



WELCOME TO THE AGRHYMET REGIONAL CENTRE



***Risk identification, monitoring and early warning system
: main activities of Agrhymet Regional Centre***

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A Centre of Excellence at the Service of Development



Outline of the Presentation

Presentation of the AGRHYMET Regional Centre (ARC)

Methodologies, tools and products for risk identification, monitoring and early warning system

Synthesis/ Dissemination of the information : Agrhymet bulletin

Climate change project on adaptation

Challenges and opportunities



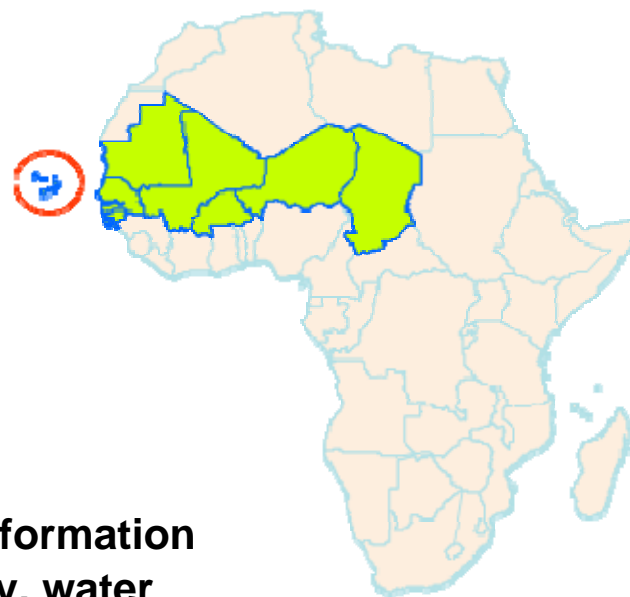
Presentation of the AGRHYMET Regional Centre (ARC)

- Agrhymet Regional Centre (ARC) is a specialized Institute of CILSS (Permanent Interstates Committee for Drought Control in the Sahel) based in Niamey, Niger

- CILSS Member Countries :
Burkina, Cape Verde, Chad, The Gambia, Guinea-Bissau, Mali, Mauritania, Niger, Senegal.

- **Mandate**

To collect, process and disseminate information on early warning system, food security, water control and management and desertification control;





Presentation of the AGRHYMET Regional Centre (ARC)

Main activities

Information and research

- Climatic, agronomic and hydrological data collection and management,
- seasonal agrometeorology, hydrology, crop protection monitoring at regional level (CILSS countries)

Training and research

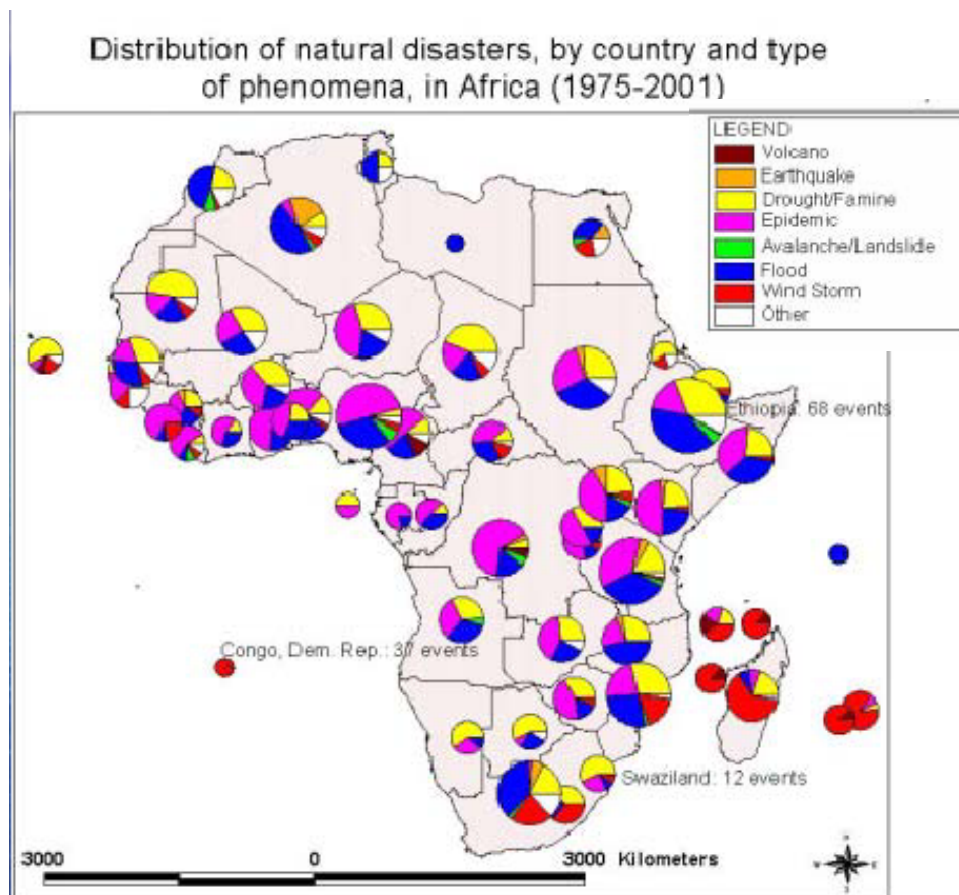
- Regional Training Centre of WMO,
- Long term training programmes with 3 degree courses (Master, Engineer, high technician) on agrometeorology, hydrology, crop protection



Presentation of the AGRHYMET Regional Centre (ARC)

In CILSS region, more than 70 % of natural disasters are related to climatic and hydrologic extreme, pest such as drought, flood, locus, ect.

Other natural disasters are diseases as cholera, meningitis, etc.



