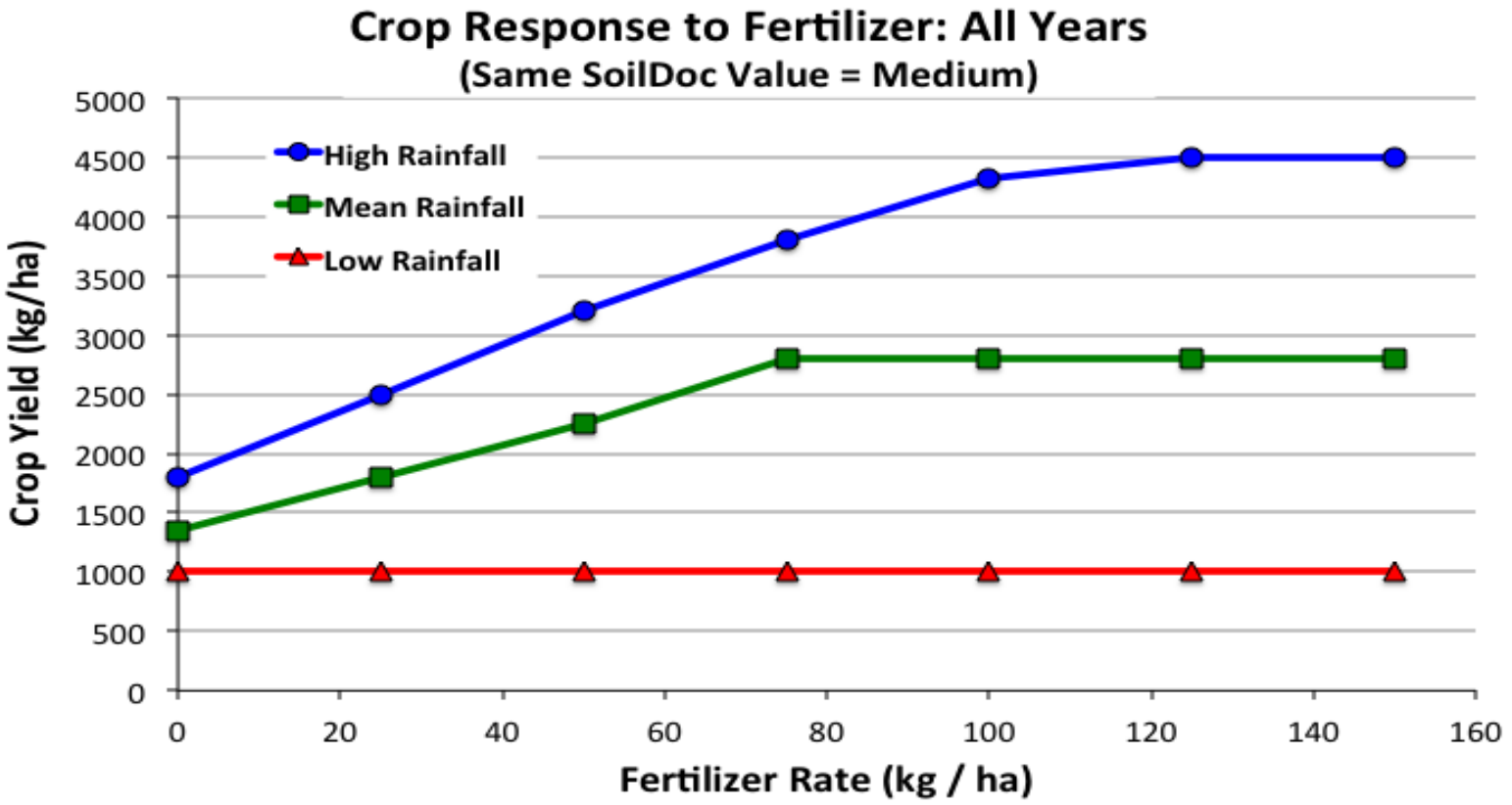
Information service contributed by *influencing* the agricultural decisions and management:

- planting time (71%)
- choice of crops (61%)
- amount of land cultivated (32%)
- harvesting time (27%)
- mulching practices (27%)
- chemical and fertilizer use (25%)
- Irrigation (19%)

