C-ADAPT

Climate Resilience for Food Security

The R4 Rural Resilience Initiative in Senegal

COMPREHENSIVE CLIMATE RESILIENCE FOR LONG-TERM FOOD SECURITY AND LIVELIHOODS

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An R4 participant shows her plot in a communal vegetable garden in Tambacounda. Through R4, farmers develop vegetable gardens to improve the diversity and nutritional value of their diets.

WHAT is this Innovation?

This document is part of the **Climate Adaptation and Resilience for Food Security:** *Analysis*, *Innovations* and *Standards* Series. It provides an overview of the R4 Rural Resilience Initiative (R4) in Senegal, jointly implemented by WFP and Oxfam America with national partners. It describes the design of the R4 initiative in Senegal, including the main steps in setting up the project, as well as lessons learned for other countries to replicate the project.

WHO is this Innovation for?

This case study is targeted at practitioners within WFP and other humanitarian and development organizations, alongside governments and donors, to help outline how to implement risk management, risk finance and risk transfer projects; to better understand agriculture risk management schemes; and to raise awareness on innovative solutions in the food security, climate change adaptation and resilience fields.

An *animatrice* teaches farmers about index insurance in Tambacounda

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Overview

The world's most food-insecure people are also the most vulnerable to climate variability

There are 795 million hungry people in the world, with 232.5 million (20 percent) living in the African continent.[1] In Sub-Saharan Africa over 70 percent of these food-insecure people rely on agriculture for their livelihoods, mostly practising smallholder farming. Smallholders feed 80 percent of Africa's population, despite widespread poverty and chronic food insecurity. For them, vulnerability to natural disasters is a constant threat to their food security. Climate change will only exacerbate this challenge by increasing the frequency and intensity of climate hazards.

The question of how to build rural resilience against climate-related risk is therefore critical to help food insecure communities secure and improve their lives and livelihoods in the face of climate change, while keeping their growth trajectories despite shocks.

Building resilience to climate-related risks is critical to help secure the income and livelihoods of the food-insecure.

The R4 Rural Resilience Initiative. A comprehensive approach to climate resilience[2]

To address this challenge, WFP and Oxfam America launched the Rural Resilience Initiative (R4) in 2011. R4 **enables food-insecure rural households to manage weather vulnerability through a comprehensive risk management approach that can be integrated into national social protection systems.**

R4 builds on the Horn of Africa Risk Transfer for Adaptation (HARITA) initiative, founded in Ethiopia in 2009 by Oxfam America, the Relief Society of Tigray (REST), the International Research Institute for Climate and Society (IRI), the global re-insurance company Swiss Re and a number of national partners. HARITA was a pioneer in rural risk management by allowing Ethiopia's poorest farmers to pay for crop insurance through the Insurance for Assets (IFA) mechanism. Its success led the initial partners, joined by WFP, to form the R4 Rural Resilience Initiative.

1. FAO, IFAD and WFP. 2015. The State of Food Insecurity in the World 2015. Meeting the 2015 international hunger targets: taking stock of uneven progress. Rome, FAO.

2. Donors include USAID, the French Government and the Margaret Cargill Foundation.

By 2014, R4 had grown HARITA's outreach from 200 farmers in one village to over 25,000 farmers in 81 villages across two regions of the country. The 2012 drought triggered the largest crop insurance payout in the history of Ethiopia with 12,000 farmers sharing $320,000 in compensation.

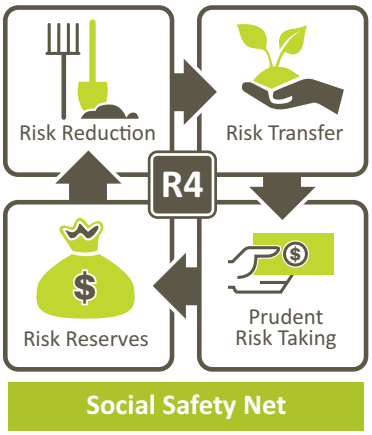
The first major impact evaluation of HARITA shows that the initiative is improving farmers' resilience. Insured farmers save 123 percent more than the uninsured ones, they buy 25 percent more oxen and invest in seeds, fertilizer and productive assets. In one cluster, farmers increased their reserves of grain 254 percent more than uninsured farmers. Women, often heading the poorest households, are the ones achieving the largest gains in productivity, through investments in labour and improved planting materials.

After the successful launch of R4 in Ethiopia, Senegal was identified as a second potential pilot site in 2012. This case study describes how the project was designed in Senegal, and outlines the lessons learned following a 'dry run' test in 2013, and three full years of implementation between 2014 and 2016. **This case study documents R4's design process and lessons learned with the aim to aid in the replication of similar initiatives in other countries.**

How R4 works

R4 enables vulnerable farmers to **strengthen their food security through an integrated risk management approach combining four components: improved resource management** through **asset creation** (risk reduction), **insurance** (risk transfer), **livelihoods diversification and microcredit** (prudent risk taking), and **savings** (risk reserves).

FIGURE 1
The R4 model



Farmers build soil and water conservation assets.

R4 breaks new ground in the field of rural risk management by letting the poorest farmers pay for crop insurance with their own labour. Its comprehensive risk management scheme makes communities stronger in the face of disasters. Households are able to invest in new seeds and fertilizer, helping guarantee that food will be on the table all year long and generating surpluses in good years. **Protected by insurance, families that face a drought or other shocks no longer find themselves forced into desperate measures**, such as selling their farm animals or taking their children out of school. Here is how it works:

- Farmers can access weather index insurance by paying with their labour through Insurance-for-Assets (IFA) schemes. When a drought hits, compensation for weather-related losses prevents farmers from selling productive assets and stimulates faster recovery.