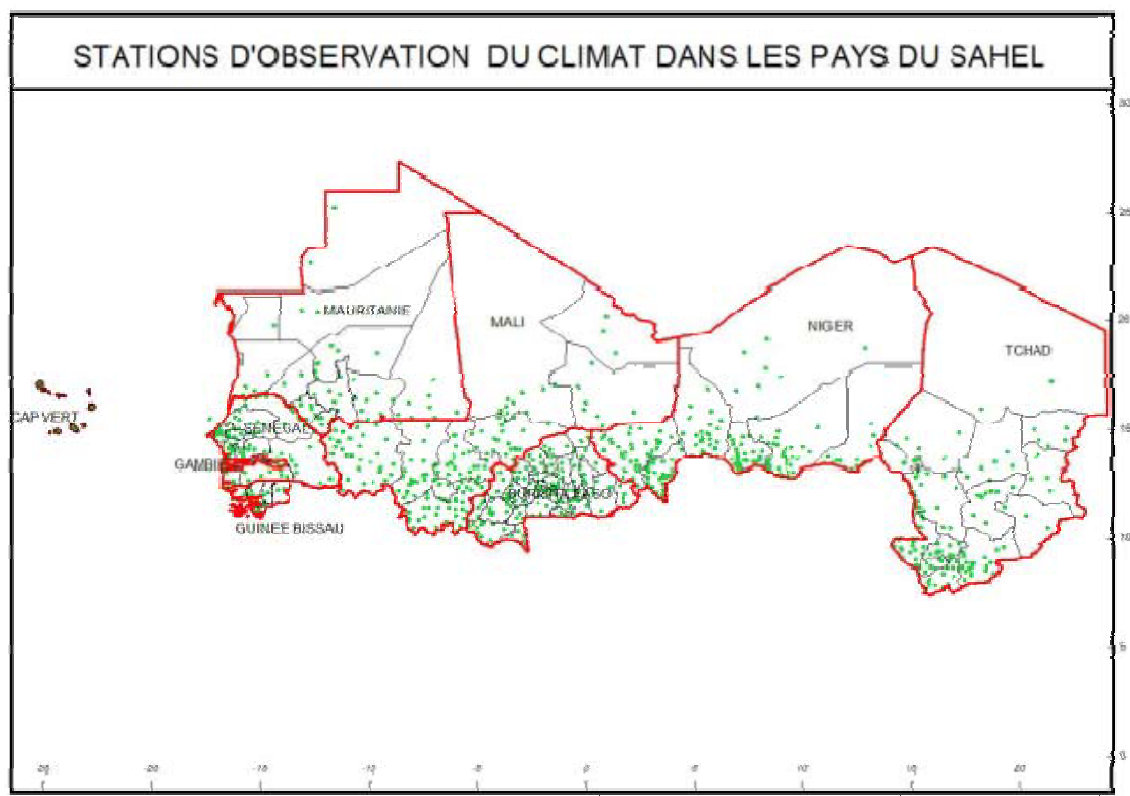
**Source: OFDA/CRED
International, Disaster Data
base**

Methodologies, tools and products for risk identification, monitoring and early warning system

Data Collection

Meteorological, hydrological, agronomic and socio-economic data collection from National Agrhymet Components (NACs)

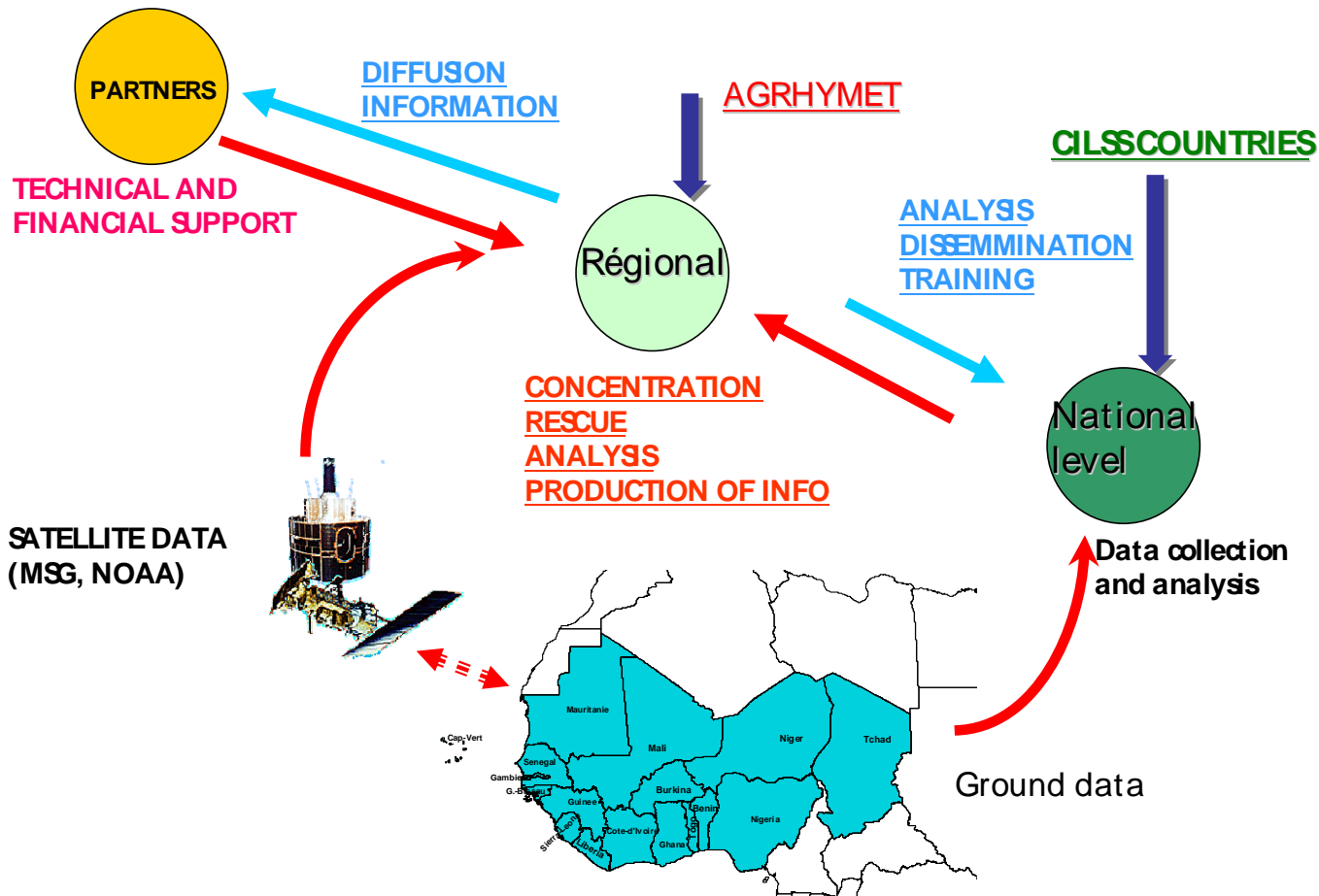
NACs : are composed of National Meteorology Service, agriculture, hydrology, forestry, livestock, crop protection,, NGOs, media service