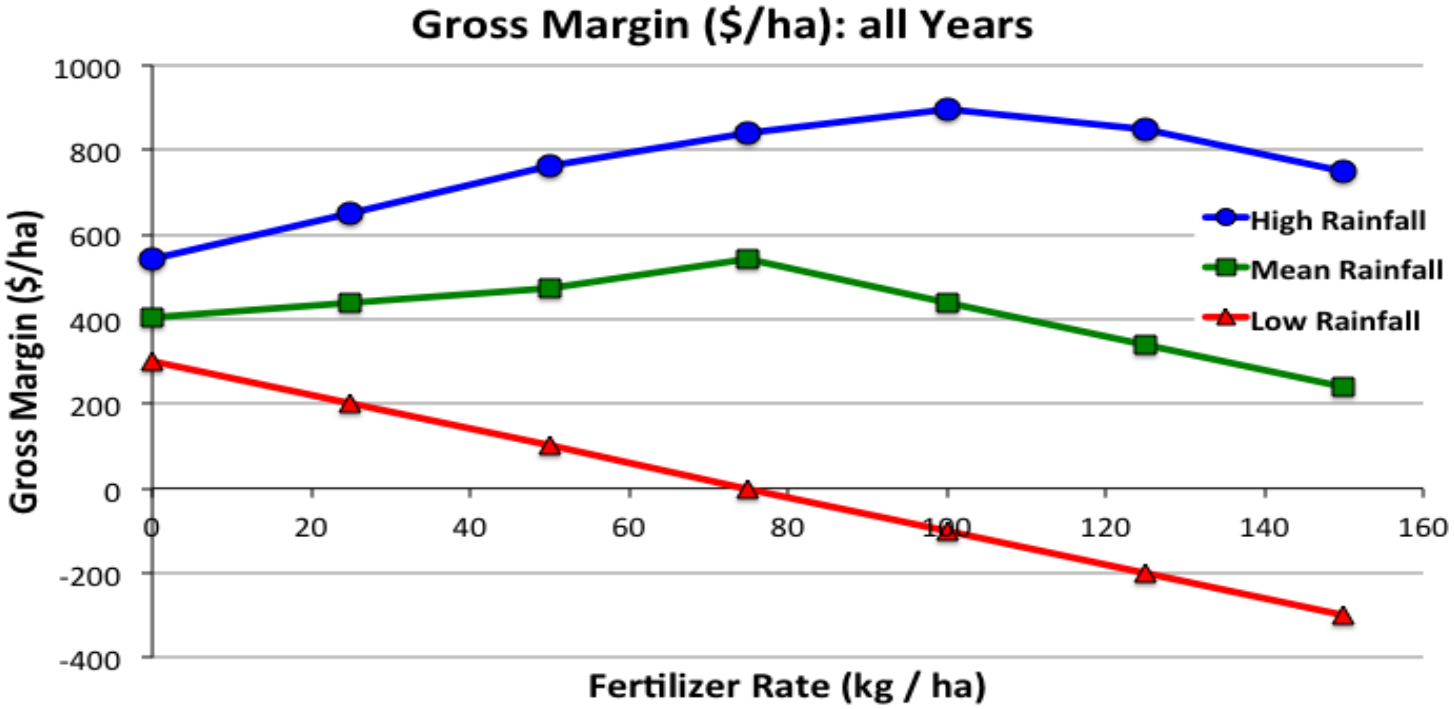
EXPRESSED INTEREST IN CLIMATE INFORMATION SERVICE

	Percent of Households
Would like to receive timely and useful climate forecast information in the future	97%
Would sign up for climate information service if it requires payment for the service	84%

Crop Response to Fertilizer Rates Depends on Rainfall: example of three years

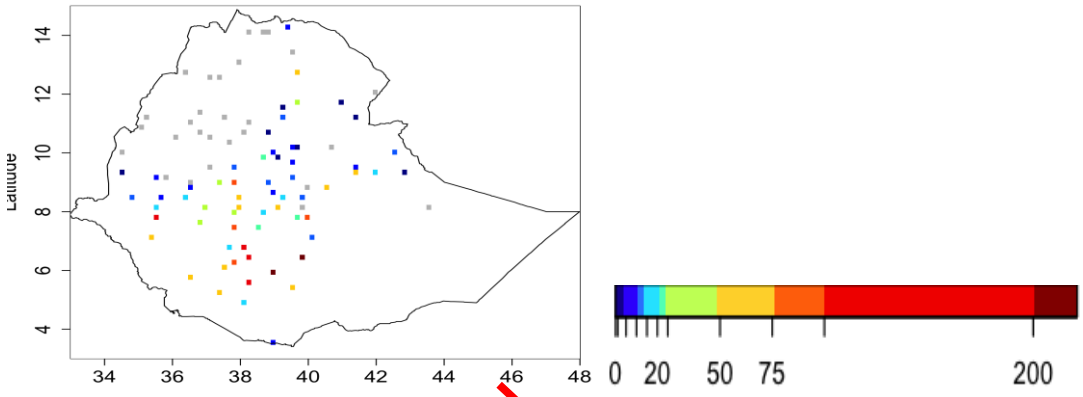


Economic Result of Fertilizer Use Depends on Rainfall: example of three years

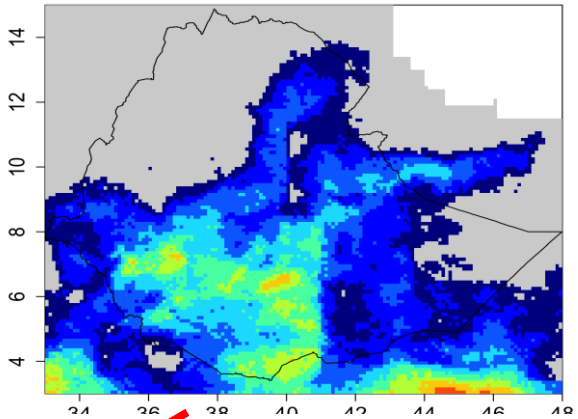


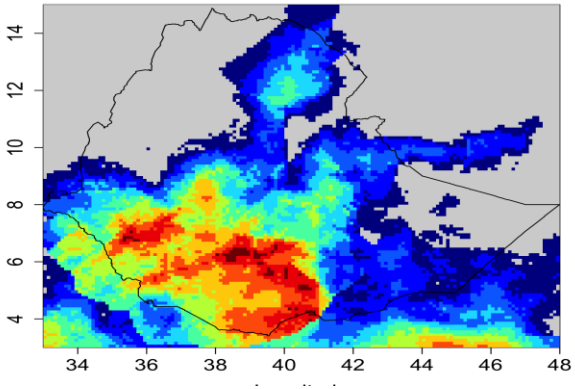
Improving Data Availability

Station



Satellite





Combined

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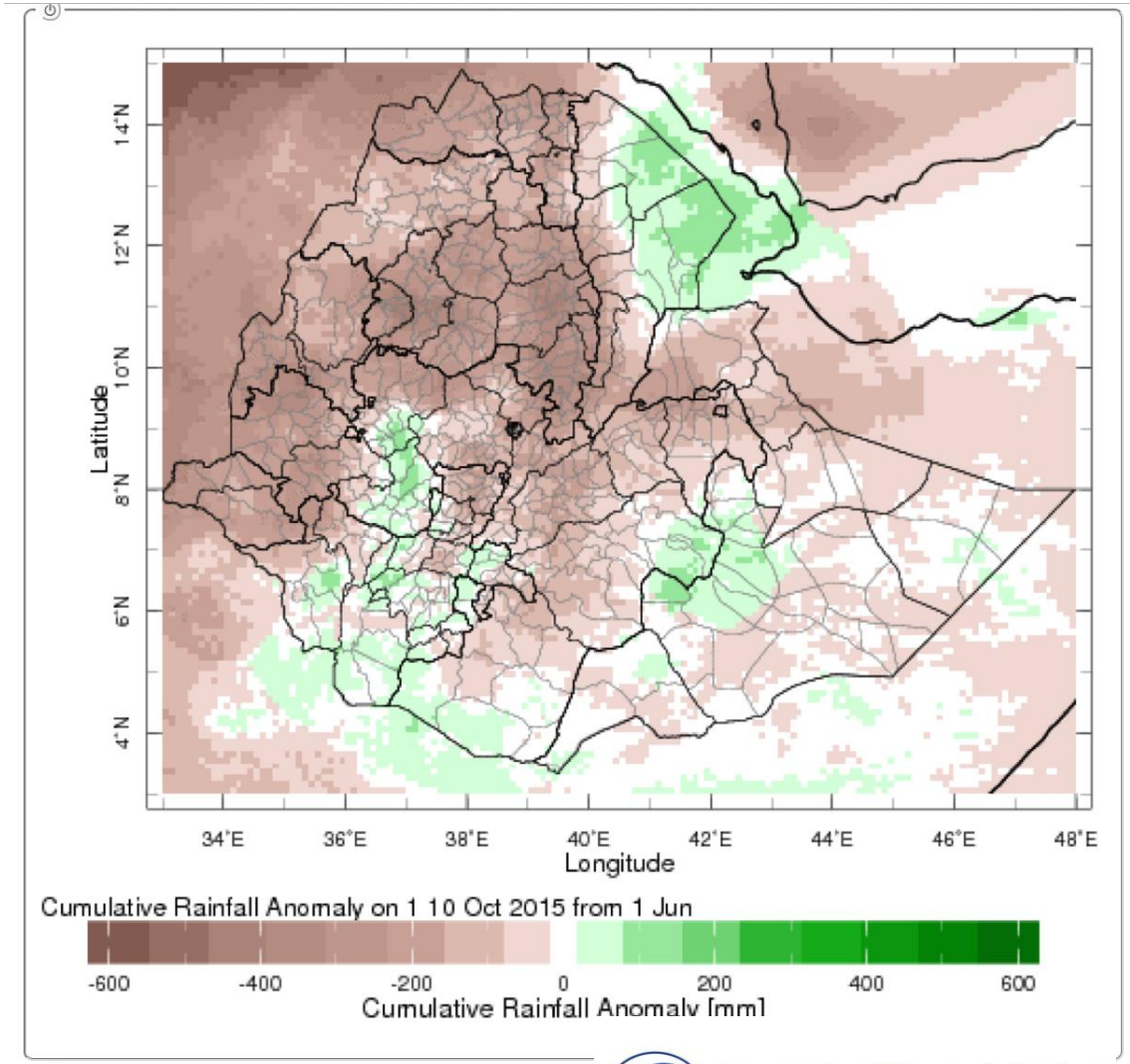
Improving Access:

