



AICCRA

Accelerating the Impact of CGIAR
Climate Research for Africa



Climate information services in Africa: Experience from AICCRA Project in Senegal

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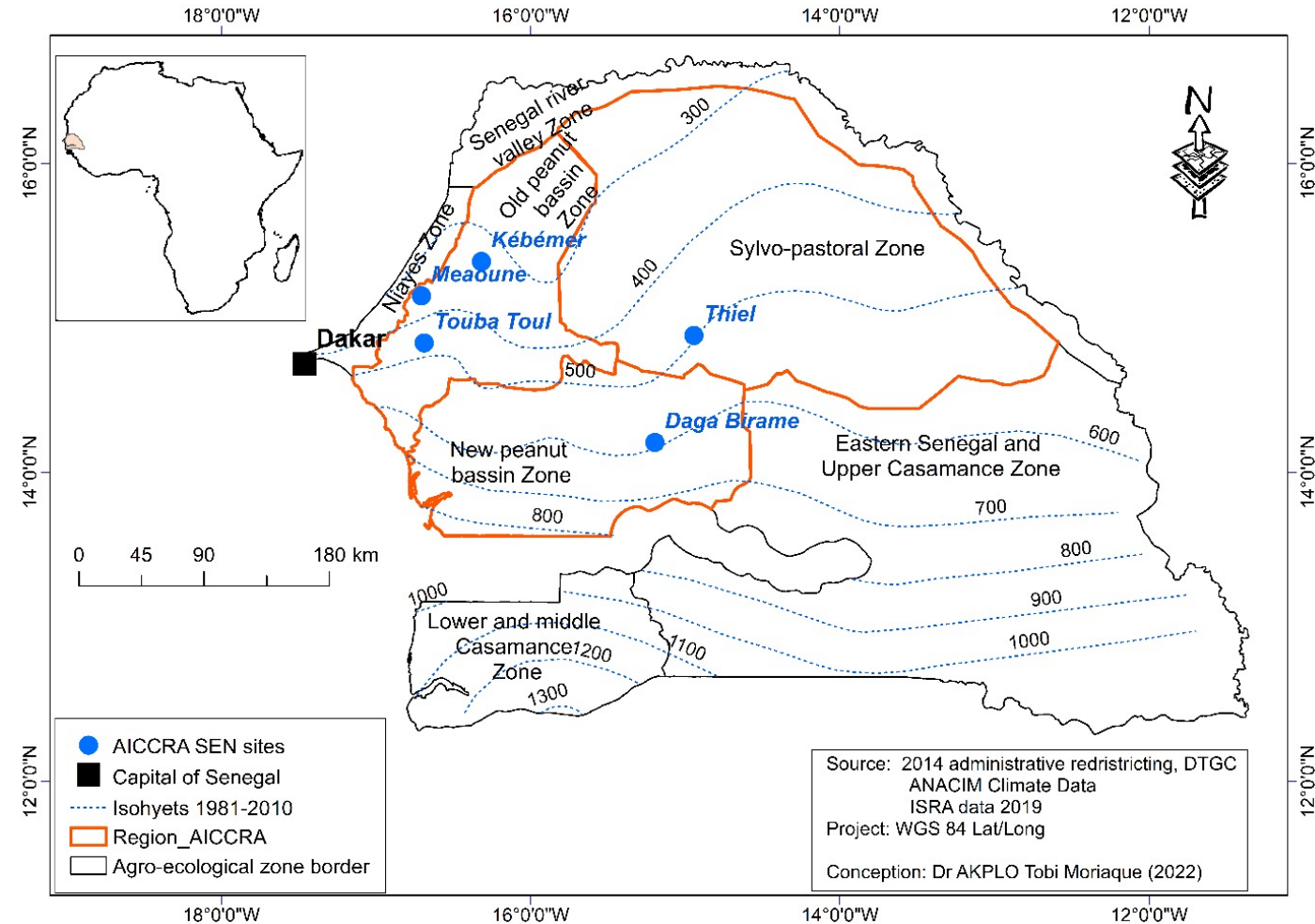
Problem Statement

- Potential contribution of CIS and CSA to the wellbeing of the farmers and agropastoralists remains underexploited and inequitably distributed.
- Weak capacity to communicate and interpret information at a climate time scale,
- Lack of climate knowledge among agricultural extension officers
- Inadequate integration of CI into agricultural advisories