Data collection : more than + 1000 meteorological stations

Methodologies, tools and products for risk identification, monitoring and early warning system

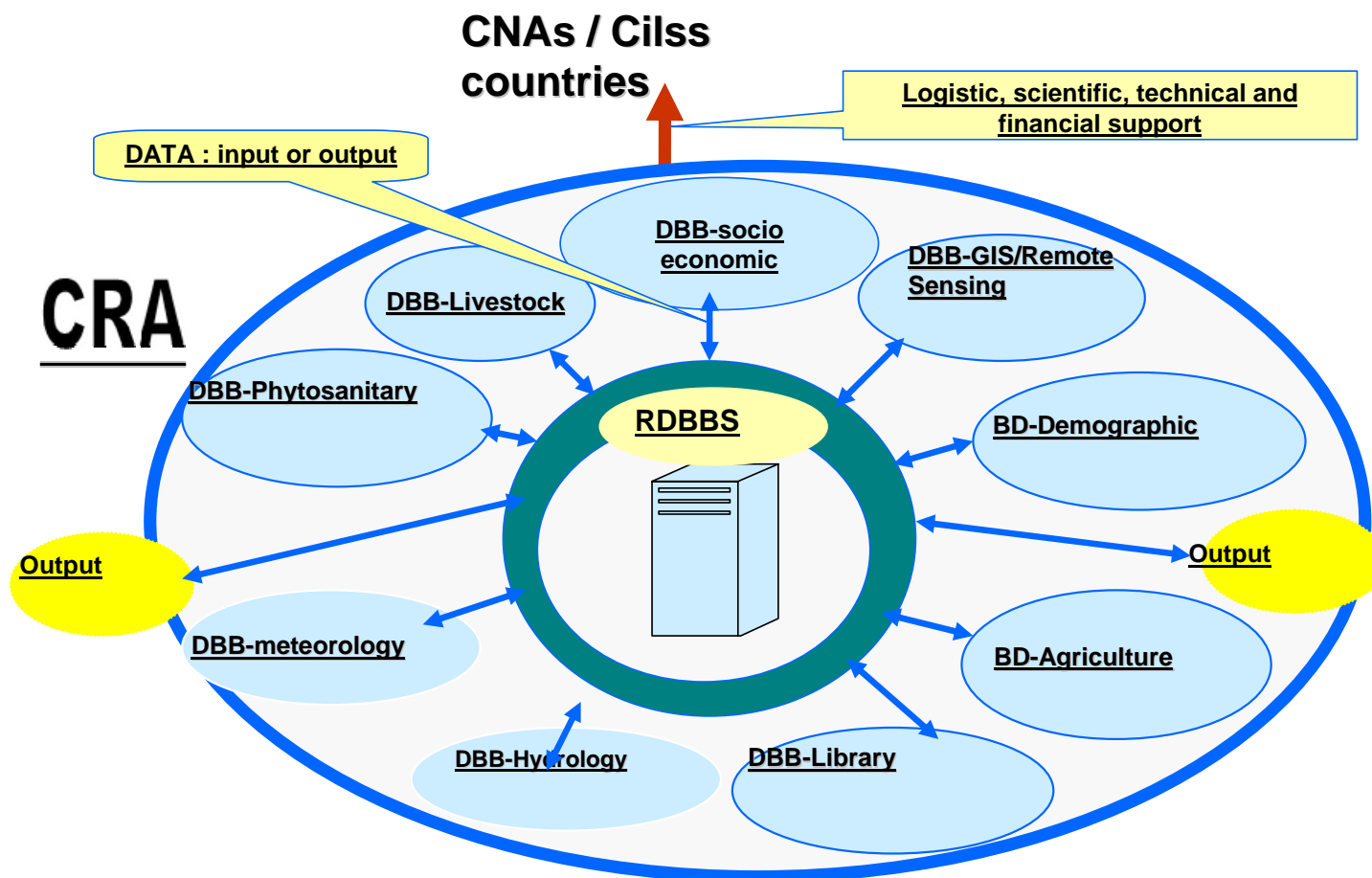
ORGANISATION OF THE SYSTEM





Methodologies, tools and products for risk identification, monitoring and early warning system

Setting up of a Regional Database Management System





Methodologies, tools and products for risk identification, monitoring and early warning system