Climate Monitoring Maproom



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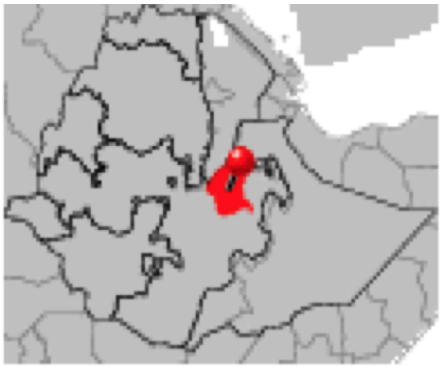
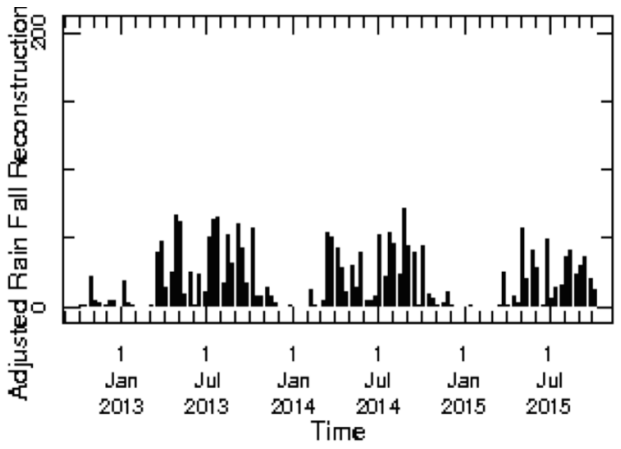
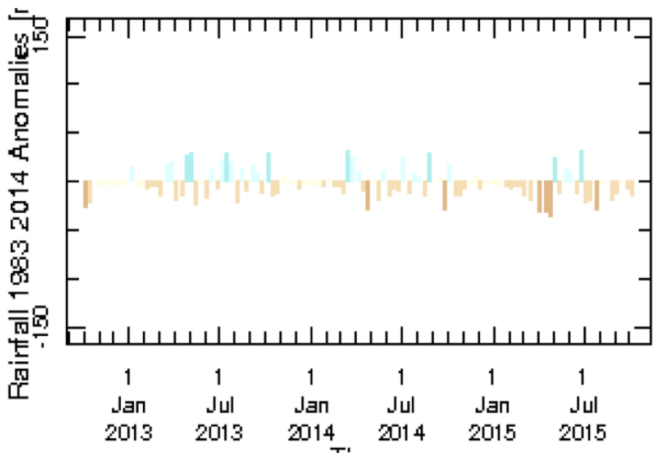
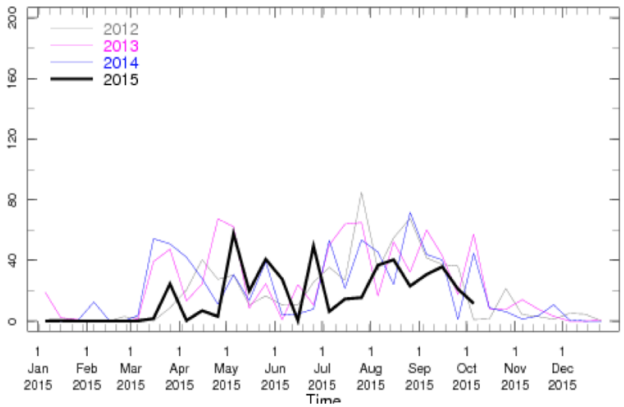
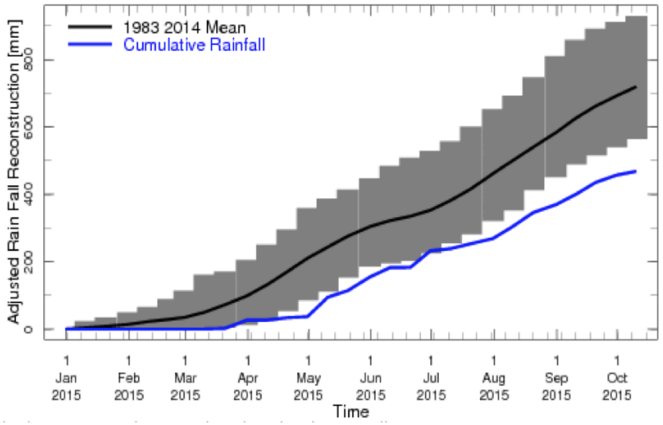



Adjusted Rain Fall Reconstruction
200
0
1 Jan 2013
1 Jul 2013
1 Jan 2014
1 Jul 2014
1 Jan 2015
1 Jul 2015
Time