- IFA schemes are built either into existing social safety nets, disaster risk reduction (DRR) schemes, or into WFP's Food Assistance for Assets programme. **Assets built through risk reduction activities promote resilience** by steadily decreasing vulnerability to disaster risks over time.

- By protecting farmers' investments in case of a bad season, R4 enables households to invest in riskier but more remunerative enterprises, as well as in seeds, fertilizers and new technologies to increase their agricultural productivity.

- **Participants establish small-scale savings**, which are used to build 'risk reserves'. In Senegal the initiative leverages Oxfam America's Saving for Change (SfC) programme. Savings help build a stronger financial base for investing – but also act as a buffer against short-term consumption needs and idiosyncratic shocks, such as illness and death of a family member.

- To ensure **long-term sustainability**, R4 contributes to the creation of rural financial markets, by building the capacity of farmers, local insurance companies, and micro-finance institutions and gradually transitioning farmers to pay for insurance in cash.

Why Senegal?

The following factors led to the choice of Senegal as the second country in which to test R4:

- high levels of rural poverty;
- vulnerability from a fragile rain-fed subsistence farming system;
- good potential within the microcredit and agricultural insurance sectors; and
- strong presence of Oxfam America and WFP programmes.

Fifty-eight percent of households in the Senegal are below the poverty threshold. Agriculture accounts for 17 percent of Senegal's gross domestic product (GDP), yet employs 60 percent of the population and includes 65 percent of the country's poor households. Agricultural activity has been gradually declining due to a combination of the country's exposure to frequent droughts (unfavourable rains in 2002-2003, 2006-2007 and 2011-2012); the international food and oil price shocks over 2007-08; and the effects of the global financial crisis in 2008-09.

People's **food security in the country is highly sensitive to climate risks**. Subsistence farmers face chronic food insecurity due to unreliable rains. Weather-related shocks, including local flooding, recurrent poor growing seasons, delays in the start of the rains, the early end of rains and long dry spells during the growing season prevent farmers from investing in their land. This in turn impedes efforts to modernize the agriculture sector and increase rural income. Increasing population pressure on land further drives farmers into cultivating on poorer soils and leads to land degradation.

In Senegal rural households are vulnerable to unreliable rainfall patterns, poor growing seasons, and local flooding.

Formal and informal credit and savings mechanisms help families align revenues with spending peaks. However, farmers often need to sell their crops immediately after harvest to meet all their financial and social obligations. As a result, large amounts of produce often flood markets post-harvest, reducing food prices and forcing families to sell more produce to cover their costs. The limited access of smallholders to physical and financial assets, compounded by weak social structures, makes it difficult for households to emerge from poverty without external intervention.

A strong microfinance sector does exist in Senegal, but unfortunately it is not always accessible to remote and poor rural communities. From the insurance perspective, a newly-formed agricultural insurance company has however increased the opportunity to connect rural communities to private sector markets.

In Senegal, the rural community of Koussanar in the region of Tambacounda was chosen to pilot the project in 2013, based on its climate-related food insecurity level, as well as the presence of asset-building and sustainable financial service projects, especially those being implemented by WFP and Oxfam America. Besides leveraging resources and providing inputs into one or more of the risk management dimensions, the presence of these agencies could ensure close implementation support through local offices and partners, and capitalize on the already-established trust and participation of local communities.

How R4 was designed in Senegal

The design of the R4 Senegal project is the focus of this case study. Four steps can be discerned in the design process, which are explained in detail below, before lessons learned are reflected upon. In brief, these four steps include:

A. **assessing and analysing community needs and project sites;**
B. **designing the weather-risk insurance component;**
C. **linking insurance with asset-building community projects (Insurance for Assets); and**
D. **building strong savings and credit mechanisms (Saving for Change).**

The development of R4 in Senegal would not have been possible without the active involvement of a number of actors. At the international level, partnerships exist between Oxfam America, the International Research Institute for Climate and Society of Colombia University (IRI) and WFP. Roles and responsibilities of each one of the partners takes each organization's strength and expertise into account to build a 'best in class' model:

- WFP leads the risk transfer and risk reduction components of R4 Senegal, leveraging its Food Assistance for Assets programme.
- Oxfam America is responsible for the coordination of the savings and credit components through their programme Saving for Change.
- IRI is responsible for the index design, maintenance and validation.

At the national level, WFP and Oxfam America work with several implementing partners across the four components of R4 in Senegal.

- The former PAPIL (Projet d'Appui à la Petite Irrigation Locale), now P2RS (Programme multinational de renforcement de la résilience à l'insécurité alimentaire et nutritionnelle au Sahel - composante Sénégal), and Bamtaare services are responsible for the organization and supervision of the Insurance for Assets activities, which include building community and household level assets. Examples include the construction of small water retention and soil conservation structures, the improved management of low-laying lands for rice cultivation, and the creation of vegetable gardens coupled with compost pit making.
- La Lumière, a local NGO, is tasked with the implementation of the credit and savings components and the overall community engagement.
- The agricultural insurance company, Compagnie Nationale d'Assurance Agricole du Sénégal (CNAAS) plays the crucial role of creating and providing insurance policies to participants. The Government provides a 50 percent subsidy to CNAAS for the insurance premium provided to R4 participants, among other activities.

R4 participants standing next to a stone bund, one of the DRR activities carried out through R4

1. Step A

Assessing and analysing community needs and project sites

The first step in the R4 Senegal design was to undertake a **national assessment process** based on climatic, disaster risk, food security and market data, to help determine the factors that were positively and negatively impacting rural livelihoods in the country. This helped identify the areas that are most at risk from climate-induced food insecurity. Based on the result of this assessment, a range of **local context analyses** were then undertaken, providing an insight into the intrinsic challenges and needs of the selected communities, examining different livelihoods, land-use, market, household and institutional dynamics and their changes over time. Finally, community consultations in identified pilot sites were held, using a **community-based participatory planning** process, helping villages and partners identify together the specific concerns, priorities and project activities that R4 should focus on. The CBPP process is part of WFP's corporate Three-Pronged Approach (3PA) that aims to strengthen the design, planning and implementation of longer-term resilience programmes placing people at the centre of planning; two other innovative tools of the 3PA include an integrated context analysis (ICA) and seasonal livelihood programming (SLP).

