

"Improving and Scaling up the System of Rice Intensification in West Africa"



Senegal Trip Report 26 February – 09 March 2015 Devon Jenkins, SRI-Rice



Table of Contents

List of Acronyms	3
Executive Summary	5
Background	5
Personnel	7
Calendar	7
Contacts	7
Dakar – 26 to 27 February	8
Ziguinchor / Casamance – 28 February to 04 March	9
Matam – 05-06 March	13
Toubacouta / Peanut Basin – 06 March to 08 March	17
Dakar – 09 March	17
Appendix A – Pictures	19

List of Acronyms

ANCAR	Agence Nationale de Conseil Agricole et Rurale – Senegal’s National Rural and Agricultural Advisory Agency.
CNS-RIZ	Centre Nationale de Spécialisation sur le Riz – the regional center for rice specialization under the WAAPP, based in Bamako, Mali, at IER.
CORAF/WE CARD	West and Central African Council for Agricultural Research and Development – the coordinating agency responsible for implementing the WAAPP.
CR CR	Conseil Régional des Coopération des Ruraux (Regional Council of Rural Cooperatives).
E-ATP	Expanded Agriculture and Trade Program – A program of USAID to enhance market-related aspects of agricultural sectors in West Africa.
GWI	The Global Water Initiative, which is managed in the UK by IIED.
IAD	The International Development Association, a fund of the World Bank.
IFAD	The United Nations’ International Fund for Agricultural Development
IED Afrique	Innovations, Environnement et Développement – A regional NGO based in Senegal and dedicated to environmental capacity building
IIED	International Institute for Environment and Development
IER	Institute d’Économie Rurale – Mali’s national agricultural and rural consultation service, and home institution of CNS-Riz, the lead coordinating agency for the SRI-WAAPP project.
PADAER	Programme d’appui au développement agricole et à l’entrepreneuriat rural (Program to Support Agricultural Development and Rural Entrepreneurship) – A rural development project active in Kédougou, Tambacounda, Kolda and Matam.
PASAEL	Projet d'appui à la sécurité alimentaire et à l'élevage (Food Security And Livestock Support Project) – a World Bank-financed project in SE Senegal managing a dam and associated irrigation scheme.
PRODAM	Projet de Développement Agricole de Matam (Agricultural Development Project of Matam) – An agricultural development project working with irrigated rice, maize and gardening along the Senegal River Valley. PRODAM was launched in 1995 with funding from the International Fund for Agricultural Development (IFAD) and the West African Development Bank (BOAD), in response to humanitarian challenges brought on by the 1989 border conflict with Mauritania.
SRI	System of Rice Intensification – A rice production methodology that uses four management principles to induce a phenotypic change in plant growth, increasing yields while decreasing inputs of seed, water, synthetic fertilizer, and agrochemicals.
SRI-Rice	SRI International Network and Resources Center – A global center for SRI knowledge sharing, promotion and support of national and regional networks based at Cornell University in the United States.
SRI-WAAPP	Improving and Scaling up the System of Rice Intensification (SRI) in West Africa – A 3-year, 13-country regional project to increase rice productivity through the introduction and local adaptation of SRI as part of the WAAPP.
UCTF	l’Unité de Coordination Technique et Fiduciaire (Technical and Fiduciary Coordinating Unit) of the Programme des Services Agricoles et Organisations de Producteurs (PSAOP – Program of Agricultural Services and Producers’ Organizations) – funded by IAD. UCTF is the national WAAPP administrating agency in Senegal.
USAID	The United States Agency for International Development.
WAAPP	West Africa Agricultural Productivity Program – A 13-country program funded by the World Bank to increase productivity across a broad spectrum of agricultural sectors. The SRI-WAAPP project is part of this program.