Rainfall 1983 2014 Anomalies
150
-150
1 Jan 2013
1 Jul 2013
1 Jan 2014
1 Jul 2014
1 Jan 2015
1 Jul 2015


2012
2013
2014
2015
200
160
120
80
40
0
1 Jan 2015
1 Feb 2015
1 Mar 2015
1 Apr 2015
1 May 2015
1 Jun 2015
1 Jul 2015
1 Aug 2015
1 Sep 2015
1 Oct 2015
1 Nov 2015
1 Dec 2015
Time


1983 2014 Mean
Cumulative Rainfall
Adjusted Rain Fall Reconstruction [mm]
800
600
400
200
0
1 Jan 2015
1 Feb 2015
1 Mar 2015
1 Apr 2015
1 May 2015
1 Jun 2015
1 Jul 2015
1 Aug 2015
1 Sep 2015
1 Oct 2015
Time

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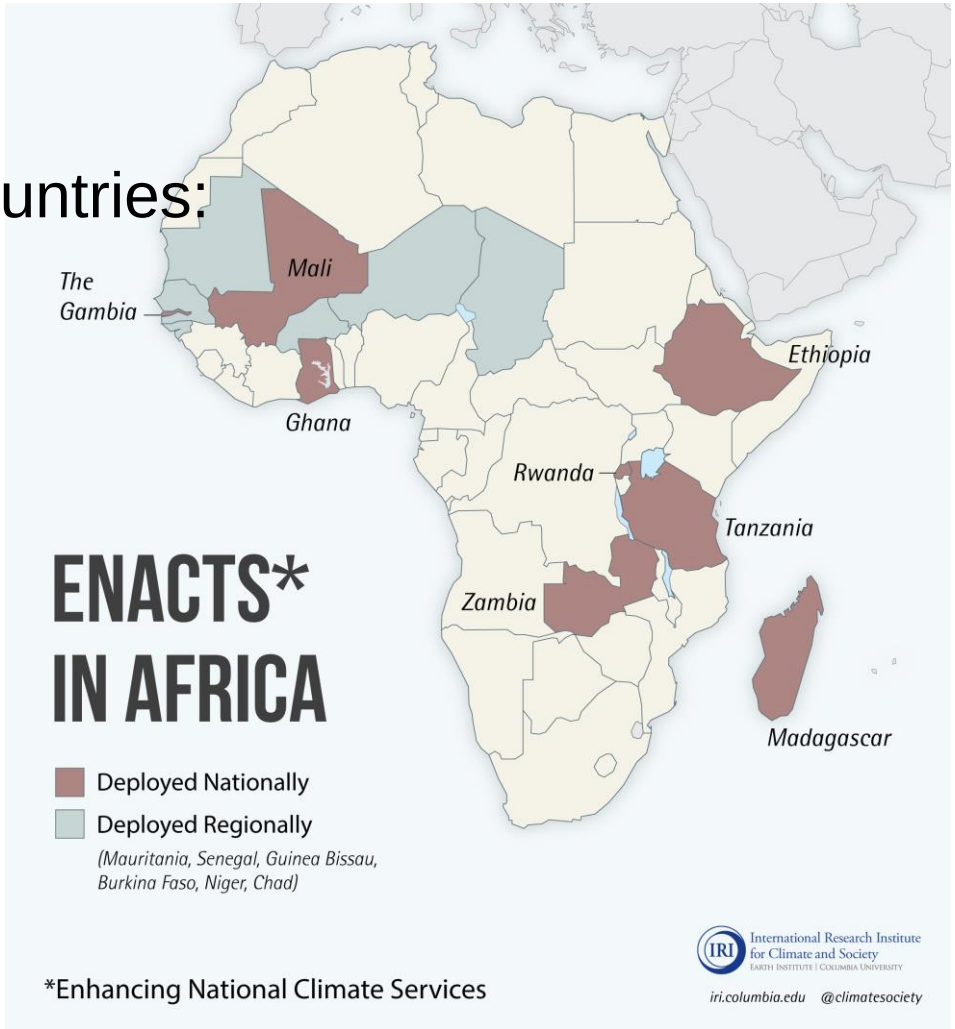
ENACTS Countries:

Ethiopia
Gambia
Ghana
Madagascar
Mali
Rwanda
Tanzania
Zambia



Next:

Kenya
Uganda
Malawi
Mozambique

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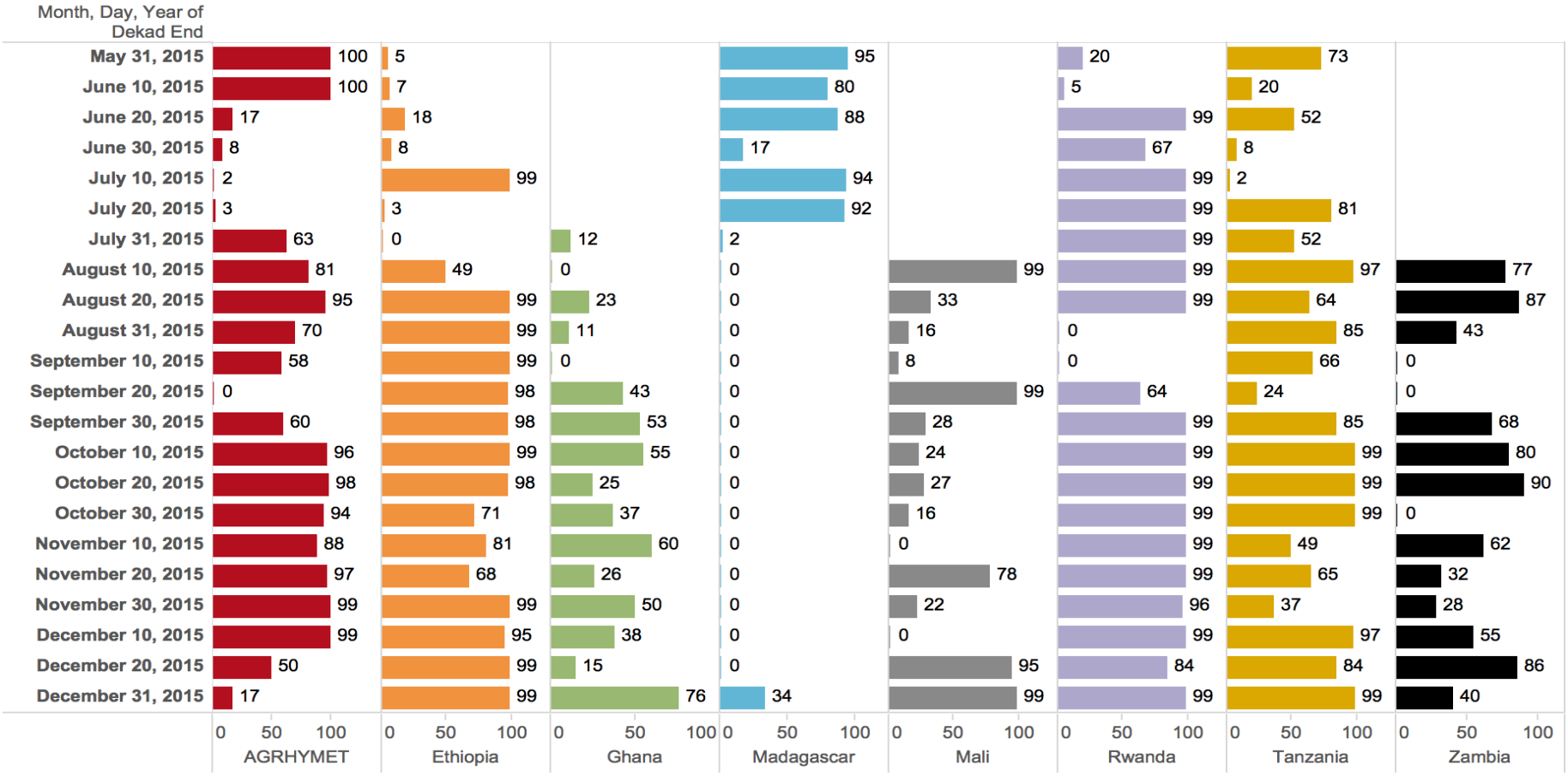
ENACTS SERVER AVAILABILITY