1. National Assessment process

The groundwork for programme development took place in 2012 through a coordinated national assessment of food security, markets, disaster risk vulnerability, and climate change trends. The analysis helped identify spatial and temporal relationships between food security and climate variables by correlating long-term data series of food security indicators[3] (crop yields, food prices, livestock product output) with climate parameters (precipitation and temperature) at the national and sub-national levels.

The analysis allowed a better understanding of the factors that make a household vulnerable to climate variability, and highlighted the following climatic trends:

- **Climate impacts on food production:** Rainfall patterns are highly erratic in Senegal and in the Sahel. High rainfall variability is one of the key contributors to food insecurity in the major agricultural areas. The main staple crops include rice, millet, groundnuts and sorghum, and given they are rain-fed and highly sensitive to annual precipitation, significant drops in crop production have been occurring in drier years.
- **Climate impacts on food access:** Access to markets is critical to food security in Senegal. Two interrelated climatic impacts potentially affect household access to food during critical months. More frequent droughts can force households to purchase more of their food during the lean season. At the other extreme, floods can destroy or severely affect infrastructure, reducing the ability of households to access markets.
- **Climate impacts on livelihoods:** Livelihood activities are also highly climate-sensitive, where subsistence agriculture, cash crops, livestock rearing, *maraîchage* (vegetable growing), and daily agricultural labour are the main sources of income. The proportion of income coming from climate-sensitive agriculture is highest in the central and eastern parts of the country.

The results of the National Assessment suggested that the central areas of the country (Tambacounda and Kompentoum) had a combination of high food insecurity, climate-related shocks, soil erosion and population density that made them the 'ideal' context to test the R4 integrated risk management model.[4]

3. Unfortunately, food security indicators were only collected at department level in 2009 (source WFP, Senegal Comprehensive Food Security and Vulnerability Analysis (CFSVA), 2010). Some proxies like crop production had thus to be used to analyse trends.

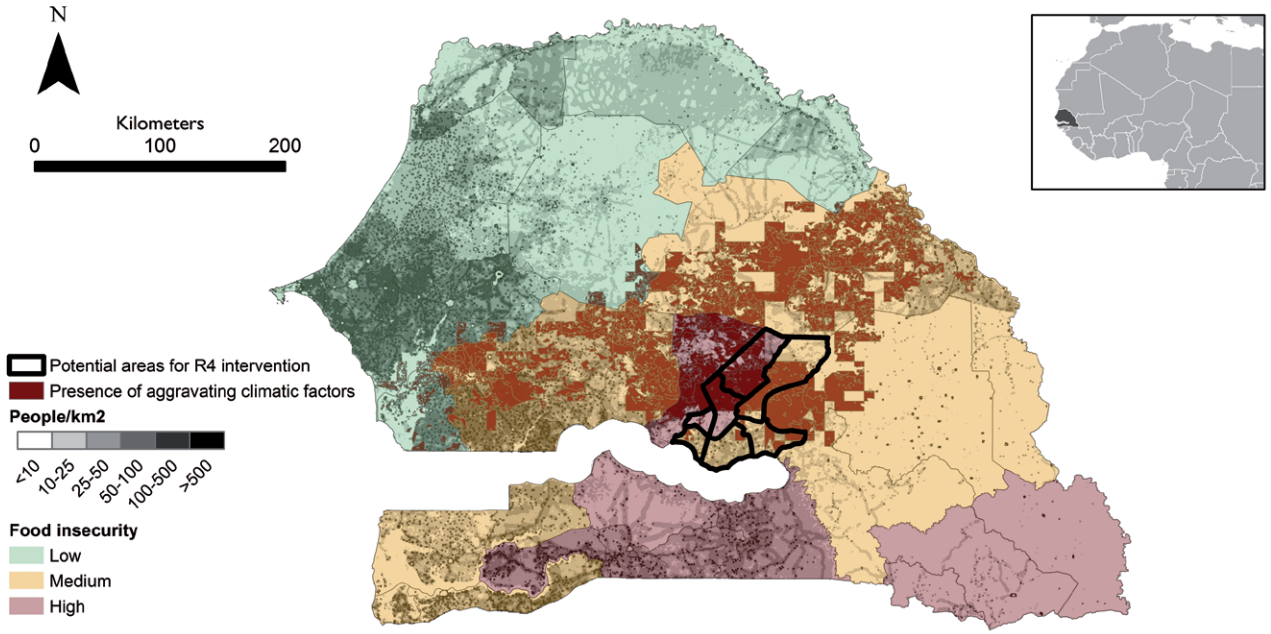
4. The pastoral areas in northern Senegal have high levels of food insecurity and the most frequent poor growing seasons, but long dry spells make agriculture mostly unviable and help explain a livelihood system that relies on extensive livestock rearing. In the south and south-east of the country, high food insecurity is explained instead by economic isolation and localised conflicts (Casamance) compounded by localised flooding.

Using these combined criteria, the rural community of Koussanar, located in the Tambacounda region in eastern Senegal, was selected in 2013 as the first R4 implementation site (see Figure 2 below).

Tambacounda has moderate to high food insecurity and the highest inter-annual variability of rainfall, but is also an agro-pastoral zone with a mix of cash and food crops.