Interventions

- Situation analysis , Targeting and prioritization, Taking CSA and CIS to scale, Learning by doing

zones



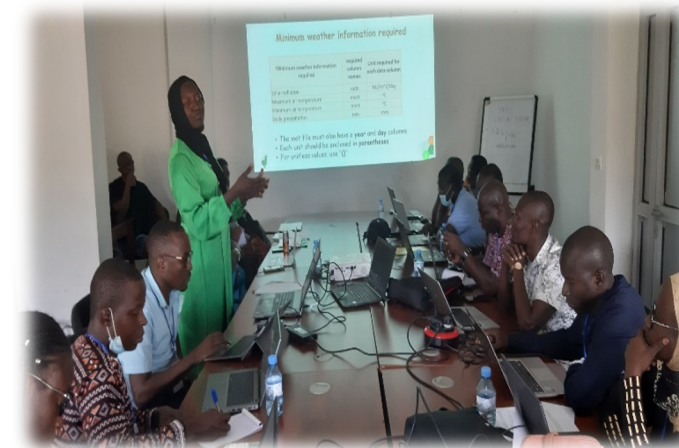
Outcome 1: 300,000 Farming and (agro-) pastoralist households are accessing CIS and/or CSA technologies and practices



Outcome 2 : 150 Value chain actors & influencers to offer of climate smart goods and services reinforced



Outcome 3: 200 farming and (agro) pastoralist households benefit from improved institutional performance



Improving access to Climate informed agroadvisories -iSAT

iSAT is an automated messaging system, capable of generating and disseminating weather-based farm advisories at the context specific scale



iSAT: Approach

Data Analytics

Analyses of variability and trends in the historical climatic conditions

Assess the climate impacts in crop productivity using crop simulation models

Establish thresholds and triggers for key drivers that influence farmers' decisions.

Decision Tree (DT)

Develop pre-season decision tree to help in strategic planning

Use medium range forecast, crop, and soil information to develop in-season decision tree to help tactical management

Messages

Select the most appropriate action from the DT node and translate it to a suitable message

Dissemination

Deliver the message to stakeholder using the appropriate dissemination channel

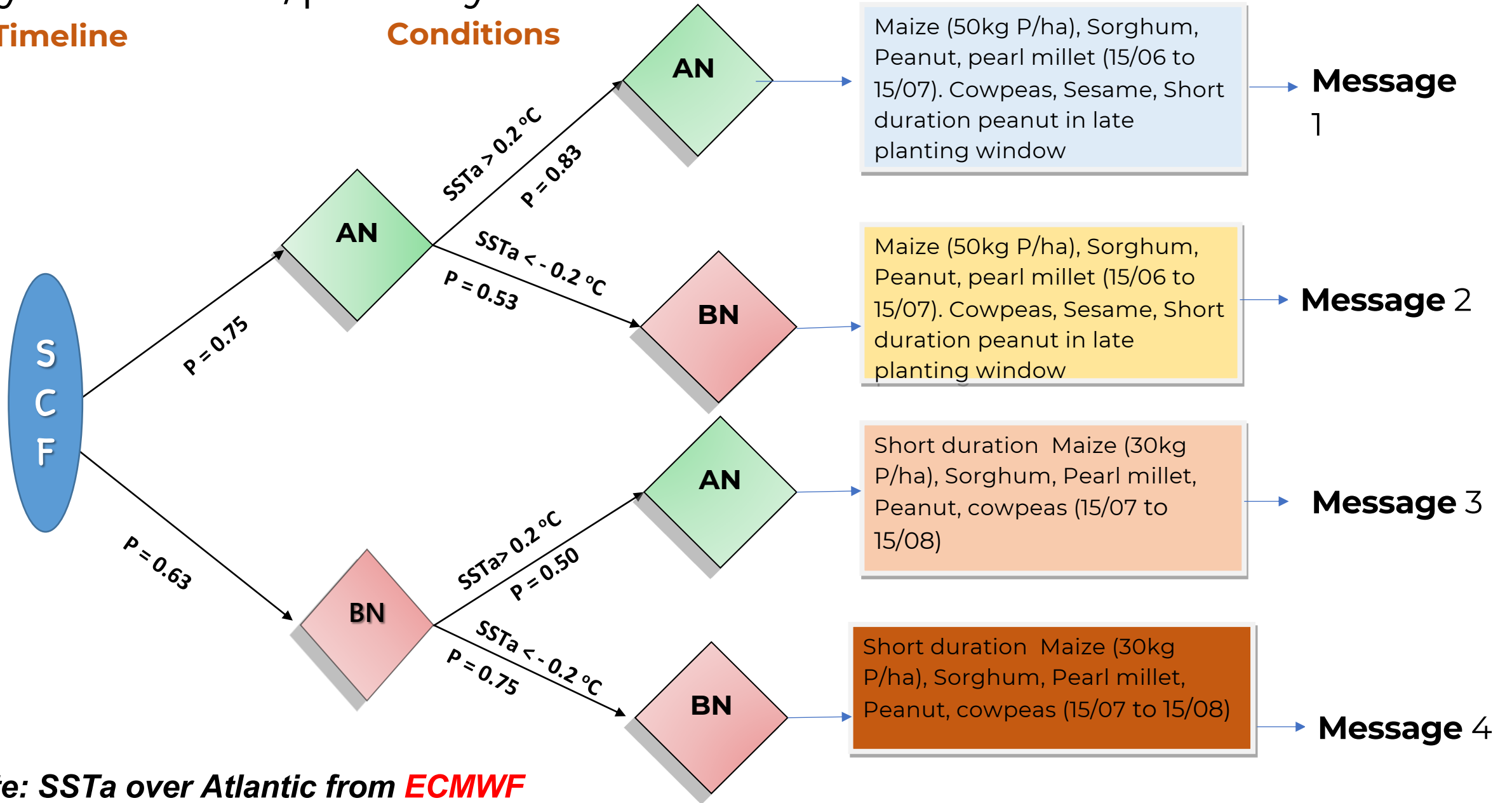
Pre-season Decision tree – dryland cereal/pulse system