AGRHYMET, Ethiopia, Ghana, Madagascar, Mali, Rwanda, Tanzania and Zambia's ENACTS server availability percentage for each Dekad End (MDY).

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"Climate services involve the Production, Translation, Transfer, and Use of Climate Knowledge and Information in climate-informed decision making and climate-smart policy and planning."

INVESTMENT TYPOLOGY

Supply of climate information

- Observing infrastructure
- Data management
- Capacity building for NMS
- Historic data
- Climate research

Tailored information

- Engagement of sector technical communities
- Research on translating climate information for user needs
- Research on climate services good practice

Delivery of climate information

- Institutional communications channels
- ICT and media-based communications channels
- Capacity Building for communications intermediaries

Use of climate services

- Capacity building for users
- Pilot implementation/demonstration

Governance

- Policies to support climate services development and use
- Evaluation and feedback processes
- Sustainable business models
- Boundary institutions

Knowledge sharing and coordination

- Knowledge management on good practice
- Knowledge management on research needs
- Knowledge management on training -

TAKE AWAY MESSAGES

- Build a climate service on existing efforts.
- Coordinate with other efforts.
- Integrate
- Validate

PARTNER LOGO GOES HERE (click slide master to add)

ADDITIONAL RESOURCES

- Climate Services Partnership - http://www.climate-services.org/
- International Research Institute for Climate and Society - http://www.iri.columbia.edu/
- CCAFS - http://www.ccafs-climate.org/

PARTNER LOGO GOES HERE (click slide master to add)

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Feed the Future Senegal

Climate Information Services within FTF portfolio

Lusaka, March 14, 2016

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Senegal Overview and FTF Multi Year Strategy

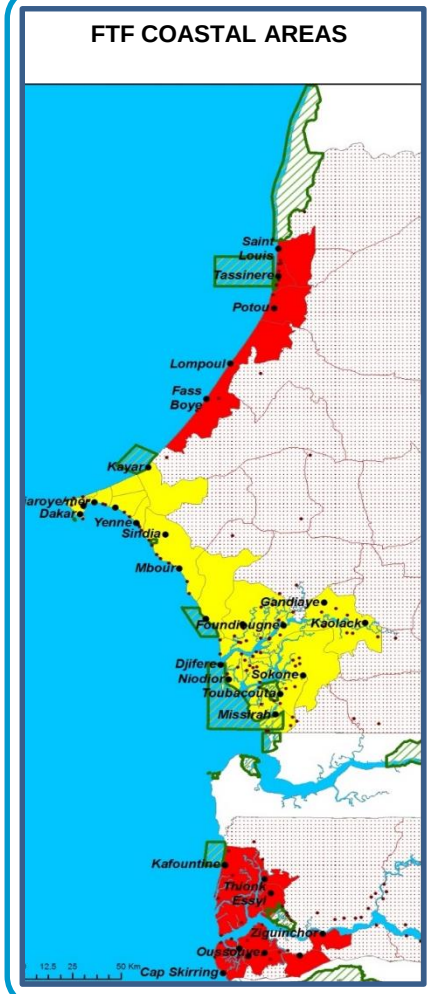
Strategy and Zone Of Influence

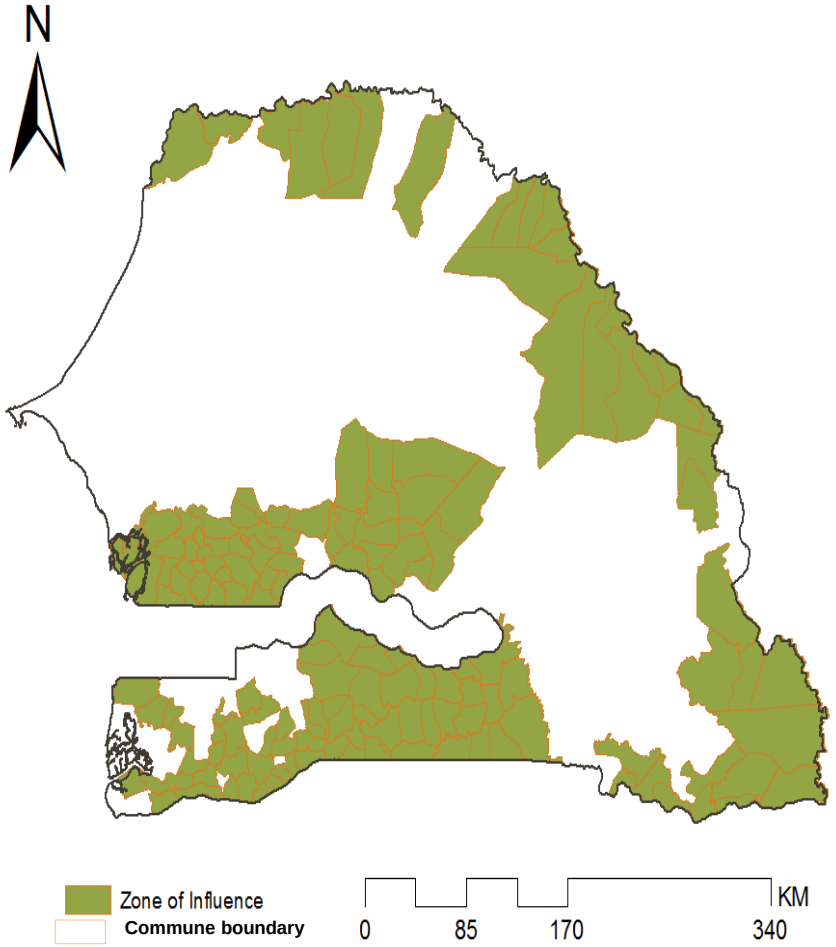
Value chain focus: Rice, maize, millet fisheries