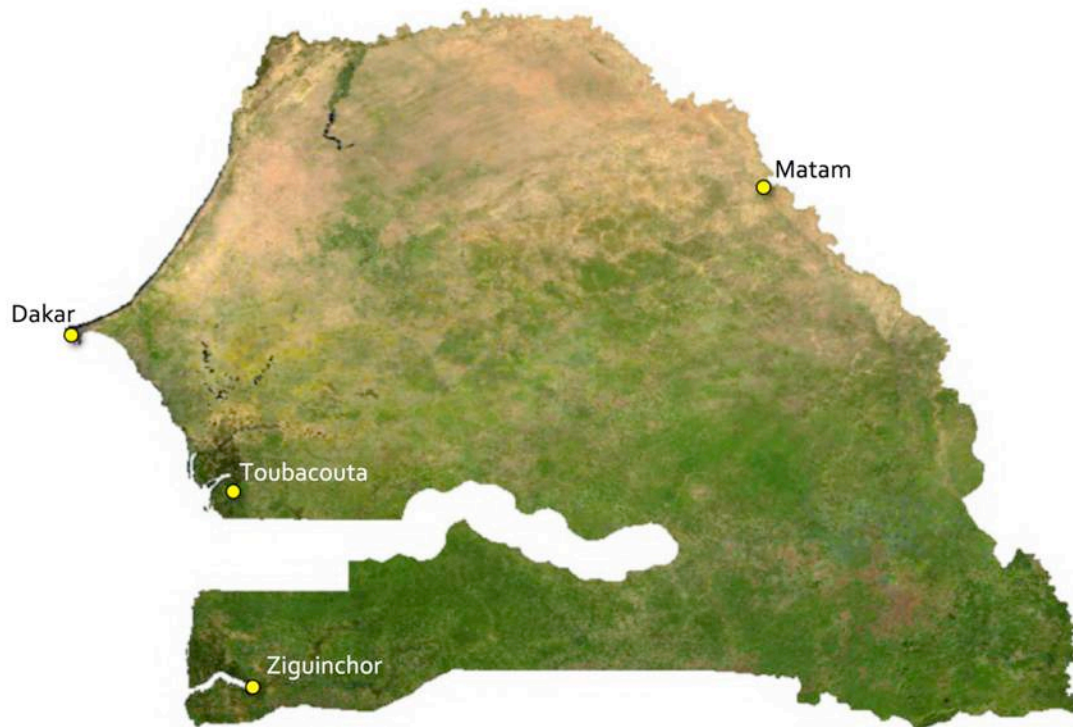


Figure 1 – Satellite map of Senegal, showing locations visited during the support mission.

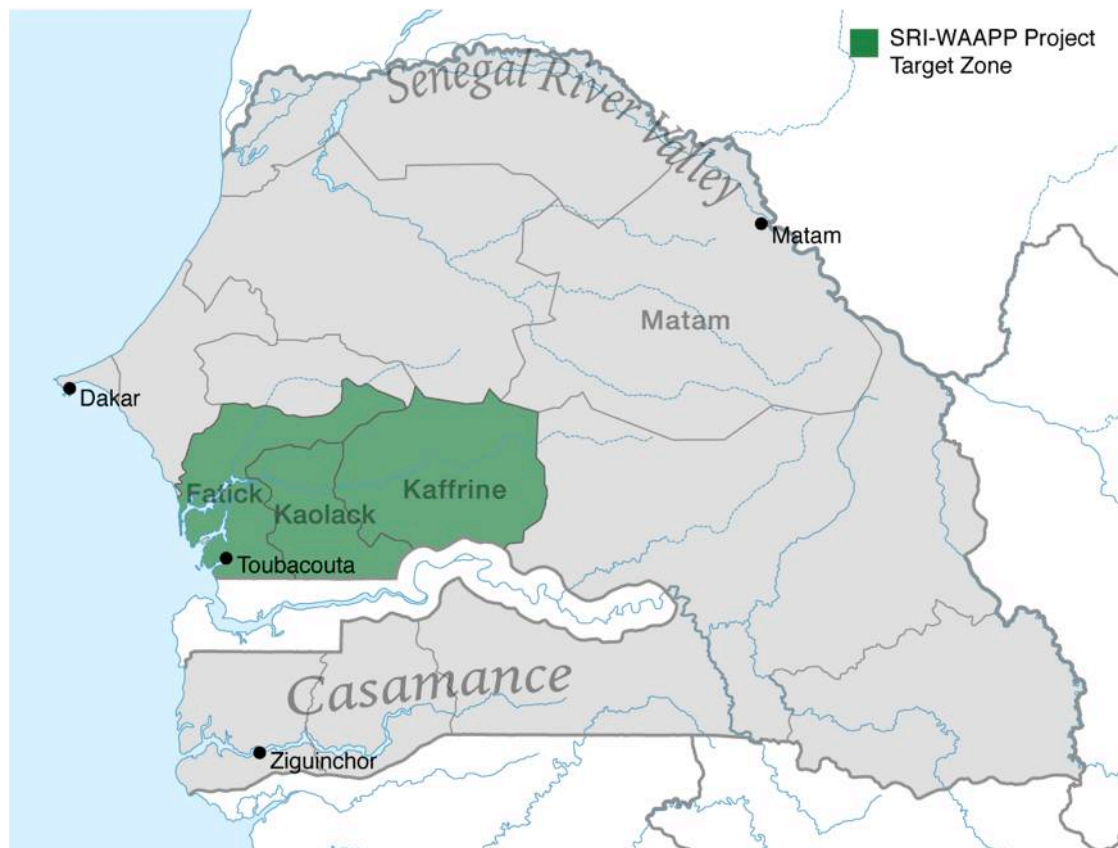


Figure 2 – Political map of Senegal showing the SRI-WAAPP project target zone and locations visited during the support mission.