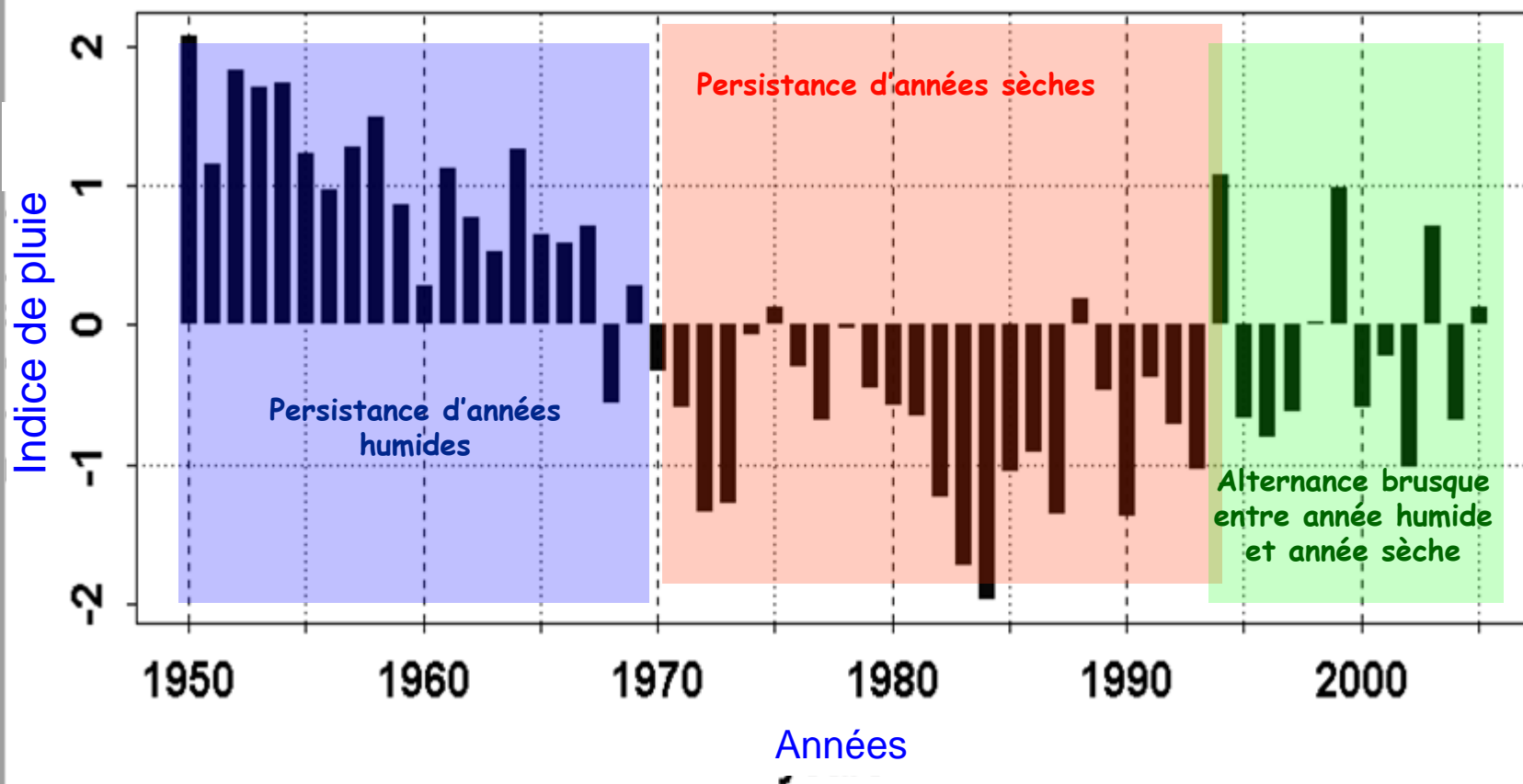
Main tools

- Climate models (algorithms for rainfall estimations)
- Crop (DHC, SARRA-H), hydrological and pest models
- Remote sensing /GIS

Products and services

- Mapping of rainfall (observed and estimated),
- Mapping of onset of rainy season, successful sowing date, risk areas, water satisfaction index, estimated yield,
- Rivers discharges evolution, and flooded zones mapping,
- Vegetation index, estimated biomass production,
- Favourable zones for desert locust,
- Food production forecast and zoning vulnerable group

Rainfall evolution over CILSS countries





Methodologies, tools and products for risk identification, monitoring and early warning system

Mapping of rainfall amount (observed data) for a given period

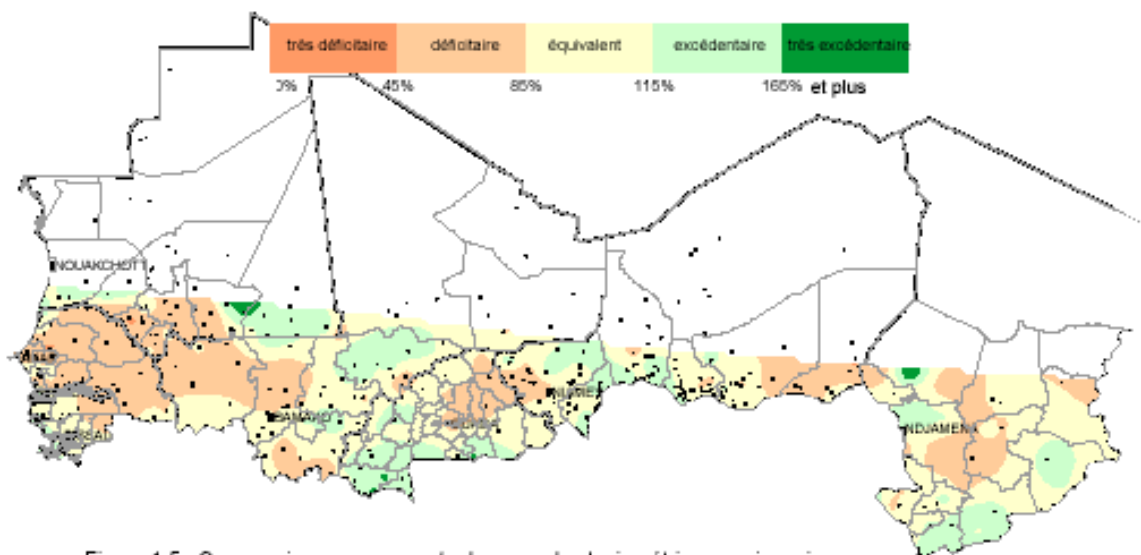
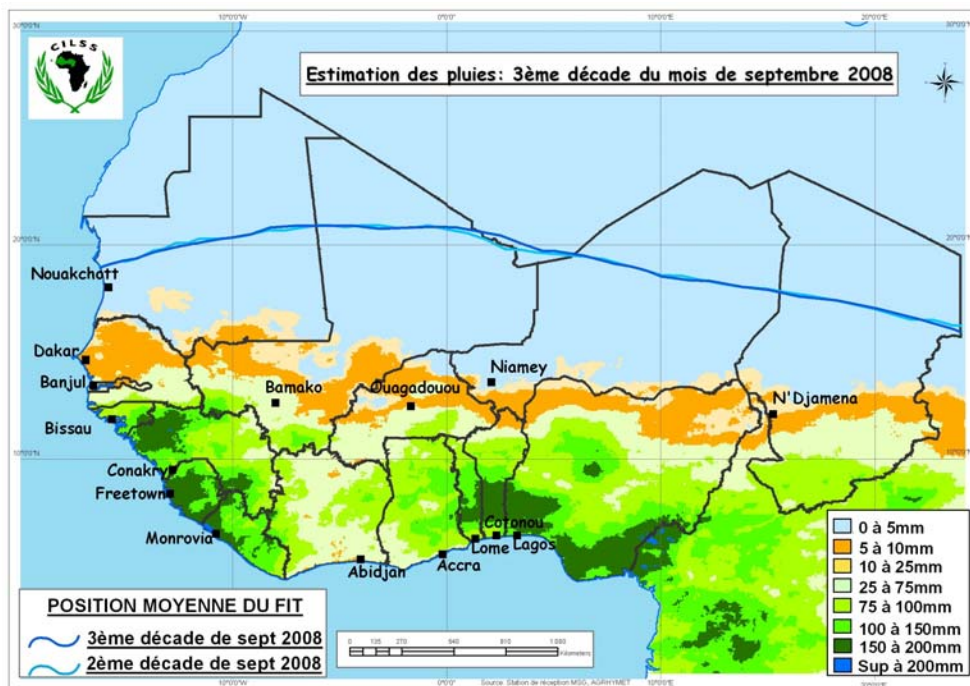