Timeline

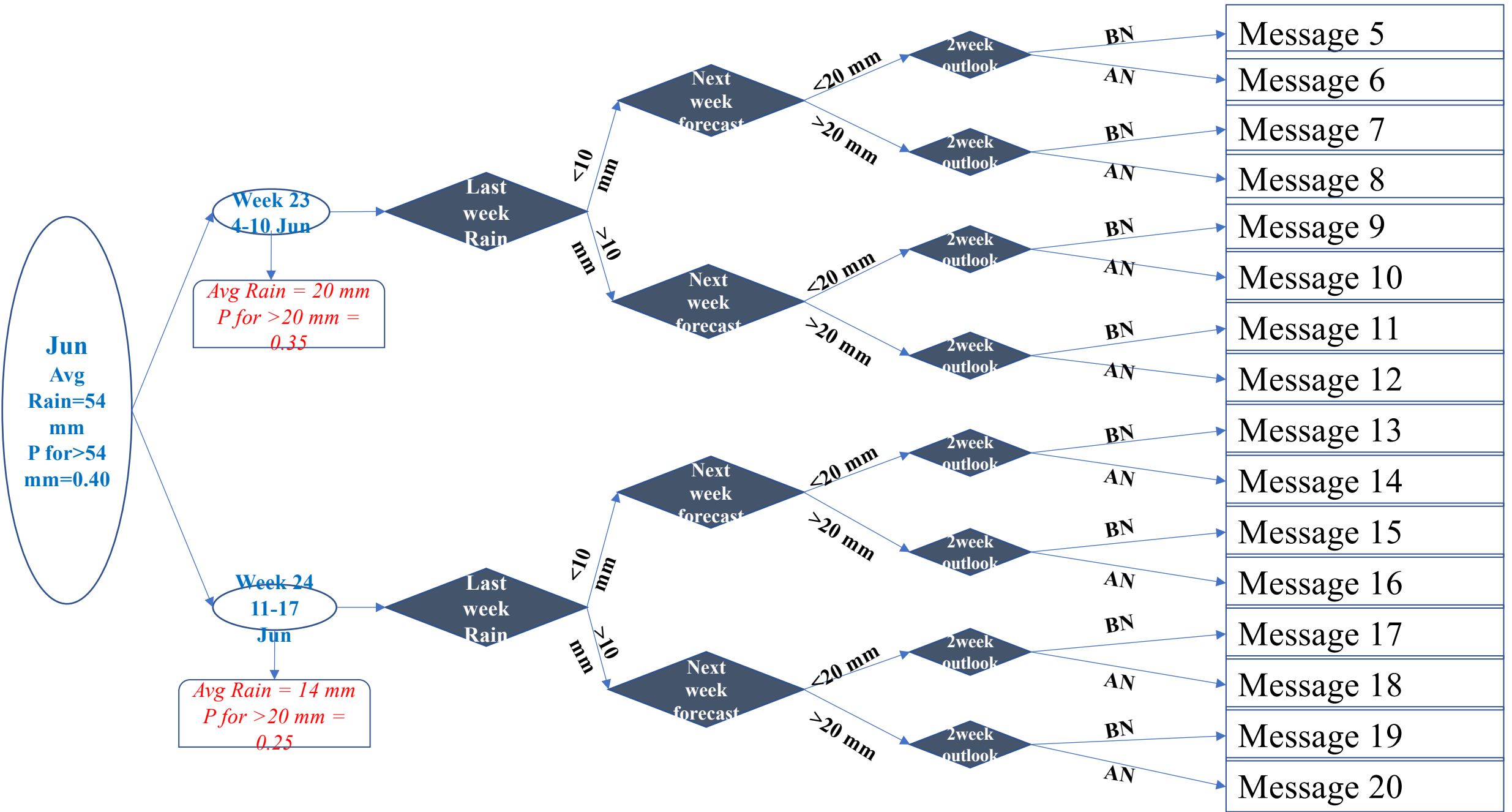
Conditions

Decision

Message



Note: SSTA over Atlantic from ECMWF



Messages – In-season

For Wet
season crops
Messages are
framed from
23 – 39
standard
week

LW<10; NW<20; 2WO: BN

Message 5: *The monsoon is not yet active. Wait until a good rain is received.*

LW<10; NW<20; 2WO: AN

Message 6: *The monsoon is not active yet but the forecast for next two weeks is positive. Time to plan for operations such as land preparation and application of FYM.*