FIGURE 2

Food-Insecure Areas with Aggravating Climatic Factors



Food insecurity is shown in this map through three proxies: prevalence of food insecurity, poverty incidence and global chronic malnutrition as measured by the CFSVA (2009/2010).
A department is considered to have high food insecurity when prevalence of food insecurity is >20%, poverty incidence is >60% and GCM is >30%.
A department is considered to have medium food insecurity when prevalence of food insecurity is 15-20%, poverty incidence is 40-60%, and GCM rates are 20-30%.
A department is considered to have low food insecurity when prevalence of food insecurity is <15%, poverty incidence is <40%, and GCM rates are <20%.

Source: WFP, 2012.

2. Local context analysis

Once the pilot area was selected, a more detailed assessment of the local context was carried out. Five key analyses were conducted:

a) **A consultative seasonal livelihood analysis and planning process (SLP)** enabled communities, local institutions and their partners at the sub-regional level to discuss how frequently local communities had experienced climate shocks in the previous 30 years. The purpose of those discussions was to compare farmers' accounts with weather data to gain a better understanding of how shocks affected those communities at the village level. **The seasonal livelihood process was essential for designing an integrated set of livelihood and season-specific projects**, including disaster risk reduction, food security, micro-insurance, savings and credit activities. A seasonal livelihood calendar outlining typical, good and bad years was produced as an outcome of the consultation (see Figure 3).

FIGURE 3

Seasonal calendar of livelihood activities during a typical year for Koussanar region

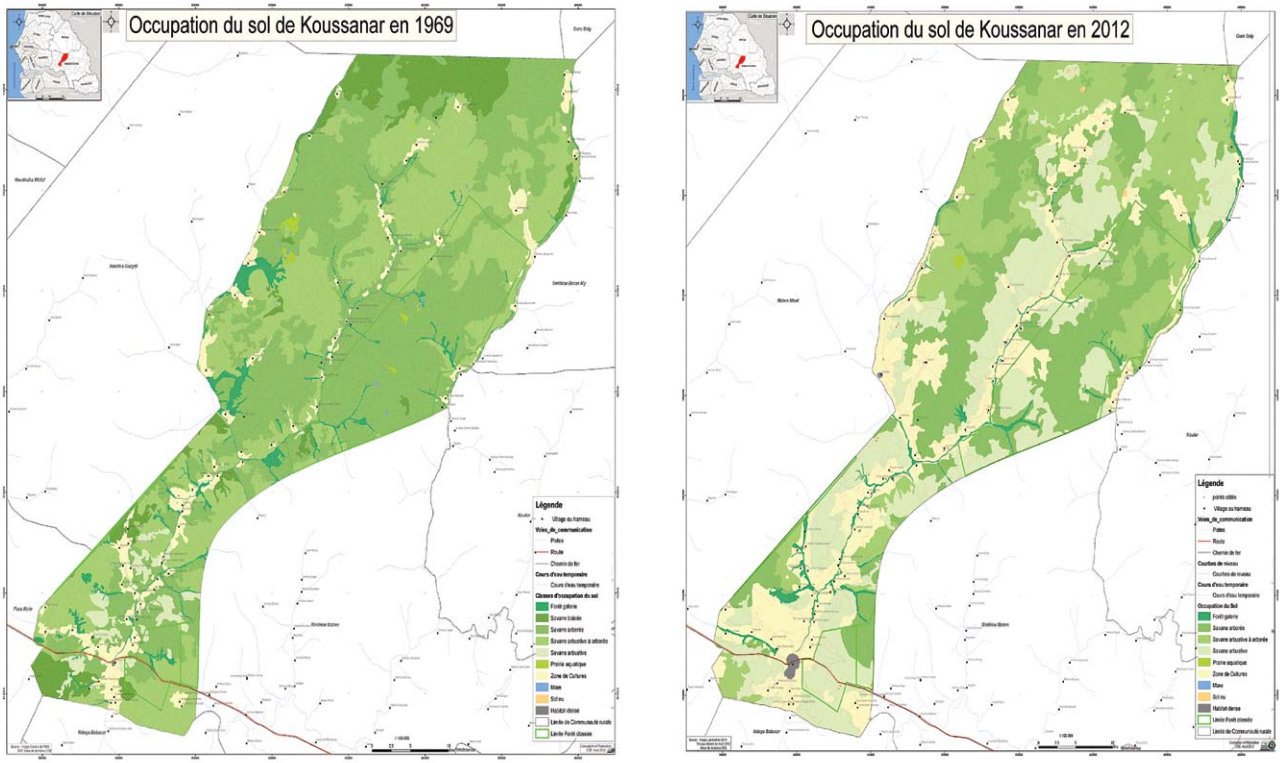
SEASONAL CALENDAR KOUSSANAR - TYPICAL YEAR

