AFD
AGENCE FRANÇAISE
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2019 state of climate services – agriculture & food security

WORLD METEOROLOGICAL ORGANIZATION

WFP

Webinar

9 April 2020

Climate Centre

FAO

Guidelines

Philippe Roudier, research officer, weather & climate risks, AFD

- The whole webinar is recorded
- Write down your (short!) questions using the online interface
- Use the *like button* for the top ones
- Use the *print screen* button on your keyboard to save interesting information (links etc…)

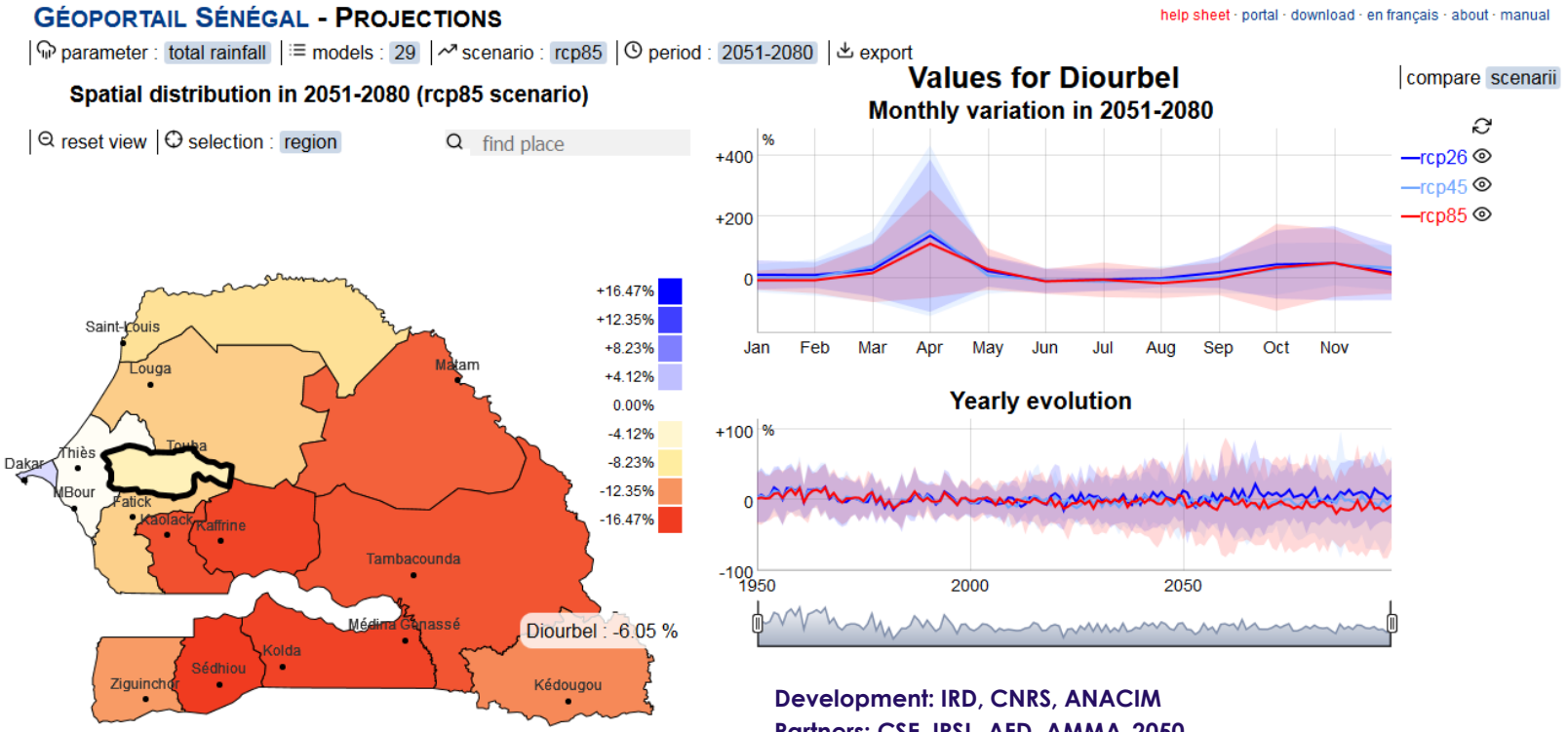
Introduction

Thomas Melonio, Director, Innovation, Research & Knowledge department (AFD)

CLIMAP: a climate data portal for Senegal

http://retd1.teledetection.fr/climap/proj/

Rainfall



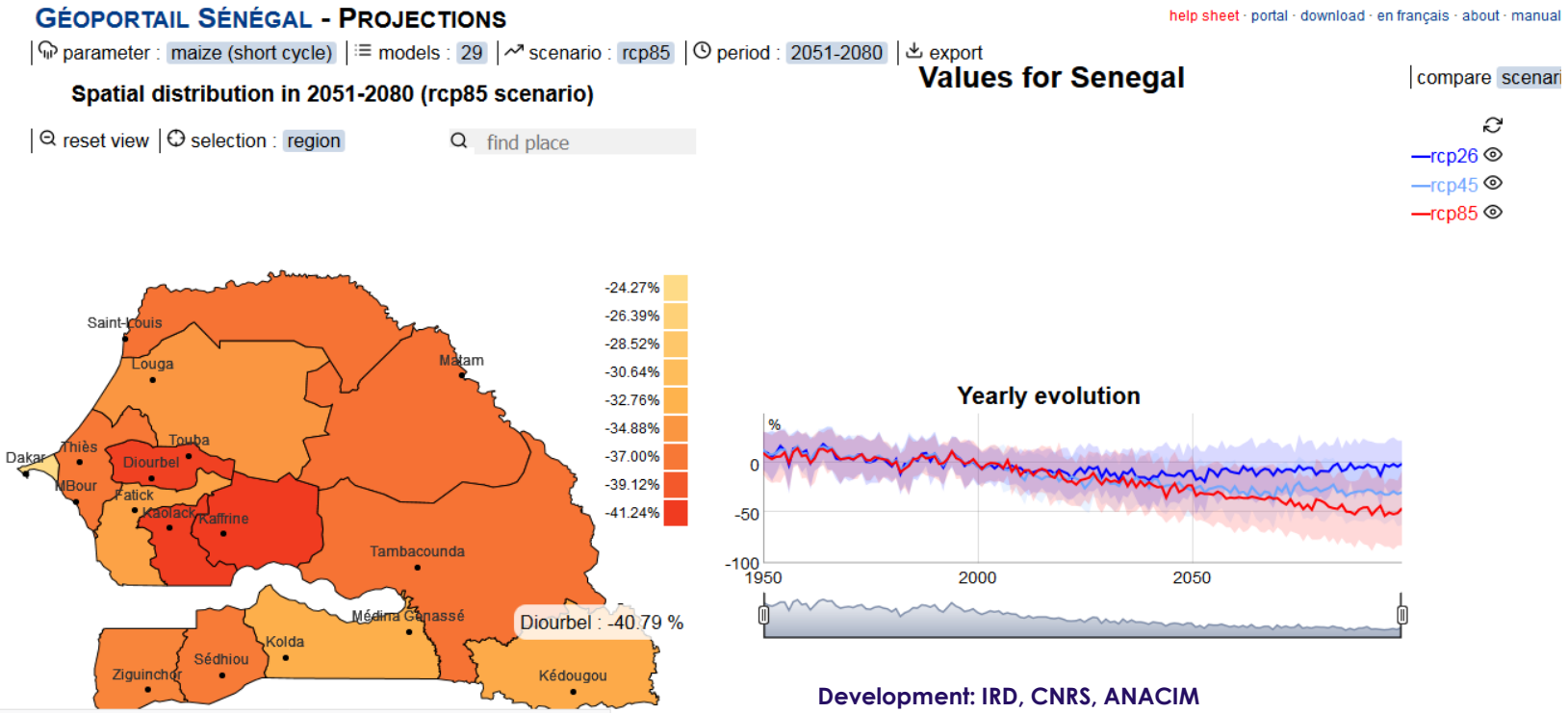
Development: IRD, CNRS, ANACIM

Partners: CSE, IPSL, AFD, AMMA-2050

CLIMAP: a climate data portal for Senegal

http://retd1.teledetection.fr/climap/proj/

Maize yield



Development: IRD, CNRS, ANACIM

Partners: CSE, IPSL, AFD, AMMA-2050

What are climate services?