LW<10; NW>20; 2WO: BN

Message 7: *Though some rain is expected during the coming week, forecast for the next two weeks is indicating limited rain. Wait and continue with land preparation, preparing seed, transporting FYM and other preparations.*

LW<10; NW>20; 2WO: AN

Message 8: *Some rain is expected during the coming week with positive forecast for the next two weeks. Get ready with operations such as land preparation and application of FYM.*

LW>10; NW<20; 2WO: BN

Message 9: *Some areas received rain last week but forecast for the next two weeks indicates not much rain forthcoming. Wait and continue with land preparation, preparing seed, transporting FYM and other operations.*

LW>10; NW<20; 2WO: AN

Message 10: *Some areas received rain with a possibility to get more rains during the coming two weeks. Get ready to perform operations such as land preparation and application of FYM.*

LW>10; NW>20; 2WO: BN

Message 11: *Some areas received rain last week with a possibility for more rain this week. Since two week forecast is not positive, wait and continue with land preparation, preparing seed, transporting FYM and other operations.*

LW>10; NW>20; 2WO: AN

Message 12: *Some areas received rain last week with more rain forecasted for the next two weeks. Complete land preparation for early planting.*

1. Development of ag-data hubs and decision support systems

Design principles



Users

- Extension institutions (public/pvt/para-statal)
- Agri businesses/value chain players/AgTechs/Farmer Organizations
- Banks and Financial institutions



Data sourcing

- Near real time
- Minimal business process change /disruption
 - Automation using technology
- Build this incrementally

Data stack of the Agdatahub

	Historic	Current	Forecast	
Meteorology data <ul style="list-style-type: none"> Rainfall Tmin Tmax 	●	●	●	<ul style="list-style-type: none"> Regional Sub-regional District/county Sub-district/sub-country
Ag Data*				
Agriculture <ul style="list-style-type: none"> Production data Sowing data Crop acreage 	●	●	●	<ul style="list-style-type: none"> Regional Sub-regional District/county Sub-district/sub-country
Livestock <ul style="list-style-type: none"> Pest and disease Yield 				
Fisheries <ul style="list-style-type: none"> Market data Livestock data Fisheries data 				
Water <ul style="list-style-type: none"> Adverse weather events 				
Soils		●		<ul style="list-style-type: none"> Regional Sub-regional District/county Sub-district/sub-country
Lulc	●	●		
Agro-ecology	●	●		

AgDataHub dashboard

- Seasonal forecast based planning advisories
- Sub-seasonal and short range forecast based crop management advisories
- Forecast based livestock and aquaculture advisories
- Flood and adverse event alerts for disaster mitigation planning etc

Portail GTP sur le suivi de la campagne agricole au Sénégal

Les informations décadaires sont collectés par le Groupe de travail pluridisciplinaire du Cadre National du Service Climatique.

- Welcome
- About GTP
- Climate & Weather
- AGDataHub**
- Breeding
- GTP Bulletins

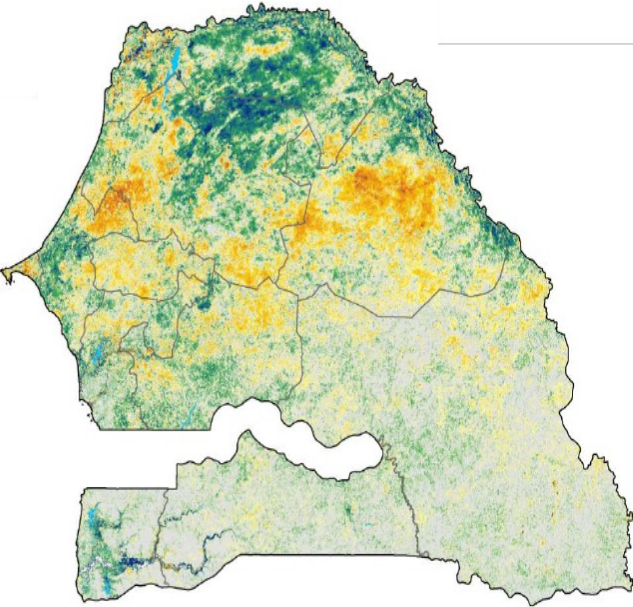
AGRICULTURE MARKET LIVESTOCK **NDVI** DATA SOURCE: Tomorrow now

FILTER MAP RESULTS

Parameter: NDVI Aggregation: Select During: 1 Jan '22

SUBMIT

SENEGAL NDVI



< 60	105 - 110
60 - 70	110 - 120
70 - 80	120 - 130
80 - 90	130 - 140
90 - 95	> 140
95 - 105	water
cloud	

Effective practice examples:

- Various processing and data visualization methods to quantify agriculture risk on account of weather and adverse climate events
- Accessible on : <https://gtp.cnsc.anacim.sn/index.html>
- The Ag Web and android Application

Support strengthening of national meteorological real-time services

Extending merged gridded data

Data provision: ~4-km merged gridded daily precipitation and temperature data were extended to include all parameters (relative humidity, wind, solar radiation, air pressure) needed for crop evaporative demand and agricultural modeling applications, for a limited period.