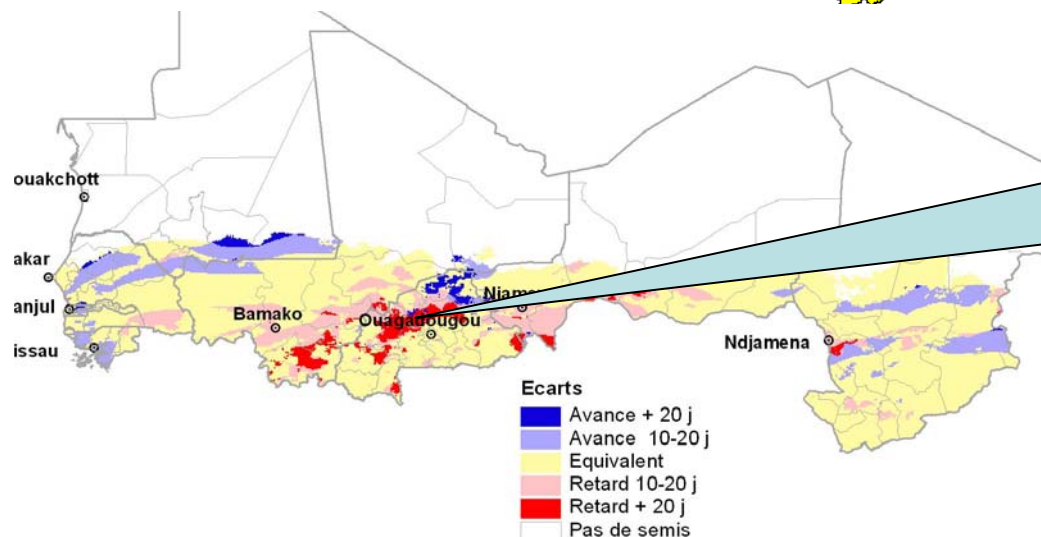
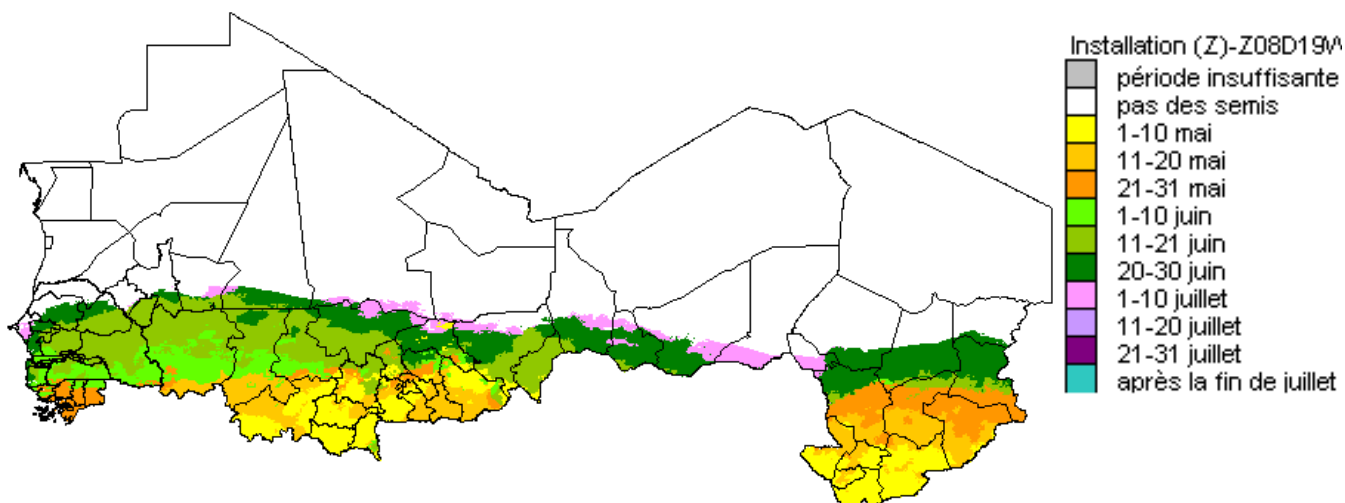
Figure 4.5 - Comparaison des données de pluie observées et estimées

Mapping of estimated rainfall amount (MSG Satellite)





Methodologies, tools and products for risk identification, monitoring and early warning system



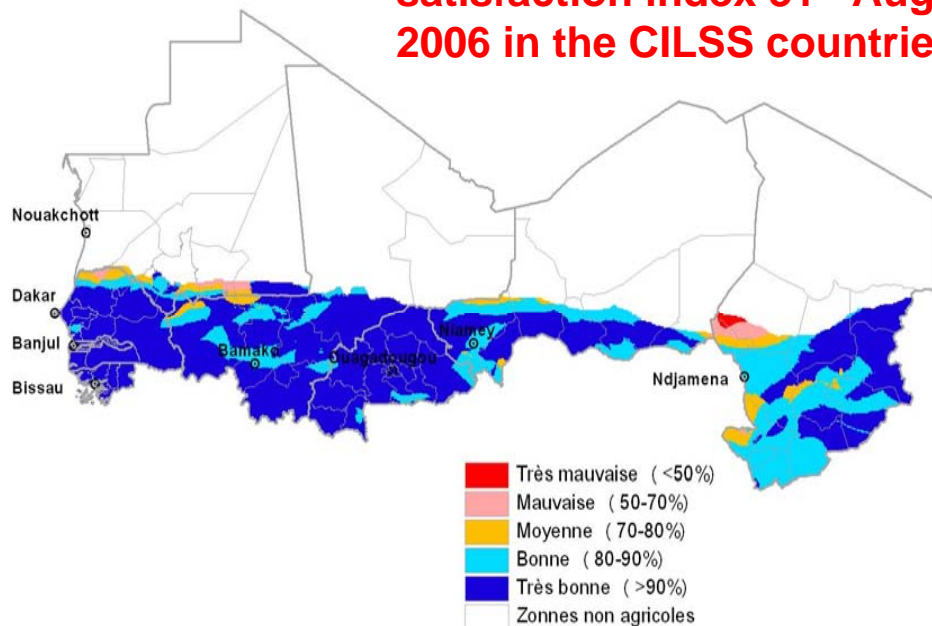
Identification of late sowing date = risk zones
Responses ???