Cheikh Kane, Climate Resilience Policy Advisor (Red Cross Red Crescent Climate Centre)

"Adaptation" refers to the adjustments that societies or ecosystems make to limit the negative effects of climate change or to take advantage of opportunities provided by a changing climate.

As part of the adaptation agenda, **climate services (CSs)** are a way to **improve climate risk management** and **increase resilience**.

I. DIFFERENT DEFINITIONS OF CLIMATE SERVICES

- **European Research and Innovation Roadmap for Climate services**: transformation of climate-related data together with other relevant information into customized products such as projections, forecasts, information, trends, economic analysis, assessments (including technology assessment), counseling on best practices, development and evaluation of solutions and any other service in relation to climate that may be of use for the society at large. (Directorate-General for Research and Innovation, 2015).

I. DIFFERENT DEFINITIONS OF CLIMATE SERVICES (ctd)

- **In the United Kingdom**: Climate services range from hurricane warning and response systems, to pioneering agricultural techniques, to flood resistant infrastructure planning, to supply chain resilience analysis. **Climate services bring relevant data and information together to support adaptation and mitigation programmes, and to assist with climate risk management** at all levels (UK Climate Services, 2015).

I. DIFFERENT DEFINITIONS OF CLIMATE SERVICES (ctd)

- **For the French National Research Alliance in Environment**: Climate services means all the information and service delivery which allows to assess and characterize the past, present or future climate, to assess the vulnerability of economic activities, of environment and society to climate change, and to provide elements for undertaking mitigation and adaptation measures (Implementation of the scientific strategy for climate services development, 2014).

I. DIFFERENT DEFINITIONS OF CLIMATE SERVICES (ctd)

- **For the Global Framework for Climate Services (GFCS)**:

It is providing climate information in a way that assists decision-making by individuals and organizations. A service requires appropriate engagement along with an effective access mechanism and must respond to user needs (Development of the Global Framework for Climate Services at the national level, may 2014).

I. DIFFERENT DEFINITIONS OF CLIMATE SERVICES (ctd)

Other basic definitions, as used in the GFCS Implementation Plan include:

- Climate data: Historical and real-time climate observations along with direct model outputs covering historical and future periods. Information about how these observations and model outputs were generated ("metadata") should accompany all climate data;

I. DIFFERENT DEFINITIONS OF CLIMATE SERVICES (ctd)

- Climate product: A derived synthesis of climate data. A product combines climate data with climate knowledge to add value. Climate information: Climate data, climate products and/or climate knowledge;

- Climate information: Climate data, climate products and/or climate knowledge.

II. MAIN COMPONENTS OF CLIMATE SERVICES

Effective CS is the combination of:

- **Accumulation of knowledge** about the past, present and future **state of the climate system**;

- **Identification of the type and form of services** involving information about the climate and its effects that are needed within the community at large and within specific sectors that are **particularly sensitive to climate variability and change**;

II. MAIN COMPONENTS OF CLIMATE SERVICES (ctd)

- **Development and delivery of advice** and a range of 'products' based on climate knowledge and driven by identified needs;
- Effective **uptake and application of the advice and products** to help achieve desired outcomes.
- Another critical step in the development of climate services is the identification (of) and discrimination between users, for the **ownership** and **uptake** of the climate service to develop: As such **Intermediary users** are very different from the **final end-users** of climate services.

III. ETHICAL FRAMEWORK FOR CLIMATE SERVICES

Four elements have been proposed to the production of climate services:

- **Integrity**, about conduct in practice;
- **Transparency**, which lies at the heart of building trust between communities. This can lead over time to a breakdown of trust in the individual climate service provider, and within the broader services community;
- **Humility**, meaning "not presenting information as more than it is, nor less than it is; not promising more than can be delivered, nor obscuring an underlying reality of uncertainty";

III. ETHICAL FRAMEWORK FOR CLIMATE SERVICES (ctd)

- **Collaboration**, as the cornerstone of climate services. Climate information is made useful to society only when fundamental and applied researchers work together with technical actors, government officials and members of civil society. Openness to collaboration, entails listening to user needs, allowing for their input and engaging in a process of co-production of climate services to ensure that the outputs of this process address real-world problems, decision contexts and capacities.
- ("Toward an ethical framework for climate services". Climate Services Partnership Working Group on Climate Services Ethics. October 2015)

IV. RED CROSS CLIMATE CENTRE AND CLIMATE SERVICES

- The Climate Centre has been involved in assessing effectiveness of early-warning systems at the community level, developing education programmes on climate for rural and urban communities, producing contingency plans for climate extremes, and supporting the Red Cross National Societies in developing their Early Action Protocols (EAP) for Forecat based Financing projects.

IV. RED CROSS CLIMATE CENTRE AND CLIMATE SERVICES (ctd)

- An example of operational climate services articulated around the 5 pillars of the GFCS (**User Interface Platform, Climate Services Information System, Observations and Monitoring, Research, Modeling and Prediction, Capacity Developmen**t): *The Forecast based Financing (FbF) for flood and drought hazards in the West African countries (in Mali & Niger*).

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Menu of forecasts

Forecast	Forecast type/Spatial Resolution	Lead time, how often is produced	Forecast skill
Seasonal rainfall forecast			
Crop weather bulletin			
Seven days weather			
Daily weather			
Water level forecast			
GloFas			

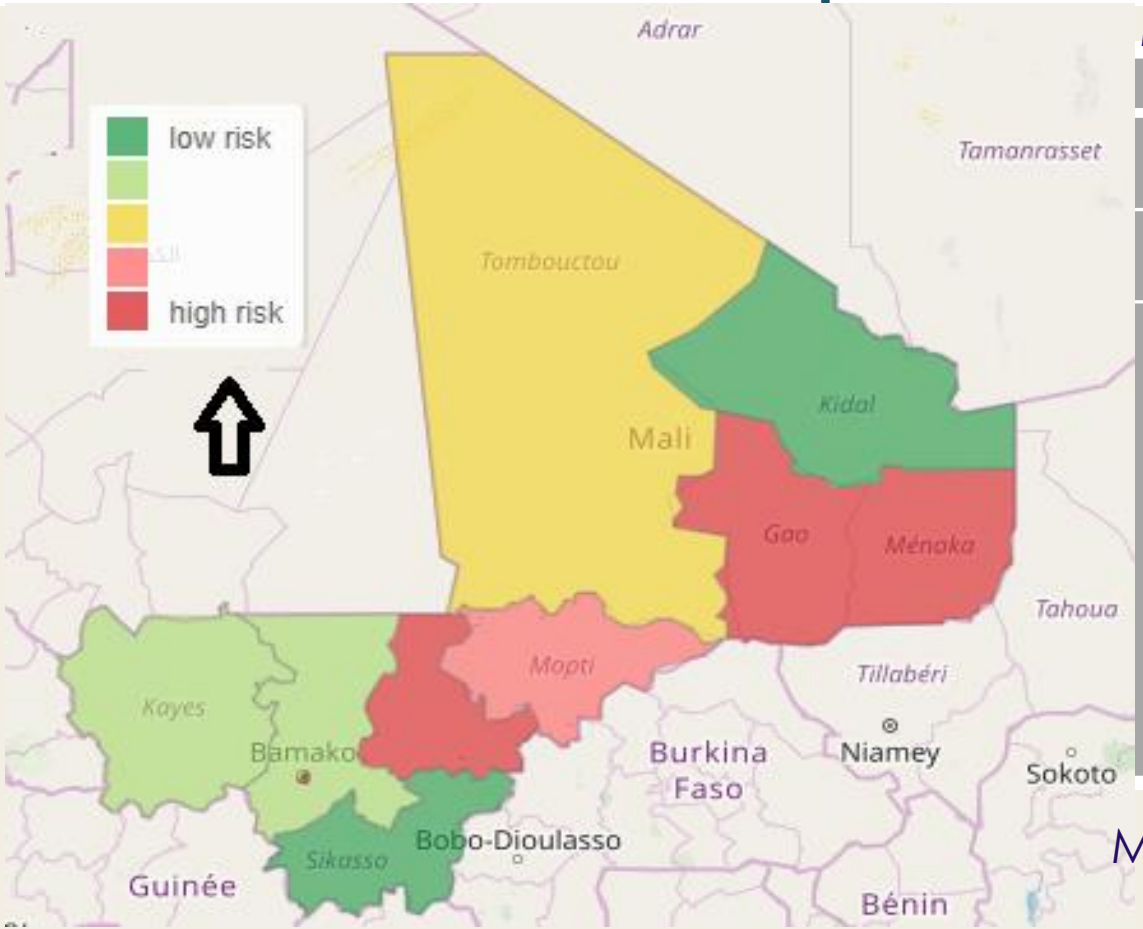
Climate Centre

Selecting a trigger

Based on:

- **Impact** of most concern
- **Action** to address impact
- **Hazard magnitude** causing this impact
- **Forecast probability** for this impact to trigger action
- **Skill of the forecast** at different **lead times**
- **Think about MATCHING ACTION WITH TRIGGER!**

Dashboard example



INFORM: composite risk index

Risk	INFORM																			
Dimensions	Hazard & Exposure								Vulnerability					Lack of Coping Capacity						
Categories	Natural					Human			Socio-Economic				Vulnerable Groups		Institutional			Infrastructure		
Components	Earthquake	Tsunami	Flood	Tropical cyclone	Drought	Current Conflict Intensity	Projected Conflict Intensity		Development & Deprivation (50%)	Inequality (25%)	Aid Dependency (25%)		Uprooted People	Other Vulnerable Groups	DRR	Governance	Communication	Physical Infrastructure	Access to Health System	

Map of exposition to flood of Mali

Climate Centre

Thank you for your attention

kane@climatecentre.org

2019 state of climate services report

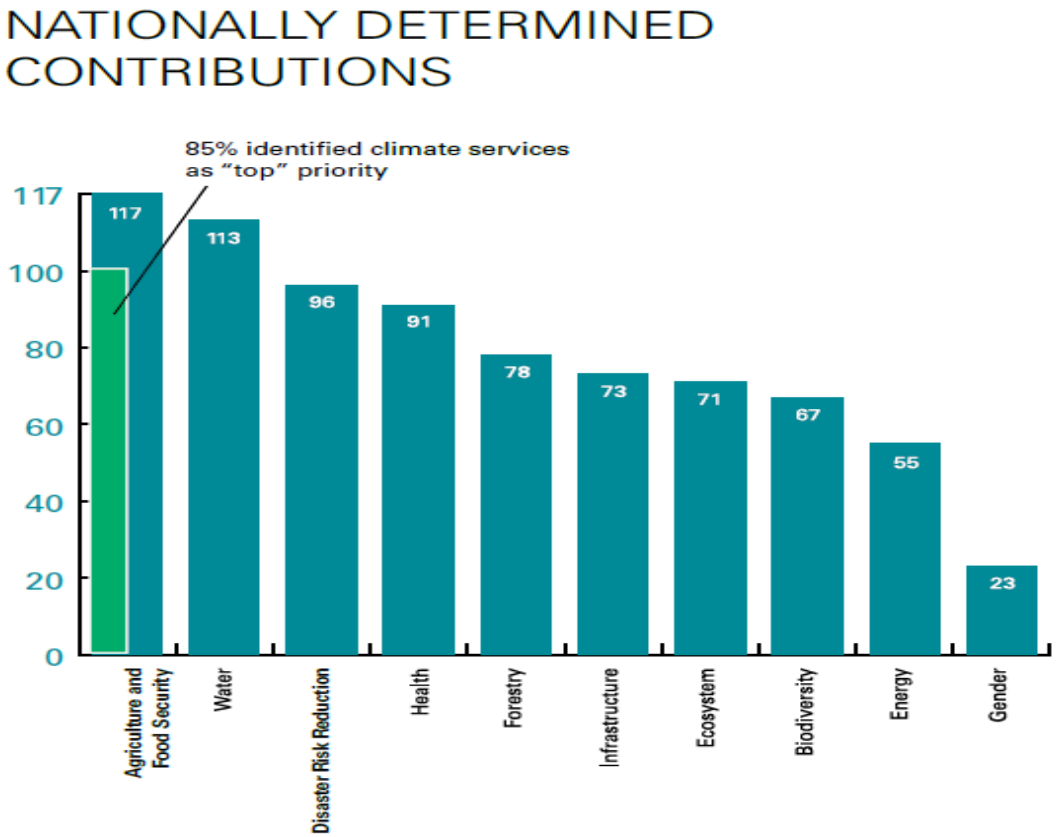
Veronica Grasso, Programme Officer, Coordinator of the report(World Meteorological Organization)


WATER
HEALTH
ENERGY
DISASTER RISK REDUCTION
2019 STATE OF CLIMATE SERVICES
AGRICULTURE AND FOOD SECURITY
WMO-No. 1242
WEATHER CLIMATE WATER
WORLD METEOROLOGICAL ORGANIZATION
GFCS
GLOBAL FRAMEWORK FOR CLIMATE SERVICES
ADAPTATION FUND
CGIAR
CCAFS
Food and Agriculture Organization of the United Nations
GREEN CLIMATE FUND
gef
GLOBAL ENVIRONMENT FACILITY
GFDRR
WORLD BANK GROUP
World Food Programme

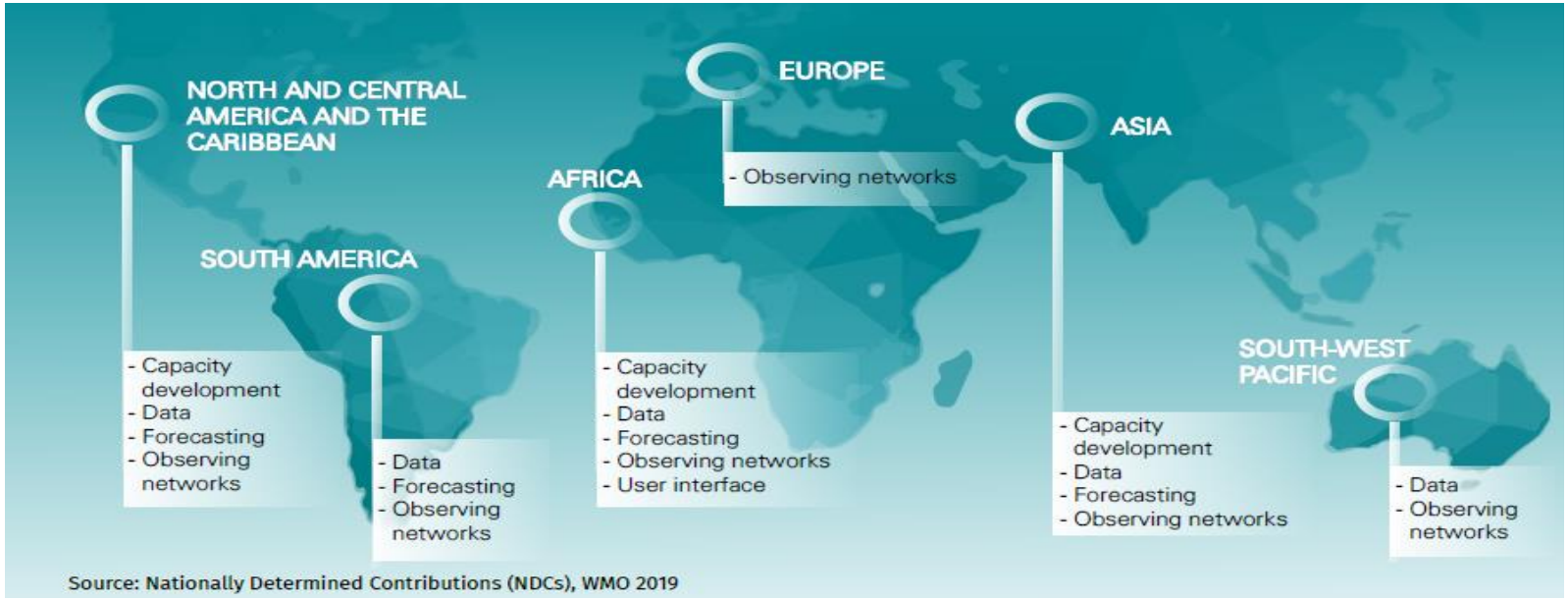
THE TRENDS

- After years of improvement, the number of undernourished people grew from 785 million to more than 821 million between 2015 and 2018 (FAO, IFAD, UNICEF, WFP and WHO, 2019)

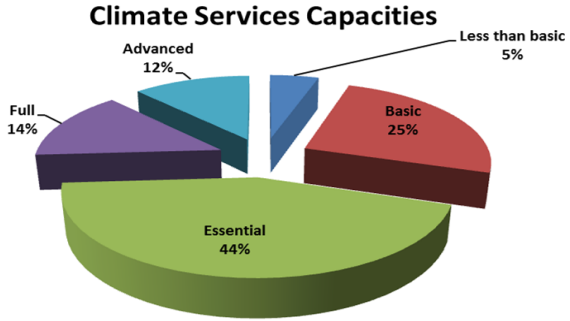
- The global demand for food will increase by 50% and, in the absence of ambitious climate action, yields may decline by up to 30% by 2050 (GCA, 2019).