Months	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
RAINS							Nawet					
DRY SEASON	Loli	Nor (hot)		Thiorone (very hot)								Loli (cool)
Water shortage	CHRONIC. Access is difficult and quality is poor											
Input supply		Fertilizer			Fertilizer							
Bush clearing / manure application												
Soil preparation						Ploughing						
Sowing												
Fertilizer application												
Weeding												
Harvest												
Expenditures rainy season						Medical (malaria, diarrhoea), food (high prices)						
Ramadan + Tabaski + Gamu (varies)												
School fees + weddings		Wedding ceremonies								School fees		
Refund of agriculture loans		Deadline before penalties apply										
Refund consumption loans												
Refund informal loans										Domestic expenditures		
Petty trade (continuous)												
Horticulture						Okra, chillies, eggplants, tomatoes, african eggplant, bissap, etc. Use of wells						
Sale of cotton												
Sale of groundnuts												
Sale of sesame												
Sale of cereals										Food diversification		
Sale of jujuba fruits												
Sale of baobab fruits												
Sale of wood / charcoal (continuous)												
Purchase of animal feed												
Animal diseases			Newcastle due to heat		Animal deaths (a few)				Parasites			
Lalo mbep												Lalo Mbep
Animal sales (they sell 1 or 2 small ruminants per year, equal to about 100 kg of rice)									Better quality, better price			
Agricultural labour						Intense (peaks in mid-June-July, then from October)						
Youth migration		Towards Kédougou and Tamba										
Markets (continuous)						Physical access to markets difficult						
High food prices						Lean season, high prices on all markets						
Low food prices											Cereal price lower after harvest	
Diseases (diarrhoea)						1 meal per day						
Malnutrition								Everybody				
Malaria								Children				
Best / worse period	Best						1 meal per day, diseases (women, children)					
Hunger gap								Empty granaries, borrowing, rice consumption, sale of wood and animals, pawning of equipment, remittances				
Assistance rationales	**PREPAREDNESS : TIME FOR INVESTING IN ASSETS FOR THE UPCOMING WORST TIMES** **Assistance type:** Communities have time available that could be used to invest in assets that reduce their vulnerability to future shocks. **Transfer modalities:** As food stocks are still available this is the best time to envisage transfer modalities other than food (e.g. cash and/or insurance) or food assistance mechanisms that encourage stocking food for the lean season (e.g. cereal banks)						**PROTECTIVE: TO SAFEGUARD LIVES AND LIVELIHOODS** **Assistance type:** labour-based assistance not recommended because it competes with the agriculture calendar. **Transfer modalities:** FOOD as the preferred transfer modality because food stocks are exhausted and access to markets is sometimes difficult. Participants prefer food rather than cash because they would need to buy food anyway. With food transfers, they avoid prices fluctuations and ensure household food security. With cash transfers, there is the risk that money received is spent on non-food items.				

b) **Historical analyses of land use** provided further contextual knowledge using satellite imagery to compare land use in 1969, 1988 and 2012. This exercise highlighted a significant decrease in tree coverage due to the increase of population and expansion of cultivated areas, which aligned with anecdotal evidence that tree cutting for charcoal making is the most common income generating activity, especially for young males. It also corroborated farmers' perceptions that flash floods had increased over time. Communities also described that low-lying areas (the *bas-fonds*), where rice cultivation is traditionally practiced by women, were drying up much earlier than usual – and reported that fish could be found in these river beds not long ago. **The results of the historical land use analysis allowed key DRR and resilience building activities to be identified**, with for example the management and capitalization of '*bas-fonds*' and protection of watersheds.

FIGURE 4

Land use in Koussanar in 1969 versus 2012

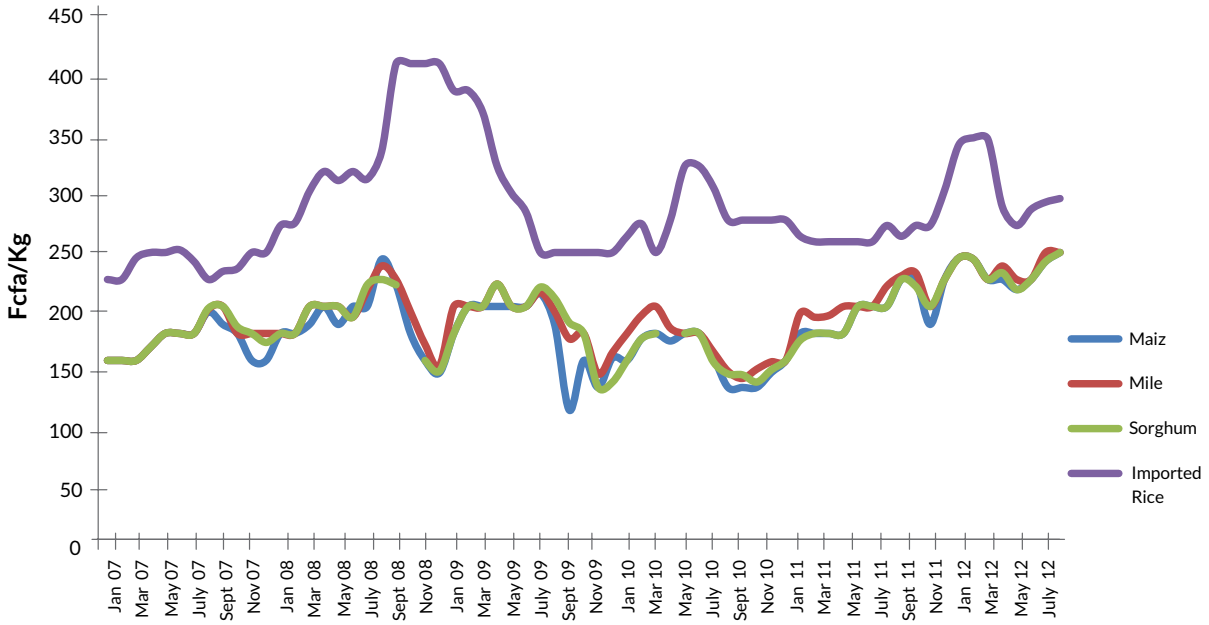


Eroded soil in Koussanar

c) **A market and value chain study** looked at price formation for the major income sources in the target area, highlighting the challenges faced by households selling a large portion of their produce at harvest and then having difficulty accessing food during the lean season. The study underlined the need to widen the prospects for households to smooth the peaks of income and expenditure, by for example offering increased options for in-kind or in-cash savings at times of food production surplus. **The market and value chain study helped to understand the role that formal and informal savings and credit mechanisms could play in managing weather risks, and the key investment areas that need to be addressed to provide higher returns for both women and men.**

FIGURE 5

Market and value chain analysis explored food price fluctuations and food access issues



d) **An institutional analysis** of community organizations, private and government actors identified the key partners that could either deliver relevant services or provide leadership and technical support for the implementation of R4. **The institutional analysis helped determine the key institutions that should be supported to improve services for communities.**

e) **A household research project** was undertaken by the Centre pour les Etudes et les Recherches sur le Développement International (CERDI) to investigate households' **risk profile** and the **demand for insurance** (using experimental games and lab-in-the-field tests). The research project analysed agricultural decisions dynamics, household perceptions of shocks, and coping strategies applied in response to these shocks. Farmers played decision-making games incentivized by monetary payoffs, to test their willingness to purchase insurance while also acquainting them with the concept of insurance. **The household research exercises fed into the index design process for the weather-risk insurance packages.**

These analyses helped to determine the priority intervention areas, their main opportunities and constraints, the potential partnerships to be put in place and the type of services to be offered. They also informed regional consultations about the final identification of the clusters[5] of villages that would be targeted by R4.