Automatic Weather Station Data Tool (ADT)

The Automatic Weather Station Data Tool (ADT) was installed to reconcile and streamline processing data from its two separate automatic weather station networks, in a consistent manner

Prototyping soil water balance tools

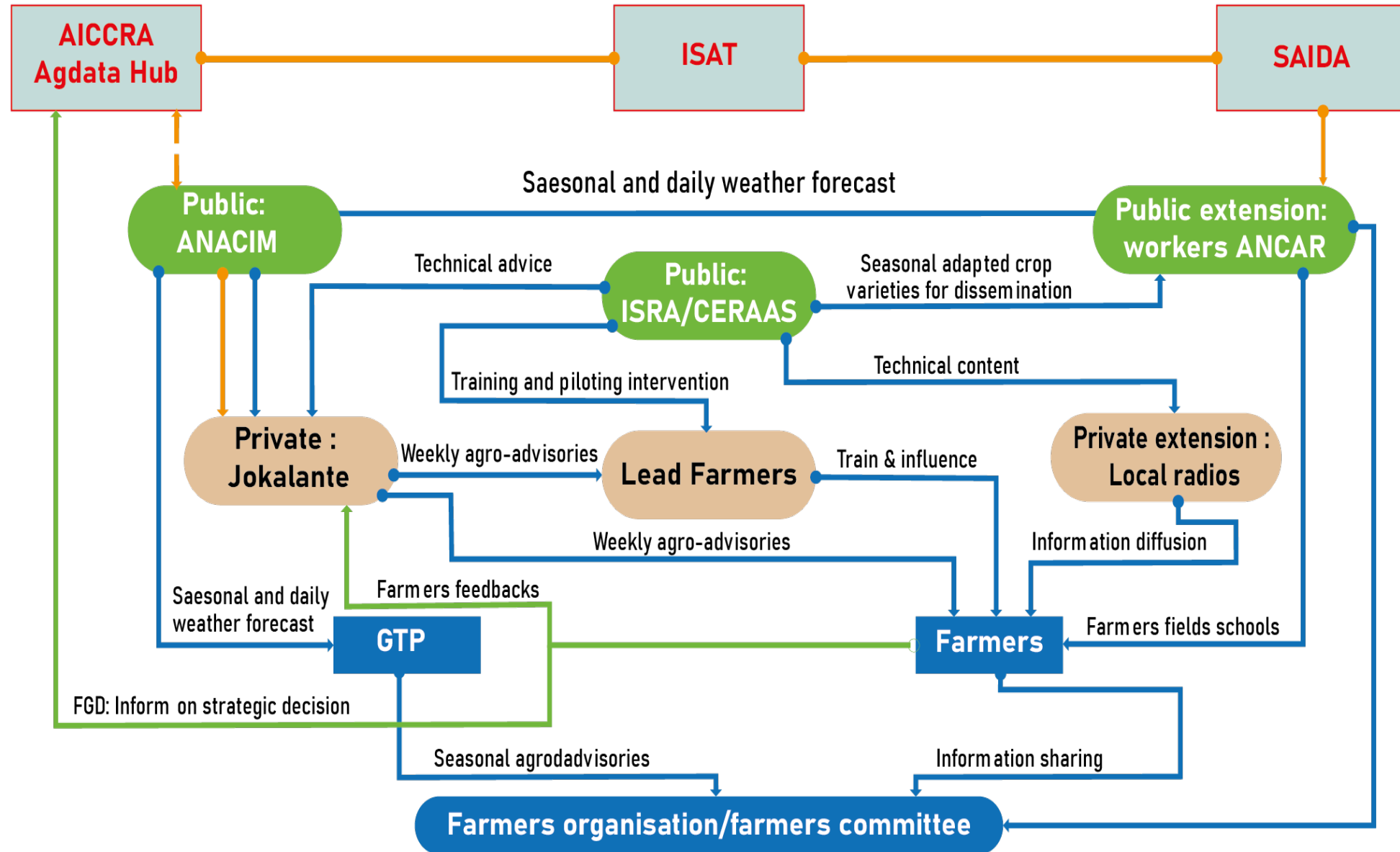
Progress on using soil water balance modeling was initiated with a preliminary daily soil water balance prototype that uses ANACIM merged precipitation data and dynamic crop coefficients, but fixed soil water holding capacity and evaporative demand