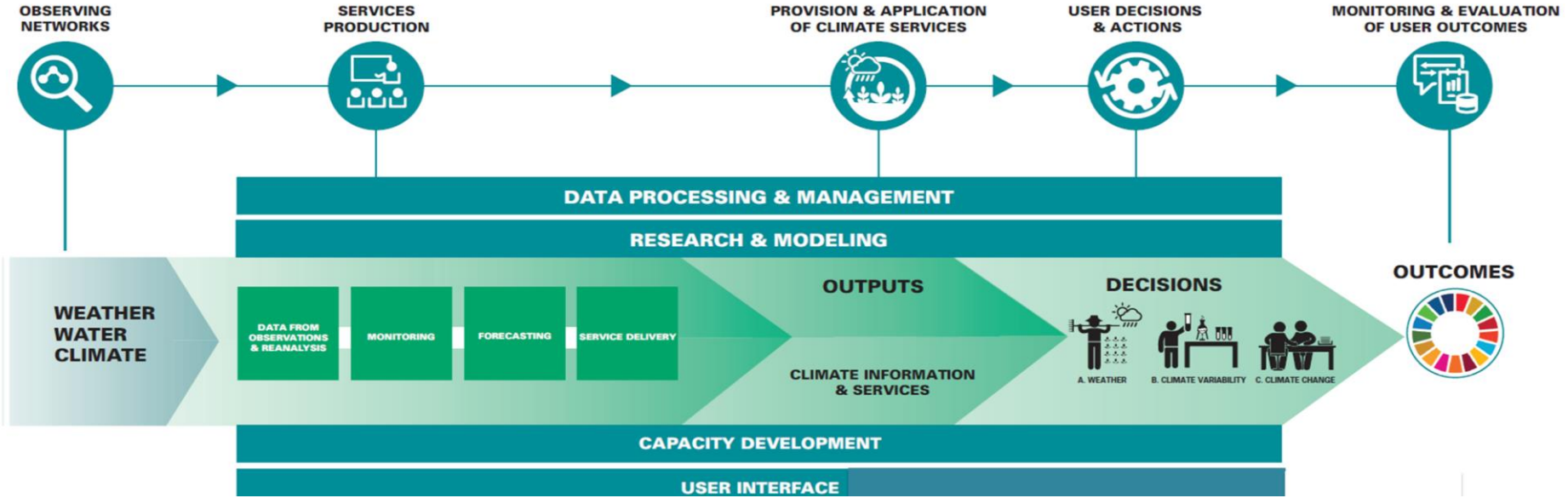
THE STATUS



The benefits of investment greatly outweigh the cost, and yet the capacity to deliver and access these services is uneven and inadequate



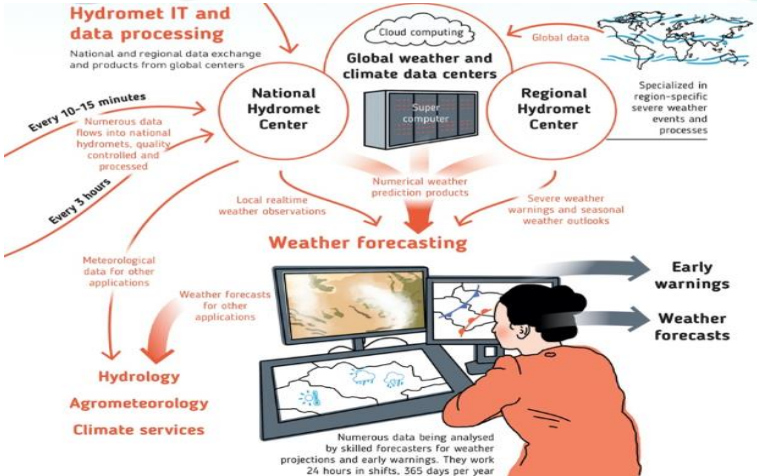
THE VALUE



Improved weather, climate, water observations and forecasting could lead to up to USD 30 billion per year in increased global productivity and up to USD 2 billion per year in reduced asset losses.

THE CENTERS

- Global Producing Centres for Long Range Forecasts
- Designated RCC
- Designated RCC-Network
- RCC in demonstration phase
- RCC-Network in demonstration phase
- RCC proposed
- RCC-Network proposed

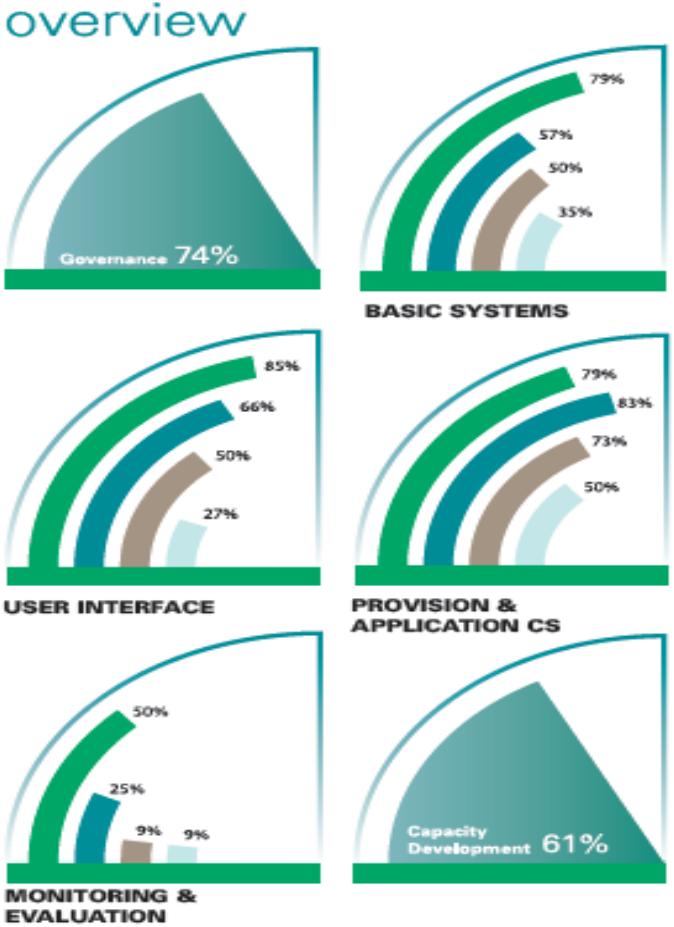


Source: WB

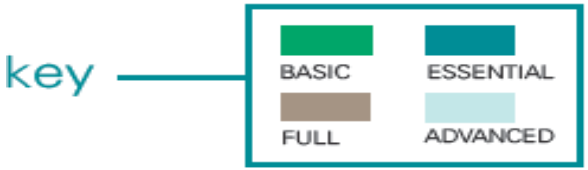
GAPS

- Needs for capacity strengthening in vulnerable regions, particularly the SIDS and Africa
- Monitoring and evaluation of socio-economic outcomes and benefits of climate services is consistently weak worldwide
- Observational data from many developing countries are missing
- Last mile barrier