5. These are groups of villages that share common geographic features (e.g. cultivate the same river bed) and strong social ties. Smaller and more recent villages are usually clustered around one larger and 'older' village. The total number of villages in a cluster can vary.

3. Community-Based Participatory Planning

Community-Based Participatory Planning (CBPP) is a participatory planning tool that has been used to understand the community's priority needs and jointly identify how to meet them. They have been implemented in every cluster of villages targeted by R4. The two-day exercise with key community members helps to untangle the main causes of vulnerability that affect households and how people address them. Information is collected on livelihoods, vulnerability criteria, adaptation and coping strategies, physical features of the area, institutions and access to services. Potential partnership opportunities are also explored among communities, local government, decentralised government services, private sector, NGOs and UN agencies.

R4 participants receive an insurance payout.

2. Step B

Setting up the Weather Index Insurance

Index creation

The R4 insurance component involved the creation of a weather index insurance product, covering drought, which links historic rainfall estimates data with agriculture production data. A payout to farmers enrolled in the programme occurs in cases where a specific threshold of rainfall is not achieved during pre-defined time periods or 'windows' during the agricultural season. The bigger the difference between the threshold and the actual rainfall, the larger the payout. Over a certain limit the farmer is considered to have lost too much and receives a 100 percent payout.

To help develop the insurance index in Koussanar, WFP worked with IRI, local research partner Centre d'Etudes Régional pour l'Amélioration de l'Adaptation à la Sécheresse (CERAAS) and local farmers to gather data on historical rainfall patterns and to map previous drought incidents. The process was based on IRI's Social Network for Index Insurance Design (SNIID) approach. This is an intensive and iterative process that alternates highly interactive community consultations, including:

- Cropping patterns and farmers' perceptions of how shocks affect investment decisions
- Insurance games designed to illustrate to farmers how the decision to purchase index insurance can influence decisions to use inputs during a specific planting season
- Analysis of rainfall and crop data to develop an index closely adapted to local circumstances.

This is done through an **Index Insurance Community Design Team** for each of the targeted cluster of villages, which acts as an interlocutor with researchers over the whole process. The process also improves farmers' financial skills by deepening their understanding of the role of insurance in protecting agricultural investments from weather shocks.

Following the design phase, a dry run was organised in 12 villages or one '*grappe*' (cluster) in Koussanar to test the prototype index. The dry run tested the performance of the prototype to inform design and marketing of the actual insurance policies. The dry run was conducted based on rainfall data and rainfall estimates in order to assess the accuracy of the satellite index. This process also helped to strengthen insurance awareness amongst communities. Based on the tests, the following became the features of the designed weather index:

- **A simple index not specific to a single crop.** It was found that farmers in Koussanar region do not adopt intensive farming and do not have good access to improved seeds and fertilisers, credit or extension services. Hence, the index needs to be considered as a drought stress mechanism, providing payouts in adverse drought years and allowing households to manage and build their assets. Over time, crop-specific indices could be introduced when agricultural support services, access to credit and markets become more developed and famers become more productive and increase their investments.
- **An index based on satellite estimates of rainfall.** Due to very limited meteorological stations with historical data in target areas, the index could not rely on rain gauge measurements installed and monitored by the partners of the project. Rainfall estimates from satellite were selected as the basis of the index.
- **Two annual insurance phases ('windows') rather than three.** Based on discussions with local experts and farmer design teams in each village, two dominant drought risks were identified relating to the most sensitive phases of the agricultural calendar in Tambacounda region: weak or late onset of rainfall at the start of the rainy season (affecting crop sowing and establishment of long cycle crops) and weak or early end of rainfall at the end of the season (impacting flowering and grain filling). This is different from Ethiopia where three drought risks occurred annually. The number of 'windows' is important in the design of the insurance package, as it affects farmers' choice to insure one or both phases.

Insurance product design

Once the index was designed, the next step was to test the key features of an insurance product. Two factors needed to be considered: the maximum sum each farmer could insure, and the frequency of payouts.

The **sum insured** was obtained by calculating gross margins of the three main crops (millet, groundnuts and maize) grown in Koussanar for three different cropping intensities. The benchmark to determine sums insured was the area (in hectares) of a particular crop grown, and its level of intensification. The maximum sum insured per hectare was set as 50 percent of the expected revenue per hectare, based on estimates of current yields for a 'low' cropping intensity, which is the prevalent one in the area. As insurance was offered to individual members of households, a maximum sum insured per household was set at approximately 3 hectares of crops grown (the size of a small farm in Senegal), in order to allow for a wide participation of households in the R4 programme.

Depending on villages, the gross premium rate - before the 50 percent government subsidy - was set at between 12.5 percent and 16.8 percent of the sum insured. The gross premium rate is based on the risk level of each village, and it includes the net premium to the reinsurer plus the commissions to the insurer, broker and distributor.

An R4 participant standing in front of the communal vegetable garden in Tambacounda developed through R4

3. Step C

Linking insurance with asset-building community projects (Insurance for Assets)

Index-based insurance offers an innovative risk financing mechanism to enable farmers to anticipate and cover their deficit during seasons of poor rains and failed harvests. Insurance also encourages private sector investment in vulnerable areas and communities. However, many smallholder farmers are too poor to afford an insurance policy. This is where WFP's 'Insurance for Assets' (IFA) scheme bridges the gap.