Geographic narrowing: Senegal River Valley, Southern Forest Zone, Coastal artisanal Fisheries 9 administrative regions

Key objectives:

- Inclusive agriculture sector growth
- Increased trade
- Improved nutrition status – women and children
- Improved management of natural resources





ZOI population: 4.2 million (32% of total population)

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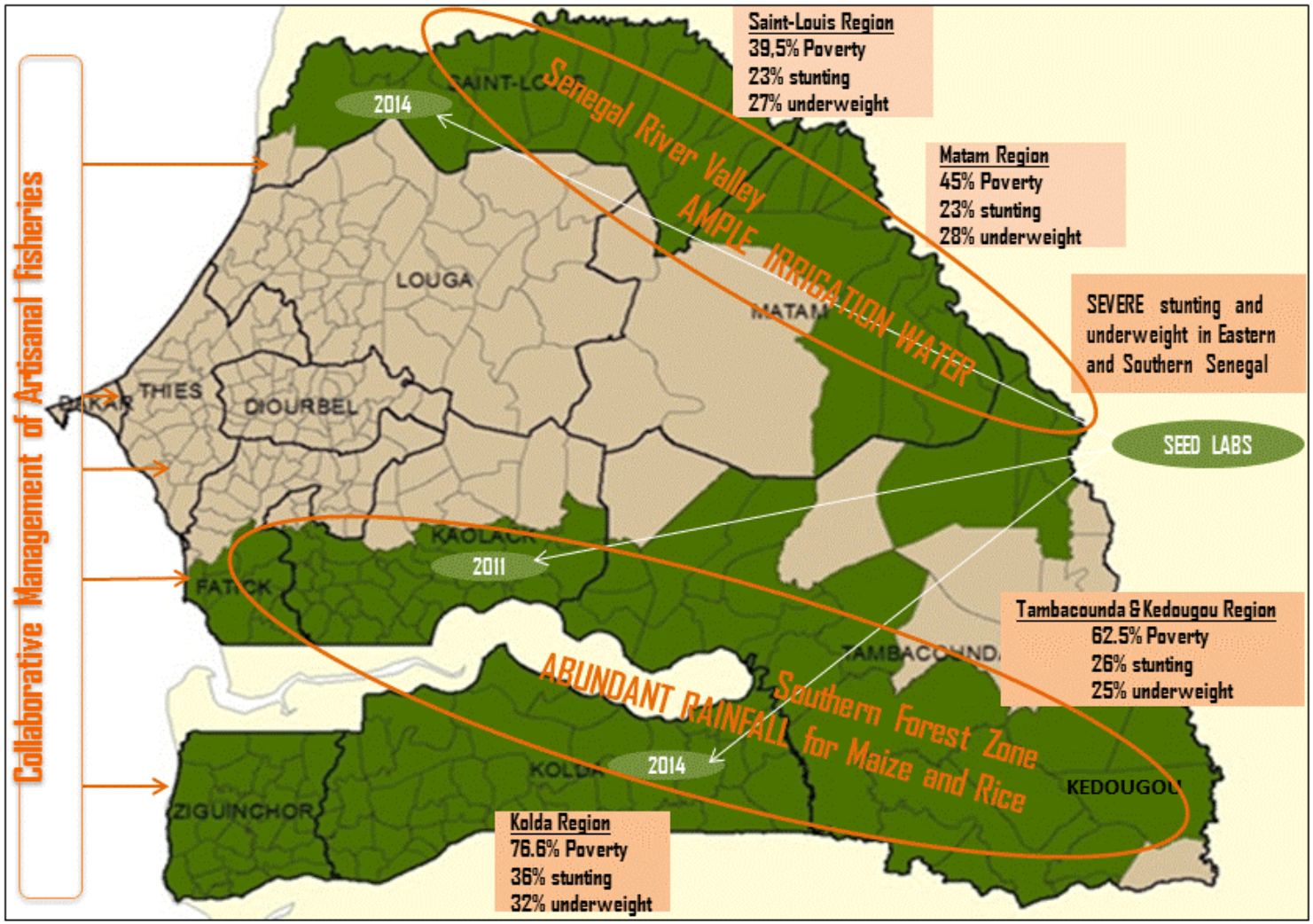
FTF SENEGAL STRATEGIC FOCUS