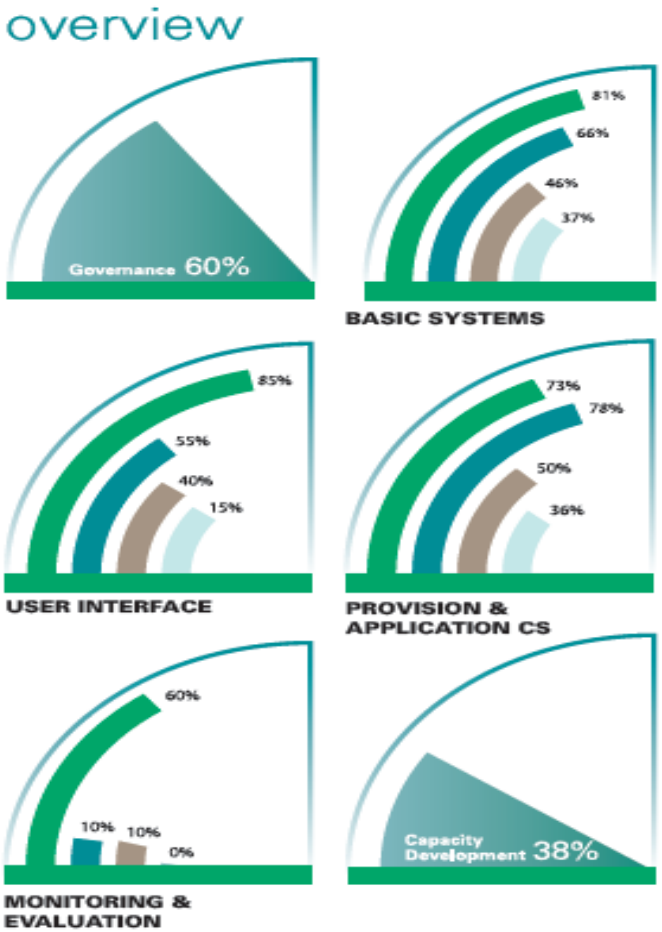
The Status: **AFRICA**



- Africa has the least developed land-based observation network of all continents, and one that is in a deteriorating state
- Focus efforts on deriving use-value from available information and at the same time encourage investments in basic systems capacity



The Status: NORTH AMERICA, CENTRAL AMERICA & CARIBBEAN



- Caribbean SIDS which provided data to WMO are well **below the global average** in terms of their capacities in all areas of the climate services value chain
- This highlights the **importance of a strong Regional Climate Centre** such as the Caribbean Institute of Meteorology and Hydrology (CIMH) which provides crucial support to the Caribbean countries
- **RCCs should be strengthened to play this role in other SIDS dominated regions** as well

RECOMMENDATIONS

- Fit-for-purpose financial support to operationalize and scale up climate services especially in Africa and SIDSs
- Systematic observations as fundamental for the provision of climate actions
- An enhanced climate science basis for priority climate actions
- Addressing the “last mile” barrier through multi-stakeholder governance and partnerships
- Systematic monitoring and evaluation of socio-economic benefits associated with climate services

Thank you

vgrasso@wmo.int

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

WMO OMM
World Meteorological Organization
Organisation météorologique mondiale

Addressing the last mile: FAO experiences

Ana Heureux, Natural Resources Officer (FAO Climate and Environment Division)

The last mile barrier

Despite advances in the production of quality climate services, they cannot be effective if they are not reaching intended end-user.

Some of the barriers to reaching the last mile include:

- Lack of adequate communication channels
- Services are not available into the local language
- Climate services not tailored to local level or providing actionable advice and information
- NMHSs don't have local extension staff or connections to farming communities

Tajikistan case: pilot AMN

Installation of pilot Agro-meteorology Network (AMN), in agricultural areas across the country

- table grapes (Tursunzoda)
- apricots (Konibodm)
- cotton (Balkhi).

Agency of Hydrometeorology (AoH), plays the role of administrator for Hydromet Weather Network as part of its mandate as the sole custodian of weather data in Tajikistan.

Tajikistan case: lessons learned

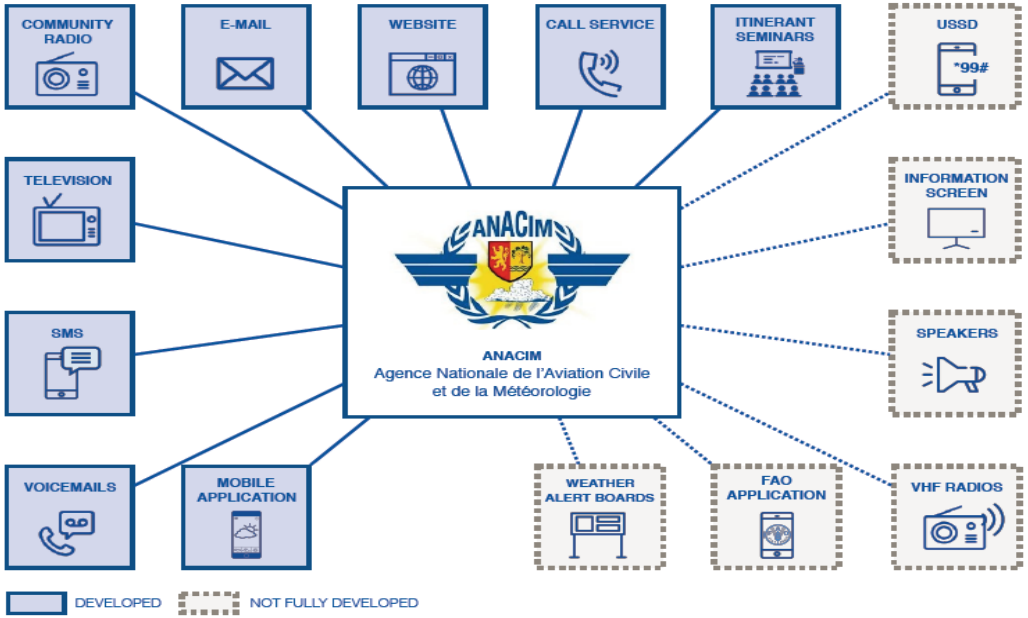
1. Co-production and effective dissemination of agro-climate services requires a clear definition of the role of each institution or actor

2. Pilot programmes can act as a catalyst when established within the current institutional frameworks

3. Capacity development should address the needs and requests from farmers. In Tajikistan, climate driven pests and diseases were identified as a key service that could support early management.

Senegal case: targeted services

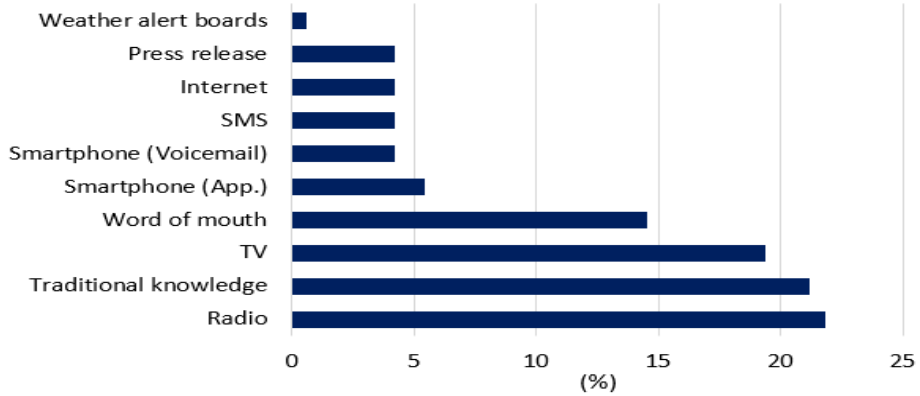
Developing national agrometeorological and agroclimatological capacity for Senegal and Rwanda Met. agencies (FAO-WMO,2018)

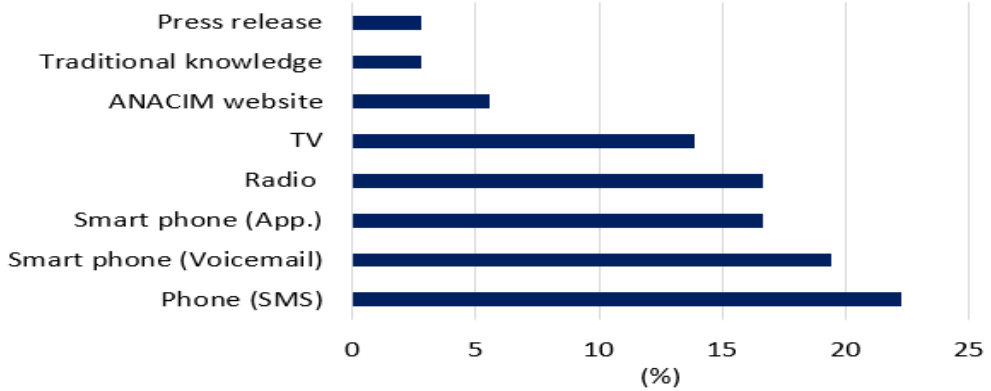


- TV: weather forecasts (daily)
- Community radios (106)
- Agromet. bulletins (GTP): food price, food stocks, NDVI, precipitation (10-days)
- SMS: weather forecast (+155k)
- Weather alert boards (48 villages)
- Voicemails: weather alerts (+47k)
- Emails: Agromet. Info. with extension services