Sowing dates are expressed in term of : early (in advance), normal, late. Areas where late sowing date occurs correspond of Risk zones = shortage crop growing length period



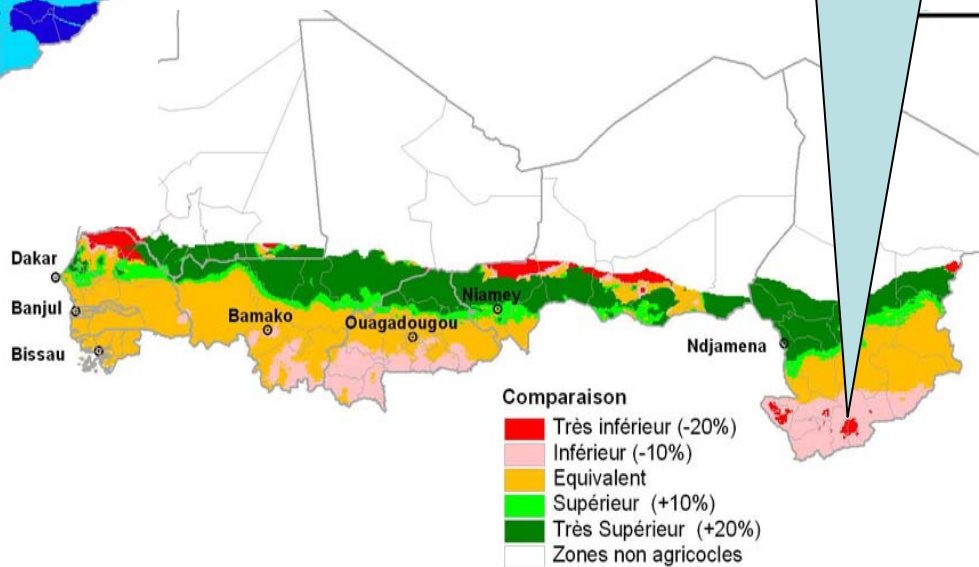
Methodologies, tools and products for risk identification, monitoring and early warning system

Millet water requirement satisfaction index 31st August 2006 in the CILSS countries



Mapping of level of crop moisture requirement satisfaction in term of poor, normal, good as information of favourable or unfavourable crop development level

Limited vulnerable zones in 2008.



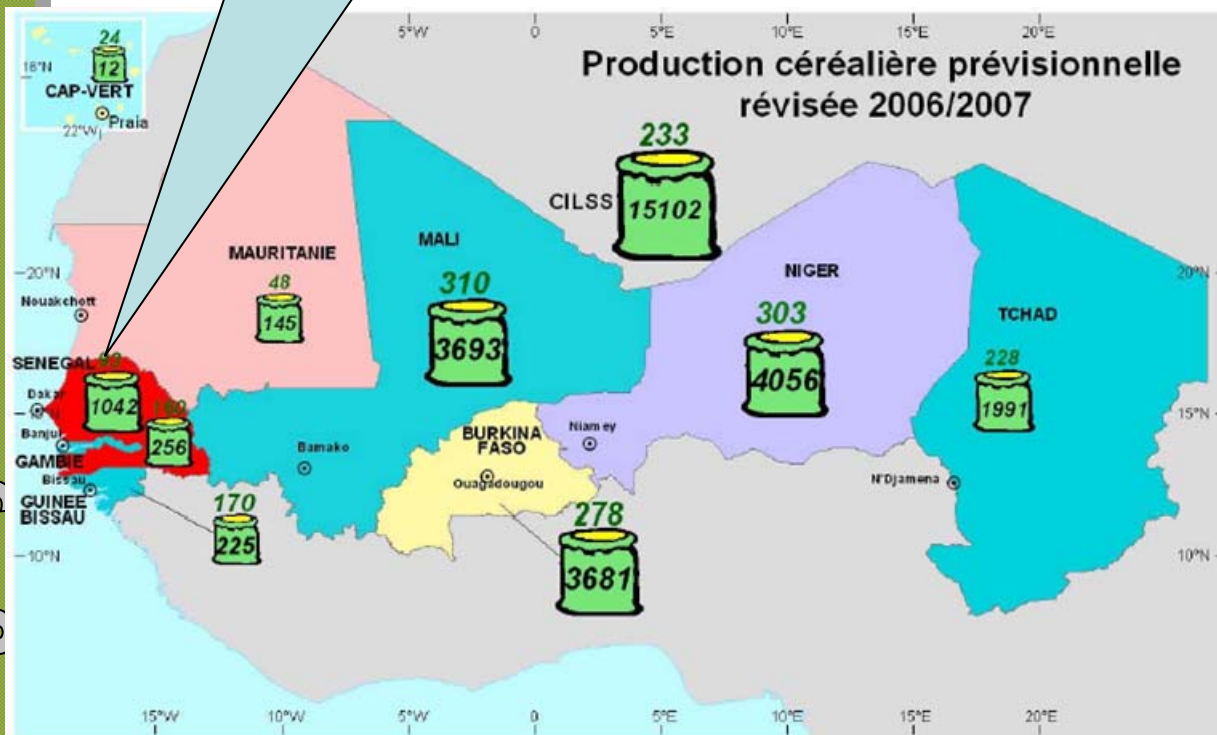
Millet Grain yield forecast accross CILSS countries, end of august, rainy season 2008

In 2008, good production as result of very good rainfall situation and well water satisfaction of crop



Methodologies, tools and products for risk identification, monitoring and early warning system

Risk zones according to the food balance sheet in 2005/2006
Type of action ???