Source : Senegal 2011 Poverty Monitoring Survey and 2005 DHS

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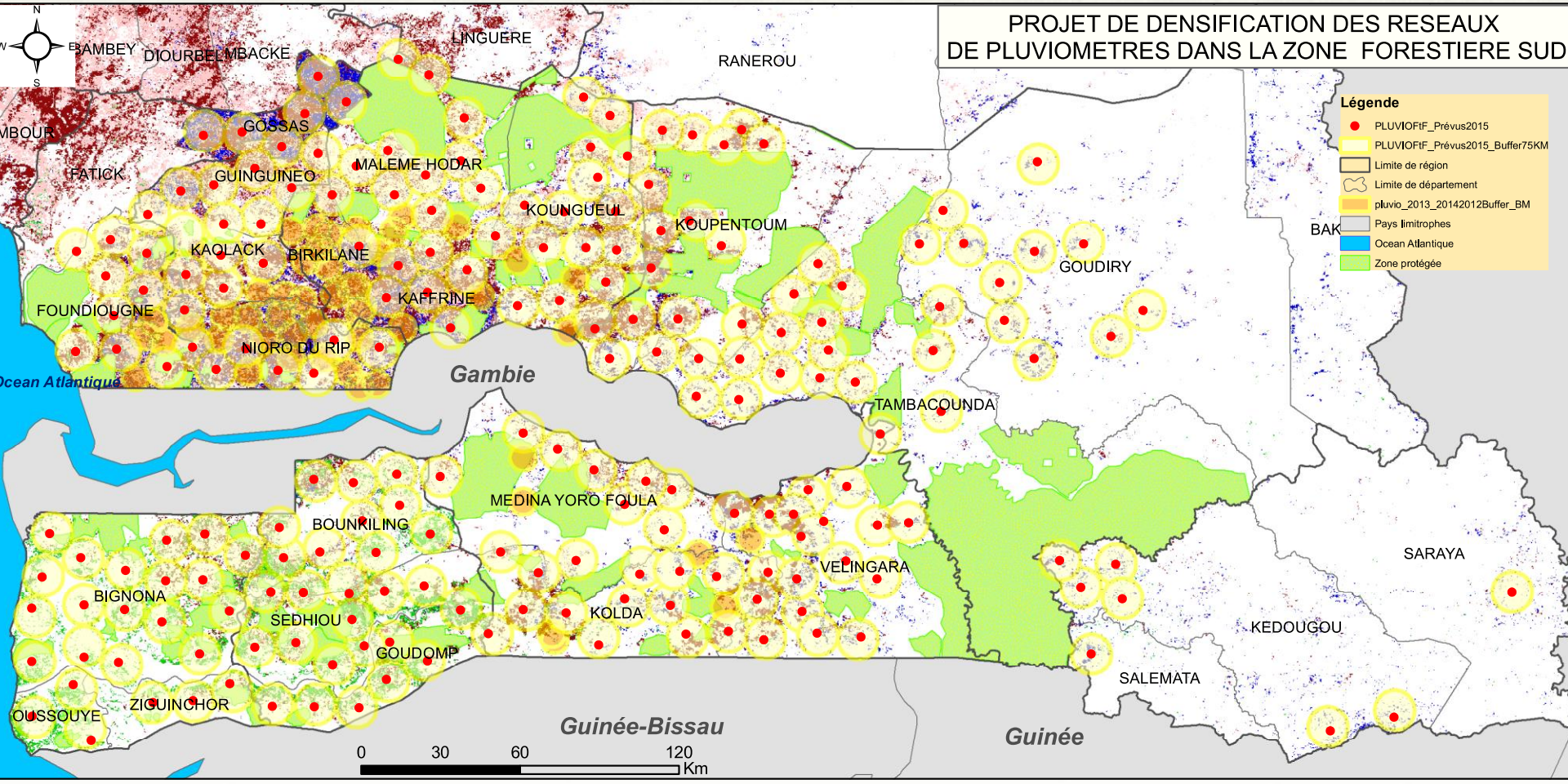
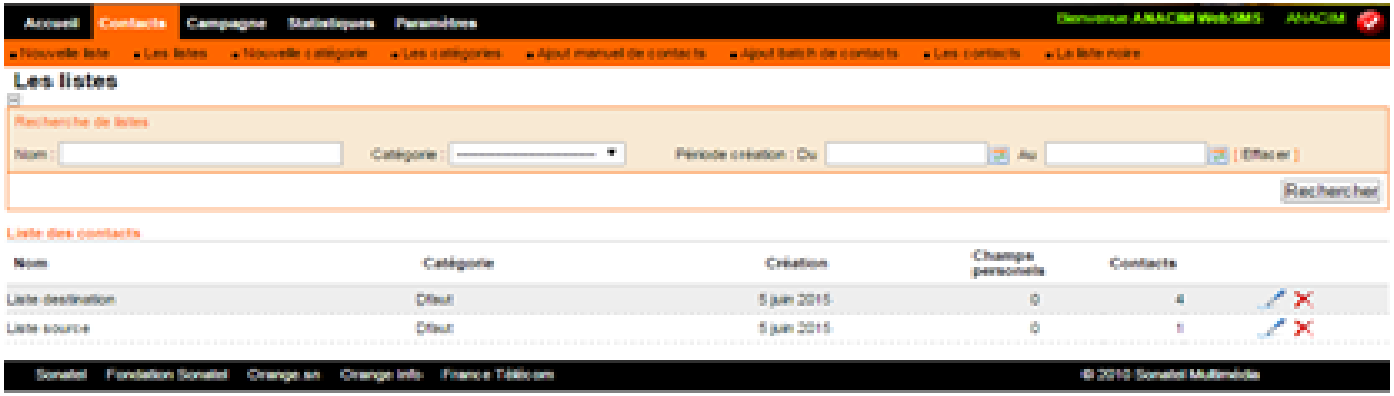
Building the network of rain gauges and disseminating collected data



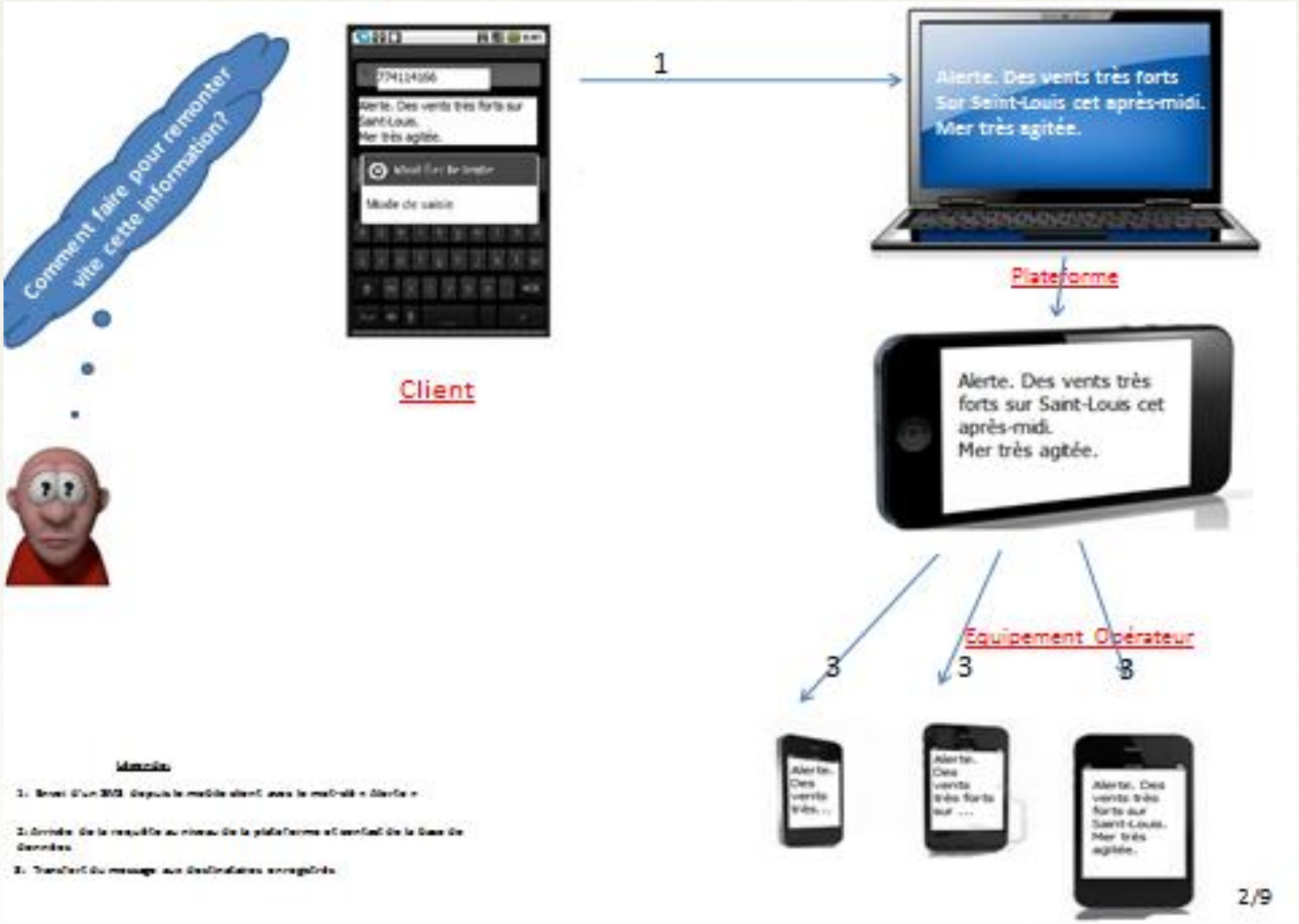
Early warning system for fishermen with COMFISH