Senegal case: feedback from last-mile

1. Current vs. requested communication means for climate services





2. Types of services requested

AGRICULTURE	LIVESTOCK	FISHERIES
1. Seasonal forecast	1. Fodder availability	1. High swell forecast
2. Onset date	2. Water availability	2. High tides forecast
3. Offset date	3. Lightning zones	3. Visibility forecast

Senegal case: lessons learned

1. Translation of information into local languages

2. Engagement with phone operators in the delivery of climate services

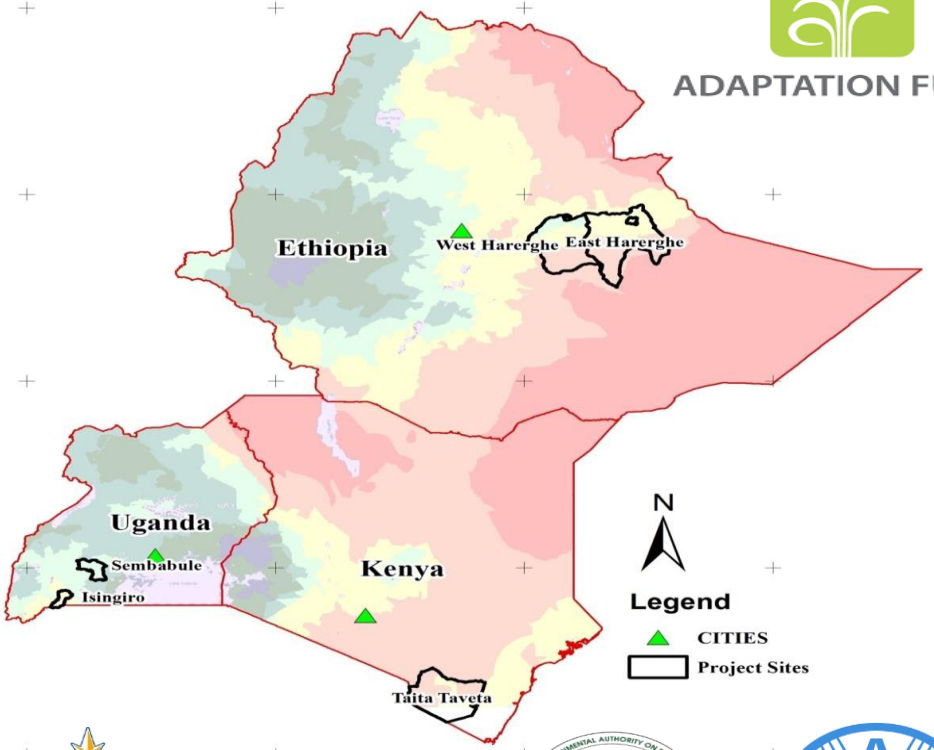
3. Unstructured supplementary service data (USSD) no internet access, non-smart phone, feedback structure

4. stronger feedback mechanisms – ANACIM call back services saturated

Case ACREI: Agricultural Climate Resilience Enhancement Initiative (ACREI)

1. Community Adaptation Practice
2. Climate proofing extension system
3. Climate informed decision making through participatory approaches

Community based activities (10 communities per country) identified in partnership with local authorities & stakeholders. Training and engaged 1,800 farming households.



ADAPTATION FUND

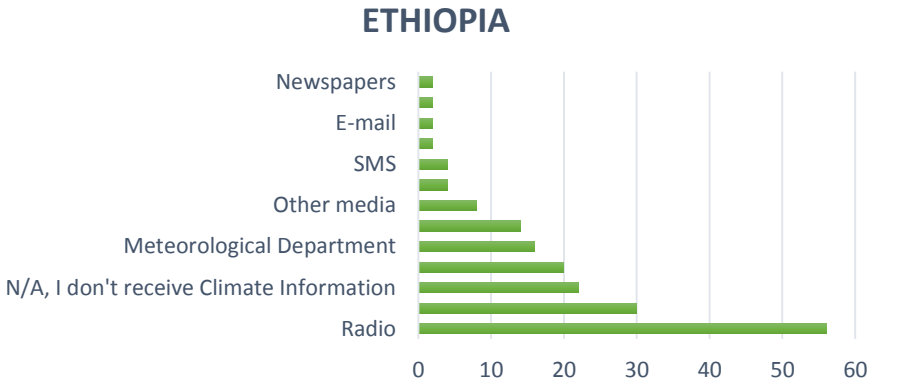
WORLD METEOROLOGICAL ORGANIZATION

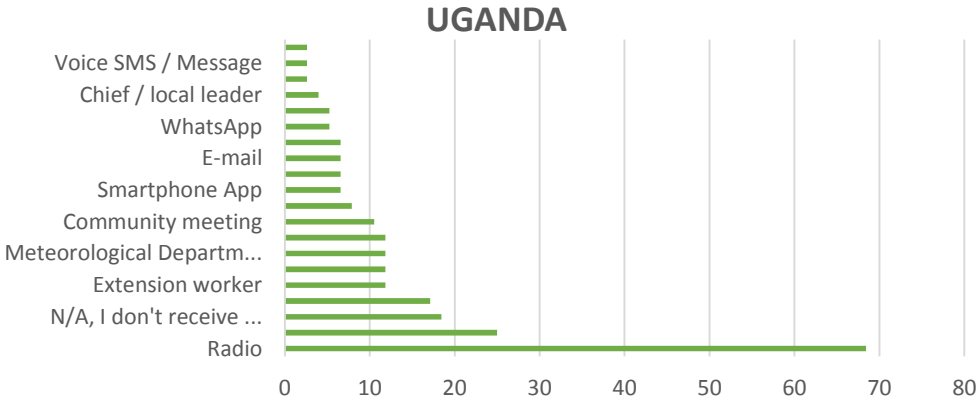
IGAD

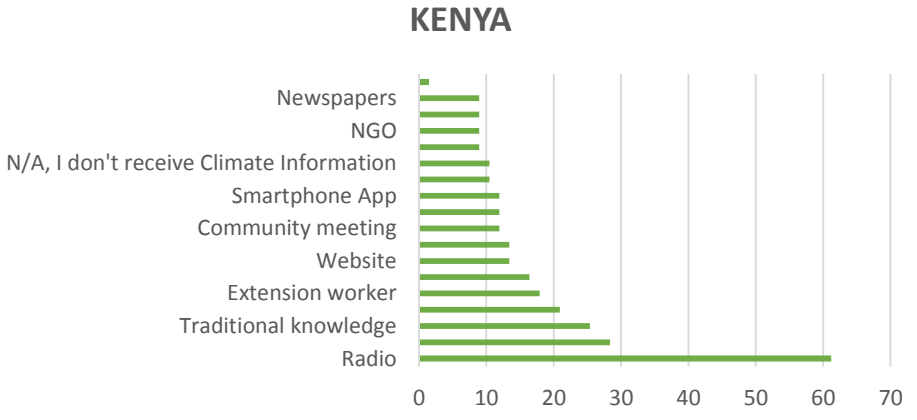
FAO FIAT PANIS

ACREI case: identifying communication channels

- **Radio remains the key current and desired means for farmers to receive climate information**
- Use of social media and smartphone may be more appropriate in Kenya and Uganda
- access to mobile phones in Uganda and Kenya > 90%; Ethiopia ~ 30%







ACREI case: participatory workshops and integration of climate into Farmer Field Schools

- Communities engaged through participatory workshops for seasonal advisory development
- Facilitated by NMA staff to create dialog between producers and users
- Climate integration in Farmer Field Schools for understanding and application of services

ACREI case: lessons learned

1. Participatory development of seasonal advisory is important for the development of location specific advisories.

2. Farmer field school (FFS) and use of climate information in existing FFS supports farmers to understand how climate information can be used to decide between different practices

3. The learning process is two-way between producers and users

Thank you!