PyCPT version for seasonal and sub-seasonal forecasting

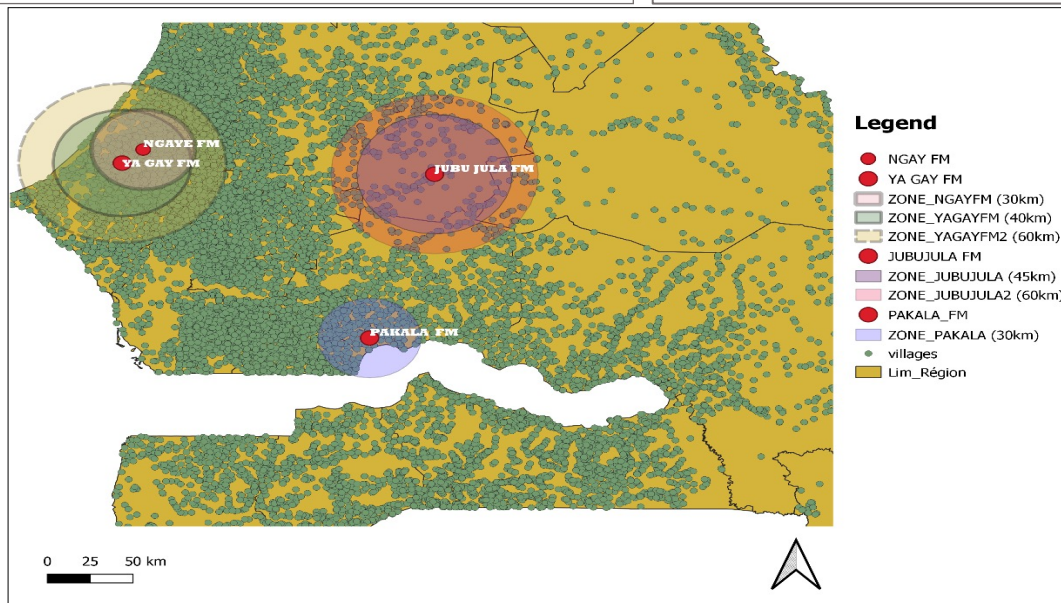
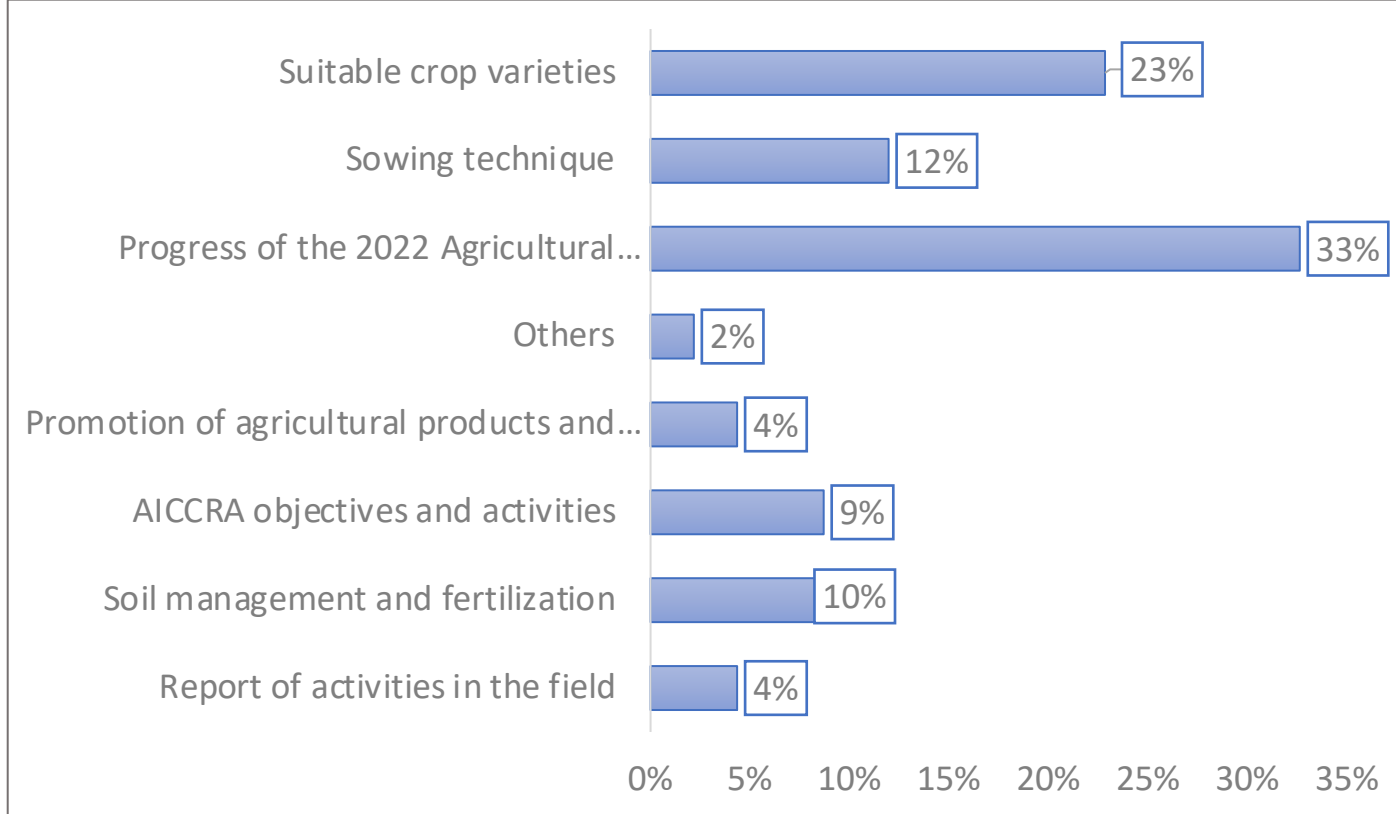
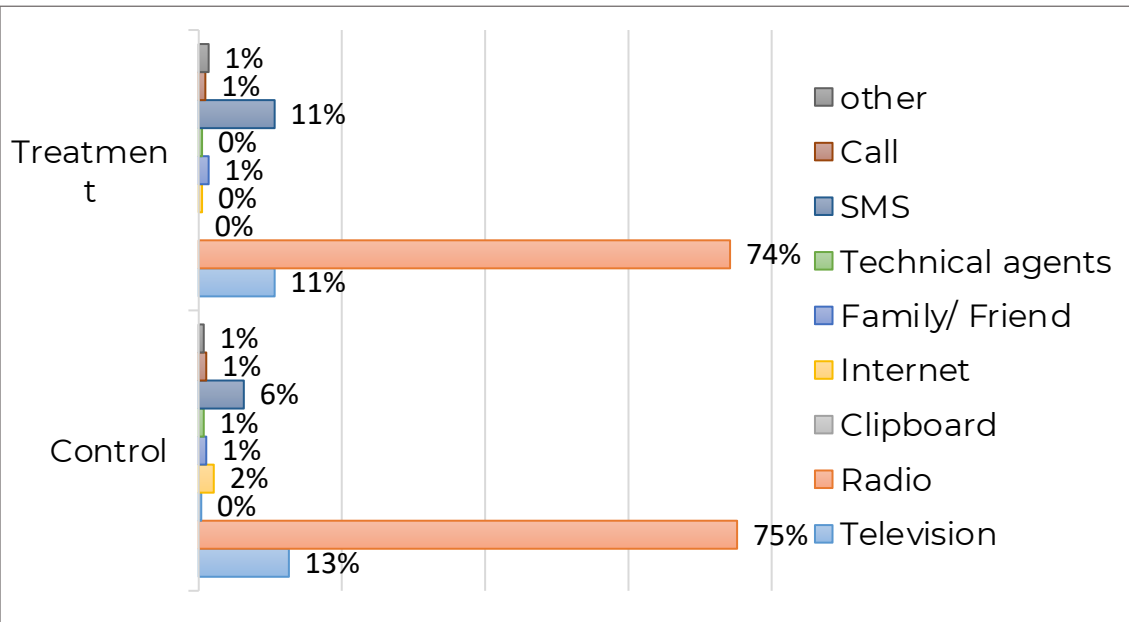
The Next Generation (NextGen) multi-model approach is a general systematic approach for designing, implementing, producing, and verifying objective climate forecasts