COMMENT ?

- Envoi à temps réel et par sms, des alertes météorologiques aux usagers de la mer ;
- Création et configuration de deux groupes d'utilisateurs: 'restreint' et 'élargi'.



Early warning system for fishermen with COMFISH



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A new CIS project: Climate information services for increased resilience and productivity in Senegal (CINSERE)

How did we identify the need for this project?

Specific climate information needs of beneficiaries inventoried and indigenous knowledge on bioclimatic indicators and climate risk management practices documented. Context-specific communication strategies analysed for each of the FTF projects, as well as their current governance structure in the perspective of disseminating climate information.

This project builds mainly:

(1) on current achievements of the 4 USAID Feed the Future (FtF) funded projects (*Naatal Mbay, Yaajeende* and COMFISH, ERA);

(2) on CCAFS work on tools, methods and evidence to support the production, communication and use of climate-related information for agricultural management in several contexts;

(3) on successful experience of CCAFS and partners in Senegal (ANACIM, ISRA) on large scale dissemination of downscaled climate information and services (CIS) in order to better manage climate risk through the improved provision, communication, and use of climate information and services to stakeholders in the crop production, fisheries and pastoralist sectors..

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Goal of the project?

Increase the resilience and productivity of targeted Senegalese farming and pastoralist communities, including members of both sexes, in the Feed the Future (FtF) Zone of Influence in the face of climate variability and change, through the improved provision, communication, and use of climate information and services.

A secondary goal defined by USAID is to increase understanding of how to supply relevant and effective climate and weather information to the fishery sector and livestock sector.

The CIS project will also aim at improving Food Security governance beyond producers to include other decision-makers and stakeholders (local communes, service providers to smallholders, different value Chain actors).

Overall, the purpose is to capacitate relevant organizations (ANACIM, bodies involved in the FtF projects implementation) to succeed in developing and communicating tailored and salient CIS in support of farms', fisheries' and pastoralists' communities.

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Duration and beneficiary: 3 years to directly reach 245 000 farmers (145 000 with Naatal Mbay and 100 000 with Yaajende)
$)

key indicators

of tailored weather and climate information products developed by the national met service.

# of beneficiaries (disaggregated by sex and age) including farmers, pastoralists and fisher folks that got access to CIS; percentage of beneficiaries who effectively received a requested CIS; level of understanding of the proposed CIS by end-users

# of stakeholders (disaggregated by sex and age) including farmers, pastoralists and fisher folks that used CIS for their management decision making and adopted best risk management practices; % increase agricultural productivity (crop, livestock and fisheries) as an impact of better risk management through CIS use; % of farmers' CIS needs being met by the developed and proposed CIS products

# of local organizations (private and public) capacitated to produce and disseminate CIS.

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key partners at the national level, Regional and Global

USAID/Senegal FTF project
ISARA
National Agriculture Department
ICRISAT
CCAFS

Strategy to develop climate services that are demand driven and sustainable

The CIS will be integrated with FtF activities (*Naatal Mbay, Yaajeende*, and COMFISH) to facilitate the increased adoption of the already available risk management tools, approaches and local adaptive practices (e.g., use of improved seeds, water harvesting, and safety at sea). CCAFS will also leverage its products and experience from on-going projects in Senegal and more generally in West Africa, to support these project activities

There is need to benchmark and identify the relevant business models for use in the CIS approach to sustainability, depending on the CIS Value Chain (VC) segment (s) that elicits Willingness to Pay (WTP) for CIS access by end-users, or depending on WTP outside of the VC. Also, through building a business model based on differentiated public-private partnerships for CIS diffusion, the process could be sustainably pursued in its own.

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Communications channels to be used to disseminate the information

Selected men, women and youth stakeholders (e.g.: project technicians, lead farmers, community leaders, private sector (e.g. CBSP), agriculture, environment, livestock, civil protection and met officers, local decentralized officials, media, etc.) organised into local working groups and capacitated/trained on how to work together as a functional and operational team to disseminating climate information to their communities (e.g. adapting current governance and stakeholder organization/structure of each of the 3 USAID projects into the multidisciplinary working groups model (MWG). Each FtF project has its own way to support local groups, and thus the means to deliver climate information for increased usage may differ depending on geographic location and local FtF partner.

Agricultural public and private extension officers, and other key stakeholders (identified in Activity 1) will be trained and equipped to understand and effectively communicate climate information with groups of farmers, pastoralists and fisher folks

Effective technology-based communication channels (e.g., mobile phone, rural radio networks, e-platforms) will be developed by service providers covering the project areas to ensure delivery of climate and weather information to all stakeholders.

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