Production céréalière prévisionnelle révisée 2006/2007

170 kilogramme par habitant
212 milliers de tonnes

Comparaison des productions céréalières prévisionnelles révisées par rapport à la moyenne 2001 - 2005



Regional meeting in November « Réseau de prévention des crises alimentaires » du CILSS for assessment and definition of type of action

Could be done at different scale : country to village

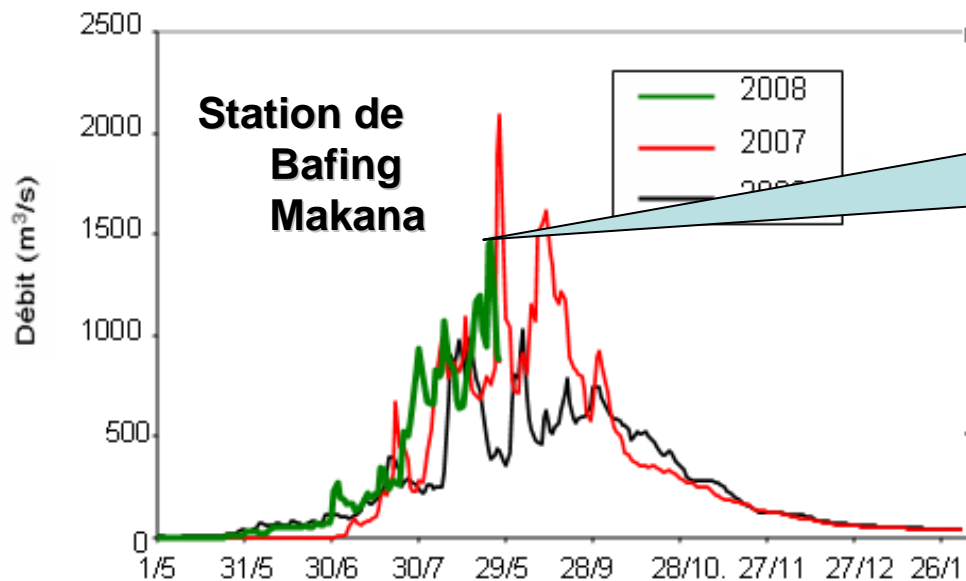
Cereal and other food balance forecast across CILSS countries

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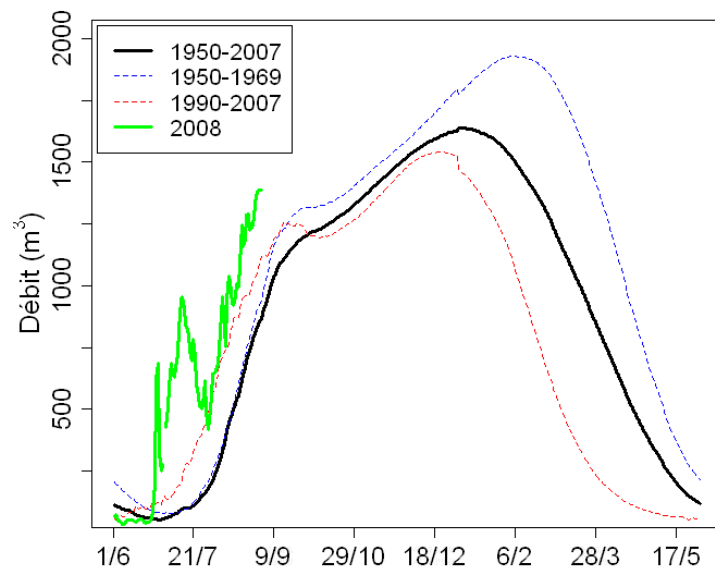
Monitoring, comparison of main rivers discharges and flood risk prevention



En 2008, risque d'inondation élevé à Bafing Maka

Actions? Responses ?

Senegal river at Bafing Makana comparison of discharge 2008 compared to 2007 and 2006

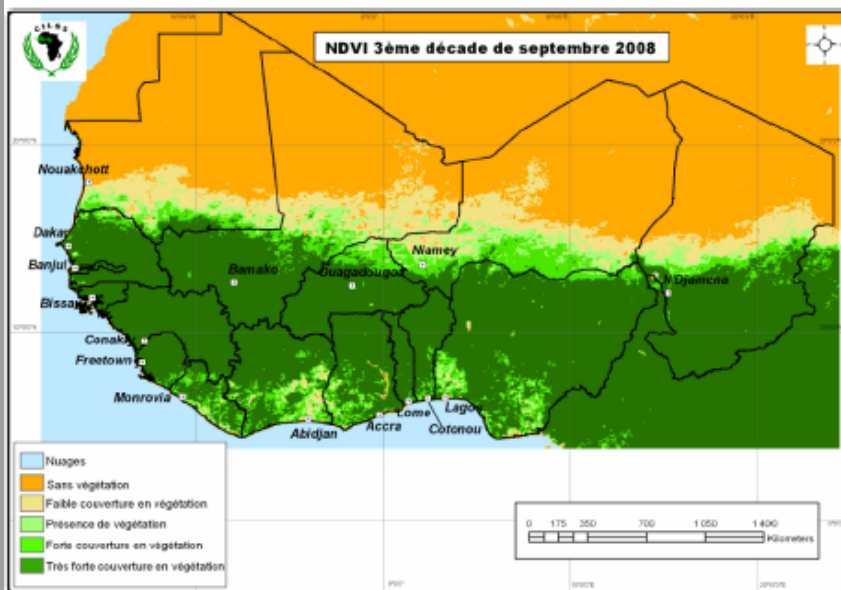


Niger river Discharge at Niamey, abnormal situation in 2008, high probability of flood

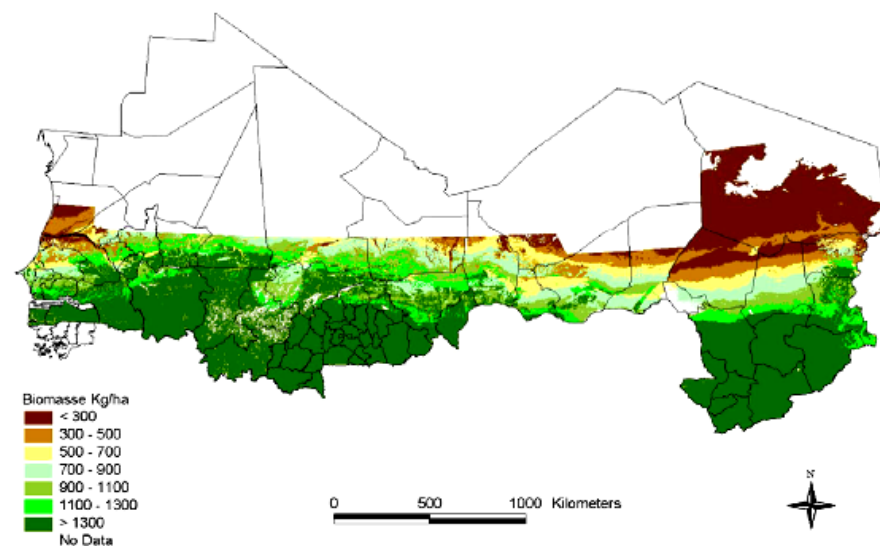


Methodologies, tools and products for risk identification, monitoring and early warning system