Scaling process of CIS

2 46,766
Farmers are
accessing to
climate
advisories
services, 2720
through their
mobile phones



Evaluation of Radio program

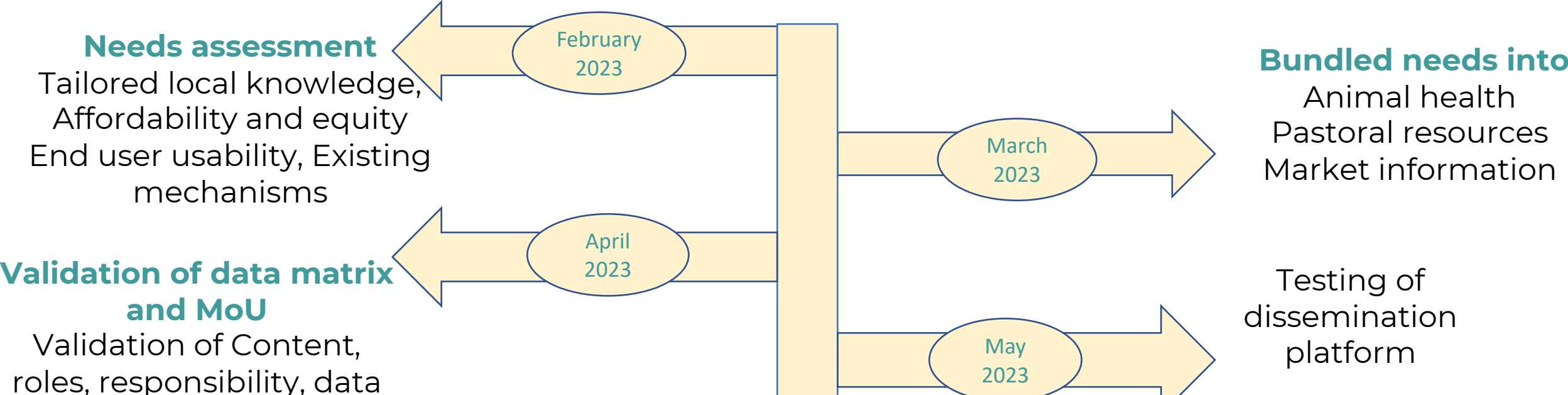


Time slots	GENDER	
	MALE	FEMALE
Before 9H	72	38
Between 9H and 12H	16	39
Between 12H and 15H	69	29
Between 15H and 18H	26	19
After 18H	59	70

Building climate informed livestock extension support through a community of Practice

Key data for co-development	Institutions
Forecasting (weather and seasonal)	ANACIM (Met Agency)
Onset and duration of rain season	ANACIM
Date of the first rains	ANACIM
Evapotranspiration	ANACIM
Temperature for controlling quality of milk	ISRA (Research center)
Good hygienic practice in dairy processing	ISRA
Production itinerary for cultivated fodder	ANCAR (Extension service)
Good practices on harvesting and conservation	ANCAR
Good practices in agro-forestry	ANCAR
Information of pastoral units distribution and status in Senegal	DIREL (Ministry)
Monitoring water pond: appropriate timing of access to water pond to prevent disease	CSE (SPECIALISED CENTER)
Status of functional/non-functional boreholes	DIREL
Market information (feed, milk and live animal prices)	ACF (NGO)
Cultivation calendar for rice straw	APAFIL (Farmer org.)
Raising awareness of the use of fire provokers, firewalls	ADID (Farmer org.)
Early warning of pests and diseases	ISRA
Heat index (heat stress)	ISRA and ANACIM
Deworming and vaccination period	DSV (Ministry)
Vaccination coverage rate, departmental level	DSV

Building climate informed livestock extension support through a community of Practice



Dissemination of messages to + 600 pastors and agropastors in Dahra site (Louga region)

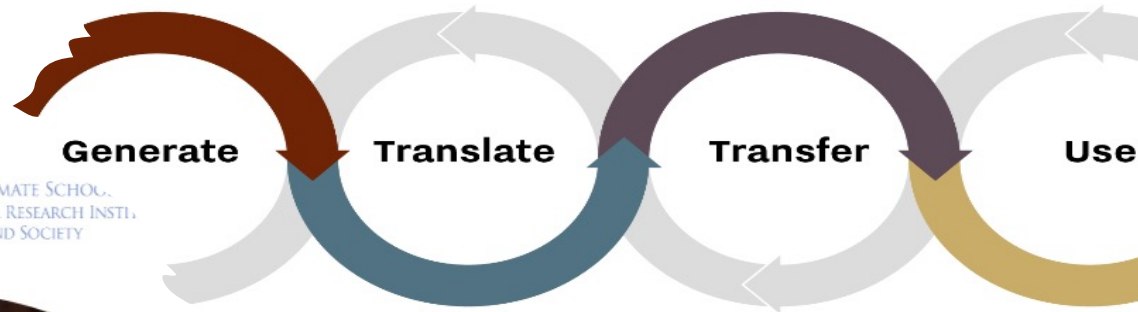
Climate Risk Management for Agricultural Extension curriculum

- 73 Extension agents trained by trainers trained from universities, extension...etc.

- 3 weeks training :

- Topic 1: Basic climate knowledge and concepts;
- Topic 2: Climate information available for crop and animal agriculture;
- Topic 3: Climate information for farm decision-making;
- Topic 4: Communicating climate information and supporting its use.

FACILITATEUR
 GUIDE
 Risques Climatiques dans le Conseil Agricole au Sénégal



Generate climate information and knowledge - learn from the past, monitor the present, and forecast the future

Transfer the translated information to the appropriate beneficiaries, in formats and media most useful to their operations

Translate the climate knowledge into information that is relevant to agriculture, health and other sectors.

Put the translated climate knowledge to use in operational decision processes, policies, plans. Learn and improve



Create awareness and identify scaling mechanisms for best-bet CSA options

Crops

Varieties (early maturing, dual purpose), ISFM practices, optimum planting densities

Livestock

Improve the Improved housing/ the formulation of feed rations based on local crop residues/ Improved compost pit



Thank You

Supporting Partners