Contact: ana.heureux@fao.org

Reaching the last mile: WFP experiences

Katiuscia Fara, Senior Climate and DRR Advisor (World Food Programme)

WFP experience on climate services

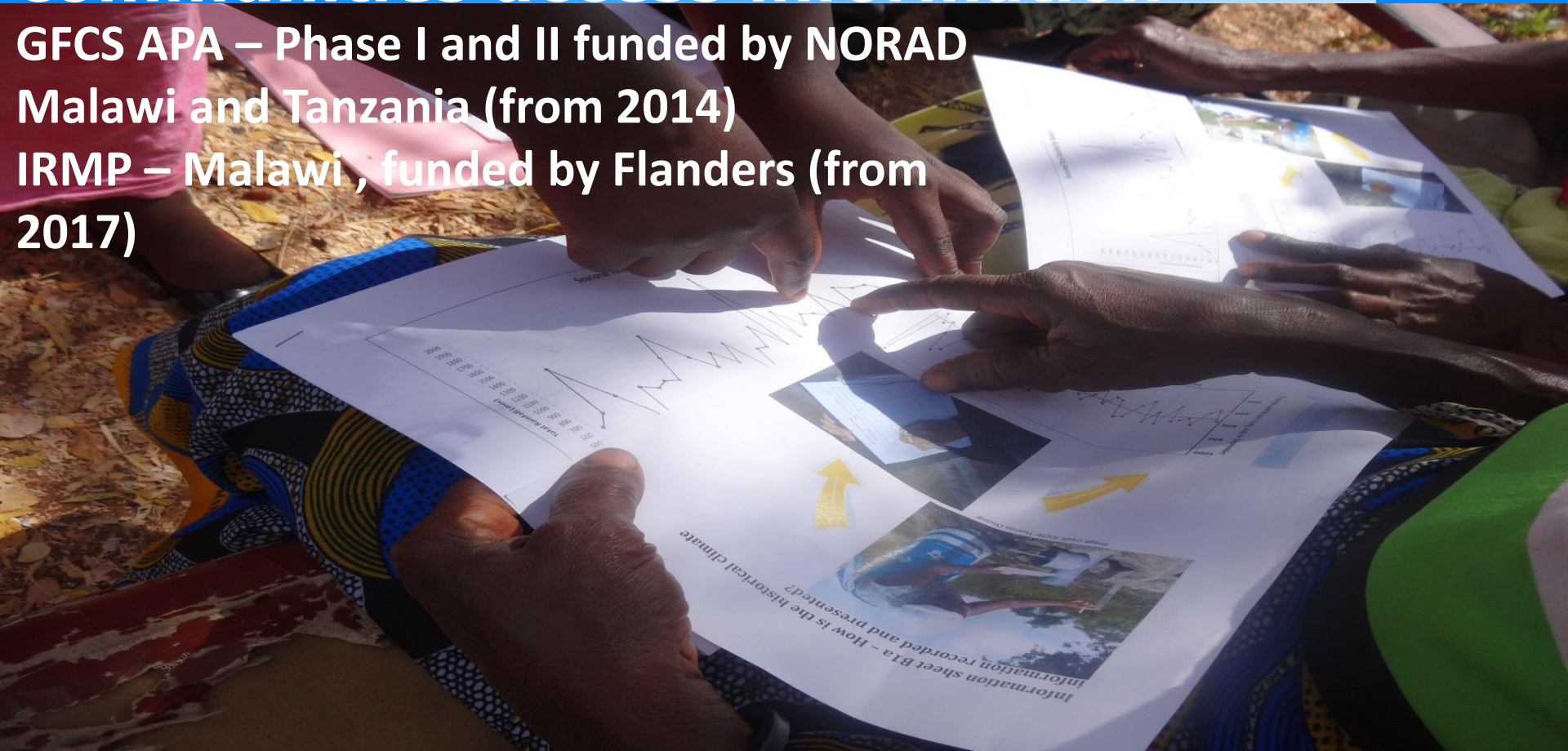
WFP's long-standing expertise:

- **Early warning systems** and weather forecasts to WFP staff & government
- **Food security analysts** translate climate and weather information to help WFP and partners assess & respond more effectively

Innovations that build on this expertise:

- **Climate and Food Security Analysis**
- **Integrating "last mile" climate services into our programmes** to meet local needs
- **FoodSECuRe and Forecast-based Financing**
- **LEAP**
- **SAPARM –** grazing maps & satellite data (with PCI international)

The last mile – helping communities access information



GFCS APA – Phase I and II funded by NORAD Malawi and Tanzania (from 2014)

IRMP – Malawi , funded by Flanders (from 2017)

Understanding needs & communication channels...