Vegetation monitoring using satellite data for livestock sector and monitoring locus development



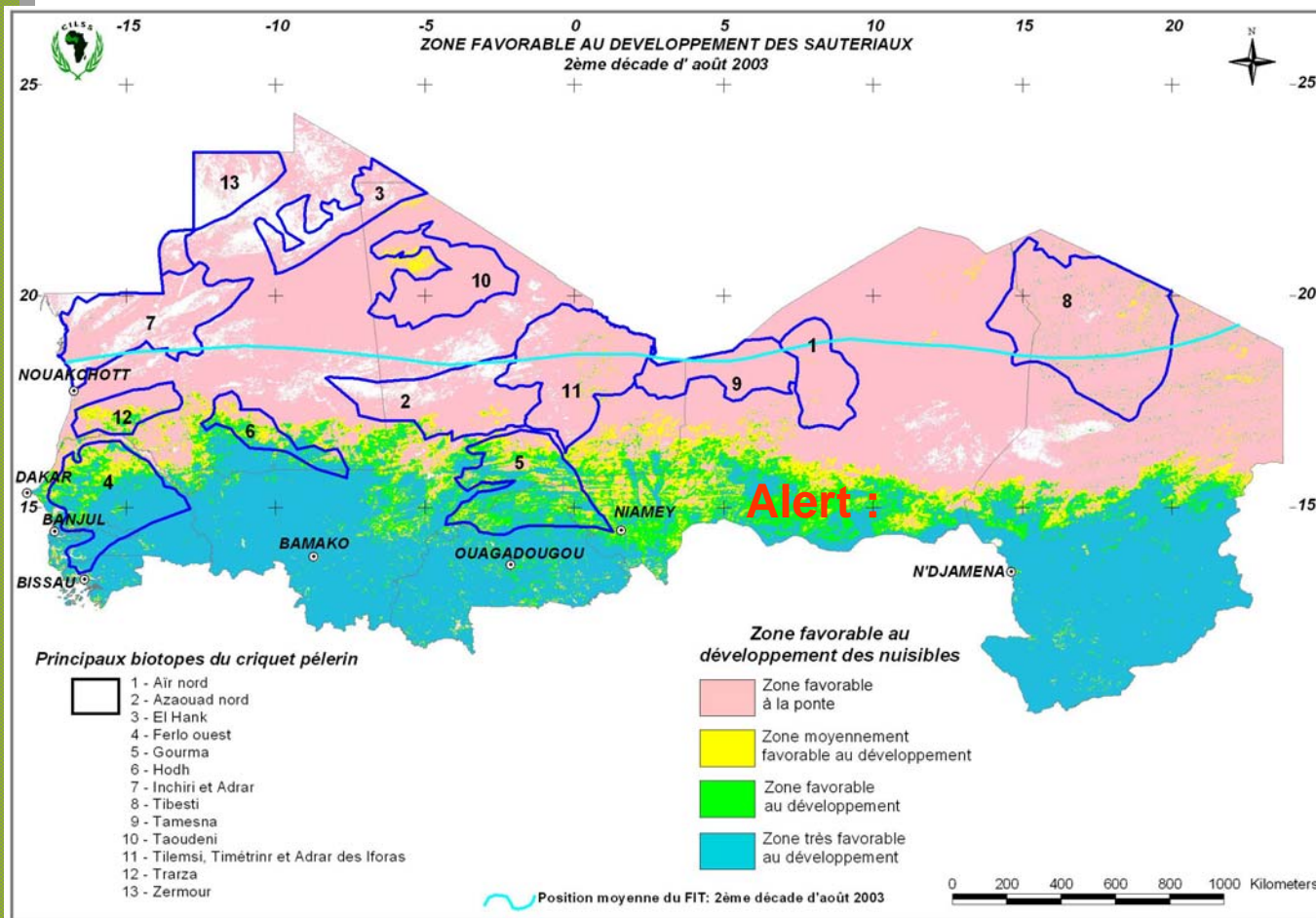
Vegetation development index at the end of september 2008



Biomass production accross CILSS countries



Methodologies, tools and products for risk identification, monitoring and early warning system



Alert :

4 -5 months before desert locus invasion

During invasion,
Type of advice early harvest for example

Favourable zones for pest (desert locus and OSE) development by combining rainfall amount and vegetation index

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Synthesis of the information : Agrhymet bulletin

- These products are disseminate among decision makers and other users (National agricultural service, NGOs, farmers/producers)

- The AGRHYMET monthly bulletin for seasonal crop monitoring across the Sahel
- The Decision makers' special bulletin
- Special bulletin on drought, flood and desert locus invasion



Climate change adaptation project

Several projects on climate change

- present and futur trend of the Sahelian climate
- Vulnerabilty, impact and adaptation, (set up pilot project in CILSS countries)

Demi-lunes traitées à la fumure organo minérale



Demi-lunes non traitées



Challenges and opportunities

Constraints and weakness

- Difficulties related to data collection and transmission
- Degradation of meteorological and hydrological network
- More dissemination of Informations toward the end users

Challenge and opportunities

- Developing new tools, software, crop, hydrological and pest models in Climate change context
- Memorandum Of Understanding with «Bureau de la Fédération Internationale de la Croix-Rouge et du Croissant-Rouge pour la Zone Afrique de l'Ouest et du Centre (FICR ZAOC)» = to react and reduce vulnerabilty of people exposed to risk
- Training : Professional Master for CILSS/ECOWAS countries on «Risk and natural disasters identification, management and communication », climate change, integrated water management, ect...



Working group on climate and weather applied to agriculture, livestock, water, pest, etc... management at ARC

- 1 expert climatologist
- 1 expert agro meteorologist
- 1 expert agro climatologist
- 1 expert hydro climatologist
- 1 expert vulnerability and adaptation to climate variability and change
- 4 experts GIS and remote sensing
- 3 experts computer, data base development and implementation
- 2 expert on agricultural statistic
- 2 expert on pest monitoring



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Thank for your attention