IFA works off WFP's traditional Food Assistance For Asset (FFA) activities, where food insecure and vulnerable individuals are targeted to participate in projects that will build natural assets which increase their agricultural productivity (including training), reduce their vulnerability to droughts and floods (such as dams, wells and irrigation canals), or to diversify their livelihoods (for example by planting fruit trees). These projects are designed to reduce household and community risks against natural disasters, to enhance people's livelihood opportunities and to build longer-term resilience against food insecurity and climate risks.

In line with these FFA mechanisms, IFA allows poor farmers who would not normally have had the capital to invest in insurance products, to purchase a policy through their labour. The work takes the form of their participation in asset creation activities at the community level. This results in a win-win situation – allowing a farmer to transfer their individual risk to the international insurance market, while the asset creation activities gradually reducing their community's exposure to disaster risk and building their long-term resilience. The farmers' purchase of the policy is paid through the number of days they work on these asset-building projects, with the required days they must work based on the amount of crop land farmers wish to insure. In addition, those farmers who can afford to pay for an insurance policy can do so fully and directly in cash. This helps ensure that the local insurance company benefits from a larger clientele, maintaining their interest in the provision of the insurance packages and supporting the longer-term sustainability and impact of this private-public sector project.

In Senegal, farmers are informed and sensitised about weather-indexed insurance through the interactive index design process as well as through the work done by the local NGO La Lumière which is tasked with community mobilisation, along with representatives from the national insurance partner CNAAS. Farmers register for IFA through WFP's disaster risk reduction technical partners PAPIL/P2RS and Bamtaare, and after completing their required number of IFA days are provided with an insurance policy by CNAAS, which in turn is reinsured by international reinsurance companies.

The Government of Senegal currently covers fifty percent of the costs of the premium for each policy (whether participants pay with labour or cash) and does not collect any tax on agricultural insurance products. The insurance component is designed to gradually transition from premiums paid with labour through R4's IFA scheme, to premiums paid in cash by farmers. **If successful, the model's comprehensive four-component approach will enable participants to graduate from the IFA programme and start paying with cash, thus developing a sustainable commercial insurance market.**

Farmers participating in a focus group discussion on weather index insurance, Kolda

4. Step D

Building strong savings and credit mechanisms (Saving for Change)

In Senegal, the saving and credit components of R4 are built on Oxfam America's Saving for Change programme (SfC). SfC is an innovative savings groups programme that enables farmers to build savings and access small credits, therefore increasing their resilience and financial assets. Saving for Change trains groups mostly composed of women who save regularly, borrow from their group's fund, and repay loans with interest.

The design of Saving for Change draws on traditional *tontines* (informal savings systems) and is therefore understood by rural and often illiterate farmers. Participants meet weekly and keep records orally. Groups receive no seed capital. Loans are approved by the group and can be used for small-scale business or to cover health emergencies or household expenditures. Loan terms, conditions and interest rates are defined by each group. A saving cycle lasts between eight months to a year, after which each member collects their savings and a share of the generated interest. Groups schedule distribution for a critical time, such as the onset of the hungry season, when money is scarce. A new cycle then begins. As participants meet, they learn to manage their groups, and develop bonds of mutual assistance and solidarity. These groups also function as platforms for health, education, agriculture extension or business advice services for members.

In Senegal, the programme is implemented by the local NGO, La Lumière.

As a holistic approach to risk management, R4 integrates savings as one of the core components of its framework. Savings not only allow households to build a stronger financial base for investing in their livelihoods, but also act as a buffer against short-term needs and increase households' ability to cope with shocks. Group savings can be loaned out to help individual households who have a particular need, acting as a self-insurance mechanism for the community.

In 2013, to lay the ground to integrate Saving for Change groups into R4, La Lumière's *animateurs* – who live in the village and are tasked with engaging the community and supporting the formation and functioning of these groups – received a training on the insurance concept which they then shared with SfC groups. In villages where Saving for Change groups were not present, new groups were formed using the Saving for Change methodology. For the first time, R4 is testing the Saving for Change methodology to organize savings groups composed exclusively of men. Groups are also being trained on small business development, using the specific 'Saving for Change + Business' training.

Lessons Learned

The design of R4 in Senegal offers a number of useful lessons across each of the four steps that were implemented. In 2013, a process evaluation[6] was undertaken to review the project design and provide areas of improvement prior to the project's roll out. A further set of lessons learned have since been observed. Some of the key findings include:

- **Design challenges:** The process evaluation found that assumptions in the R4 project design regarding communities' resilience challenges in Koussanar were largely accurate, with poverty and climate-related food insecurity issues as the top priorities. However, communities did not necessarily identify climate-related shocks as the main cause of poverty or food insecurity, putting more emphasis on access to education and quality sanitation coverage as major concerns. Forced early marriages, which cause girls to drop out of primary school, was also often mentioned as a cause of poverty, an issue that had not appeared in the initial context analysis. Communities additionally underlined the importance of improved social cohesion and appreciated R4's efforts to support local solidarity mechanisms.