Strengthening capacities of intermediaries - PICSA

WFP
wfp.org

Long Before the Season

Historical Climate Data

Crop, Livestock + livelihood Options

Participatory Planning

Just Before the Season

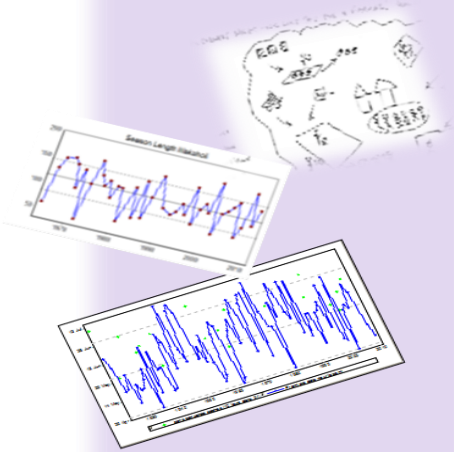
Seasonal Forecast & Revise Plans

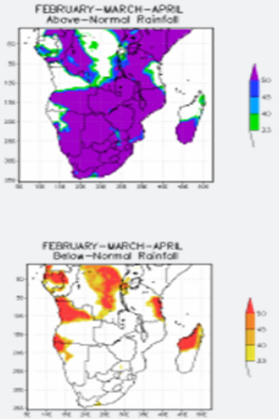
During the Season

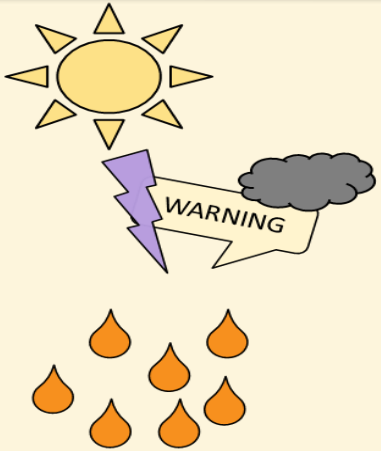
Short-term Forecasts & Warnings

Shortly After the Season

Review weather, production, forecasts & process





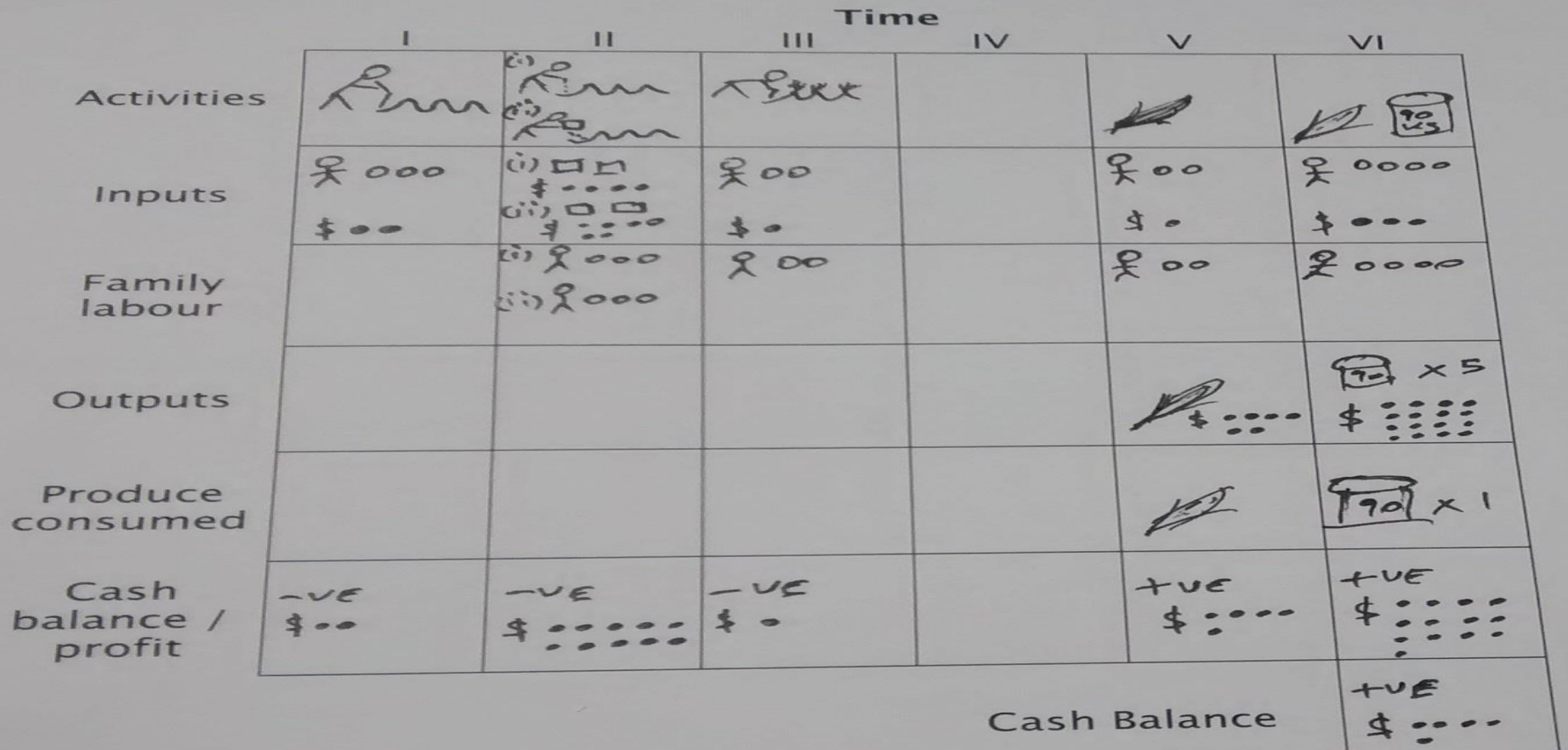


Seasonal Forecasts from http://rava.qsens.net/themes/climate_template/seasonal-forecasts/

Understanding the information…

Using the information to plan ahead of the season

Farmers compare and decide which option to try



Co-producing the information

- Advisories in radio programmes are co-produced together with Farm Radio Africa, Farm Radio Trust, National Met Services, MoA, extension officers and WFP

Radio listening Hubs

Piloting the Picsa app for climate services delivery

University of Reading

PICSA Malawi App

An android application with tools and resources designed to support PICSA training in Malawi.

GET IT ON Google Play

Search "*picsa malawi*"

Key features

- Fully functional offline
- Easy to add translations
  Currently available in English and Chichewa
- Modular Design
  An 'app of apps', where all tools can also be deployed standalone
- Open source
  All code used to build the app is freely available, under GNU GPLv3 licence
- Resources
  PICSA manual, training videos, information sheets etc...

LIMITLESS **POTENTIAL** | LIMITLESS **OPPORTUNITIES** | LIMITLESS **IMPACT**

To recap… what we learnt

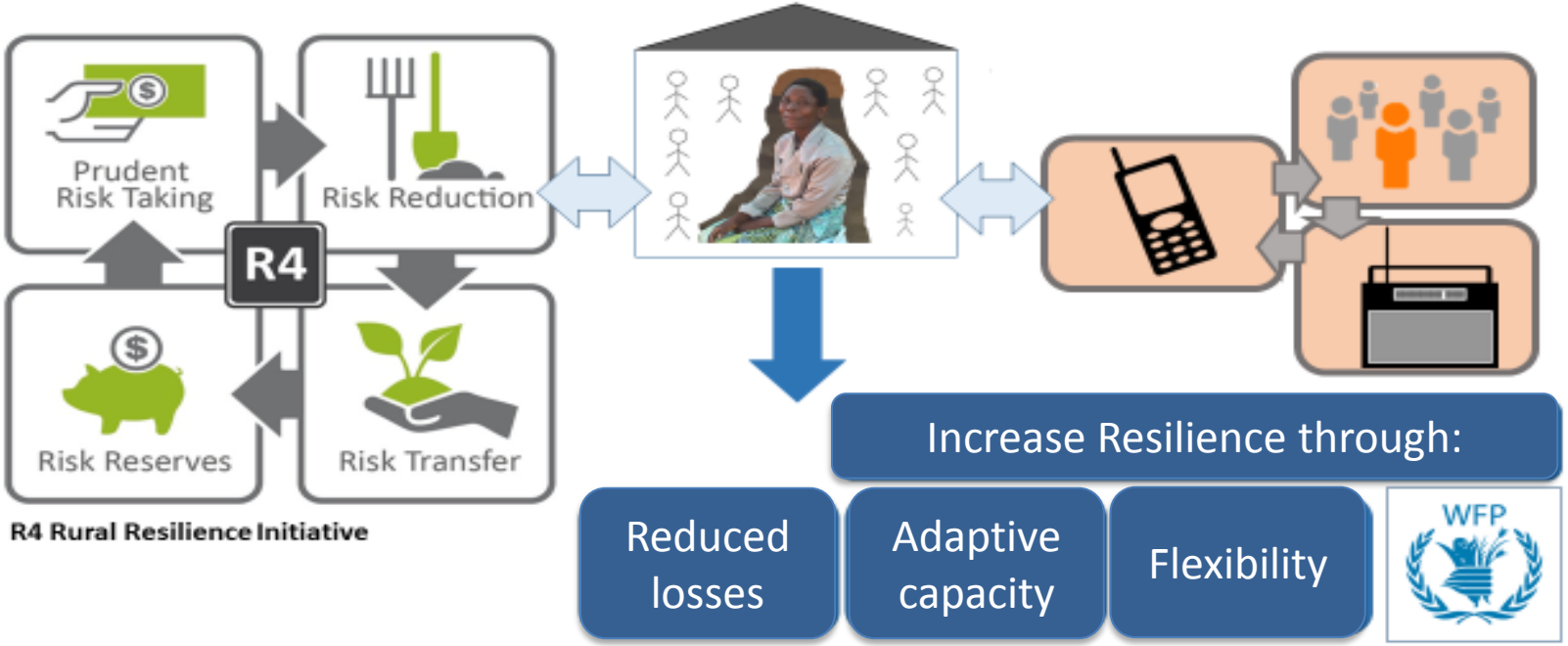
- It **starts with the users**…needs? decisions? access?
- **Co-production of knowledge/information**: need to create space for this to happen (P&R days, radio programmes)
- **Tailor communication** to needs, gender, cultural norms & traditional knowledge – i.e. visual tools vs sms
- **Dialogue** between users and producers & **two-way** feedback mechanism - it's about continual learning & incremental improvements, not one conversation
- **Farmer decides** - supporting farmers make their own choices by providing tools & Information they need
- **Partnerships** are key – it's not a one agency job

Good information is key to build trust…

- **Building Trust -** traditional knowledge remains central for decision making - Farmers trust farmers first
- **Contextualisation** – incl. locally specific information and options

An integrated approach is needed: information alone is not enough!

WFP is working to help farmers, like Katalina, become food and nutrition secure



“Above all, [the interventions] opened my mind such that I now know what is happening in terms of weather and I am able to plan accordingly (Malawi interviewee)

THANK YOU!

Katiuscia.fara@wfp.org

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Q&A: please write down your questions!

Veronica Grasso (WMO, vgrasso@wmo.int) – CS report
Ana Heureux (FAO, ana.heureux@fao.org) - the last mile
Katiuscia Fara (WFP, Katiuscia.fara@wfp.org) the last mile

Discussion: how to create more useful climate services?

Moderator: Cheikh Kane, Climate Resilience Policy Advisor (Red Cross Red Crescent Climate Centre)

Q&A: please write down your questions!

Veronica Grasso (WMO, vgrasso@wmo.int) – CS report

Ana Heureux (FAO, ana.heureux@fao.org) - the last mile

Katiuscia Fara (WFP, atiuscia.fara@wfp.org) the last mile

Cheik Kane (CRC, *kane@climatecentre.org*) - discussion

A bit of advertisement…

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➔ *Vaughan C., Hansen J., Roudier P., Watkiss P. et E. Carr (2019), "**Evaluating Agricultural Weather and Climate Services in Africa: Evidence, Methods and a Learning Agenda**", WIREs Clim Change.*

The final word…

- CS are powerful tools to increase agriculture resilience
- It has a high impact for farmers (ex: up to +15% of income in Niger)
- Reaching the last mile is a big challenge
- Other challenges not addressed here:
  - ✓ Business model
  - ✓ Inequalities of access/use
- Other sectors: water, health, energy, **DRR**…

Thanks & stay safe!

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