6. WFP, Rural Resilience (R4) Process Evaluation Report, October 2013.

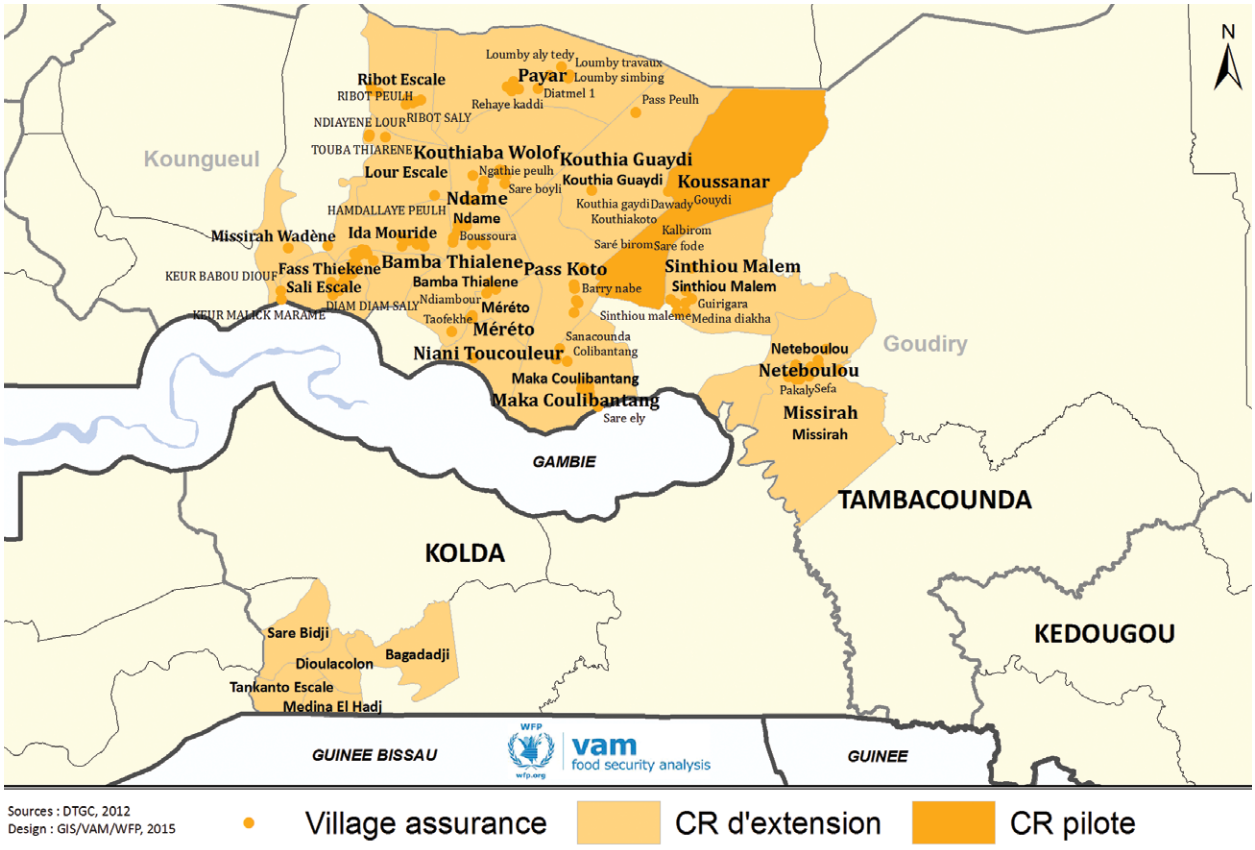
Women at the market in Dawadi

- **Asset creation activities:** The success of the asset creation projects depends on the existence of strong implementation partners that have the right capacity in terms of human and logistics resources. In Ethiopia, one strong partner in each region exists and coordinates all components; in Senegal the WFP-Oxfam America team played a critical role in pulling together the right capacities and coordination among multiple partners. A further lesson has been the importance of investing in training communities through learning-by-doing sessions on the technical aspects of asset building and agricultural production has a key element to ensure the long-term sustainability of the programme. Developing a reliable monitoring system has also been key for the programme to work.
- **Insurance index design:** Creating an index insurance scheme is a complex process that for the present time could not be done without the involvement of international institutions such as IRI. Mainstreaming this approach at the national level will need a strong emphasis on building local capacity of public and private institutions.

5. Next steps

R4 Senegal scale-up plan

FIGURE 6
Location of R4 areas in 2016



In 2016, R4 was implemented in three regions of Senegal (Tambacounda, Kolda and Kaffrine) (see Figure 6 above) reaching more than 12,000 participants of which almost 7,000 insured. The boundary of the R4 2016 insurance areas was defined by selecting broadly similar climatic conditions (between 600mm to 800mm isohyets)[7] and similar farming systems to those in Koussanar.

By 2020, R4 plans to reach 45,000 food insecure rural households in the regions of Kaffrine, Kolda, Tambacounda, Fatick, Kaolack by building their resilience to increasingly recurrent climate shocks, and adapt to the adverse impacts of climate change.

Globally, R4's goal is to empower over half a million food-insecure people to improve their lives and livelihoods in at least four countries in five years. In 2015, the team started piloting R4 in Malawi and Zambia; other countries currently being considered are Kenya and Zimbabwe. R4 will be rolled out in each new country over a period of three to four years, giving enough time and data to conduct impact evaluations, monitor progress and improve the programme's implementation based on regular feedback from participants and key stakeholders.

7. An isohyet is a line joining points of equal precipitation on a map.

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January 2017

The R4 Rural Resilience Initiative in Senegal

COMPREHENSIVE CLIMATE RESILIENCE FOR LONG-TERM FOOD SECURITY AND LIVELIHOODS

C-ADAPT Climate Resilience for Food Security: ANALYSES, INNOVATIONS & STANDARDS

The Climate Adaptation Management and Innovation Initiative (C-ADAPT) is an initiative funded by the Government of Sweden's fast-track climate finance that allows WFP and partners to explore innovative climate-induced food insecurity analyses, programmes and best practices, with the goal to help individuals, communities and governments meet their food and nutrition needs under a changing climate.

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Collaboration

The R4 Rural Resilience Initiative is a strategic collaboration between the World Food Programme and Oxfam America, with no commingling of funds. Each partner has its own sponsors as listed. R4 is inviting donors to support expansion.

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