Executive Summary

This report covers a support mission to Senegal in February and March, 2015, for the regional project, 'Improving and Scaling up the System of Rice Intensification (SRI) in West Africa' ([SRI-WAAPP](#)), a 2.5-year commissioned project operating in 13 countries as part of the World Bank-financed West Africa Agriculture Productivity Program (WAAPP).¹ The Regional Coordination Unit for the SRI-WAAPP project is tasked with providing support missions to each of the countries, which provide an opportunity to assess conditions within the country (i.e., project implementation, institutional capacity, and communications) meet with stakeholders, and provide technical support as needed.

The support mission covered here involved site visits in Matam and Toubacouta; meetings with project stakeholders in Dakar, Ziguinchor, Matam and Toubacouta; and SRI trainings in Ziguinchor and Toubacouta (see the maps in Figures 1 and 2 for all place names referred to in this report).

Background

The Regional Coordination Unit for SRI-WAAPP consists of a partnership between the lead agency – the National Center of Specialization on Rice (CNS-Riz), based at the *Institute d'Économie Rurale* (IER) in Bamako Mali – and the technical support agency – the SRI International Network and Resource Center (SRI-Rice), based at Cornell University in the United States. In the implementation of the SRI-WAAPP project, the continuous support that the regional coordination provides to the countries is a fundamental activity, because it is at their level that the field actions are executed. Working in collaboration with the SRI-WAAPP's National Facilitator for Senegal, CNS-RIZ/WAAPP and SRI-Rice agreed to organize a support visit to Senegal after a regional workshop (summary of 2014 and planning of 2015) that was held in Abidjan, Côte d'Ivoire, from February 16th-19th, 2015.

SRI-WAAPP activities in Senegal are coordinated by the project's National Facilitator, Abdoulaye Sy, a zone director for the National Rural and Agricultural Advisory Agency (ANCAR), which acts as the Focal Institution for the SRI-WAAPP project in Senegal.

In 2014 ANCAR chose the Fatick, Kaolack and Kaffrine Regions (three of Senegal's 14 administrative Regions) – collectively known as the southern Peanut Basin – as the project target zone. Both trainings held during the support mission were primarily for ANCAR advisory agents; the training in Toubacouta was for agents from all three administrative regions belonging to the project target zone, while the training in Ziguinchor was for ANCAR agents in southern Senegal's Casamance area, who are not directly part of the SRI-WAAPP project. Stakeholder visits included meetings with: the WAAPP's administrative organization in Senegal, *l'Unité de Coordination Technique et Fiduciaire* (UCTF); Peace Corps; The Global Water Initiative (GWI)/ *Innovations, Environnement et Développement* (IED Afrique)/International Institute for Environment and Development (IIED); *Projet de Développement Agricole de Matam* (PRODAM); *Conseil Régional des Coopérations des Ruraux* (CRCR); and ANCAR. The field visit in Toubacouta was to a local farmer working with ANCAR agents and took place as part of a

¹ More information on the SRI-WAAPP project can be found at www.sriwestafrica.org/project

² Canard des Rizières – www.canard-desrizieres.fr; www.canard-desrizieres.com – Barnard & Catherine Poujol – bernard.poujol@canard-desrizieres.fr

training, while the field visits in the Matam Region were in the context of the PRODRAM project's SRI work with farmers working in small irrigation schemes along the Senegal River.

With over a decade of small SRI trials involving multiple organizations, adoption in several regions (Matam, Kaolack, Kaffrine, Fatick, Basse-Casamance and St. Louis), and large scale adoption under way in Matam and commencing in Fatick, Kaolack and Kaffrine, Senegal is among the countries in the region with higher levels of SRI adoption and adaptation. The leading area for SRI adoption is currently the Matam Region, along the Senegal River in the northeastern part of the country, where the Agricultural Development Project of Matam (PRODRAM) introduced SRI in 2007-8 and is currently launching a project to scale the methodology up to 3-4,000 ha of irrigated rice. The second major area of SRI in the country is in the SRI-WAAPP project's target zone (Fatick, Kaolack and Kaffrine Regions). Project activities were recently launched here with ANCAR to train and support 5,163 farmers in 2015 and 2016. In a third area, the Casamance, ANCAR is also supporting SRI, though without a large-scale project specifically for SRI promotion.

In addition to the activities of PRODRAM in Matam, the other two areas have each had SRI trials and activities for a number of years. In the Peanut Basin, ANCAR and Peace Corps have supported SRI trials dating back to at least 2012, and a national SRI training was held there in 2011 as part of the West Africa regional USAID's E-ATP series of SRI trainings. In the Casamance SRI has been tested with ANCAR agents and others for several years, with positive results, and two students from the local agricultural university recently conducted their research on SRI, though their papers were not readily available at the time of this visit.

The Casamance, Peanut Basin and Matam all have unique properties worth considering, which will influence how SRI is adopted / adapted, and the speed and scale at which this adoption / adaptation occurs:

- **In the Casamance**, rice is the primary crop, with a long history and a deeply-embedded cultural identity of rice production. As such, rice cropping enjoys a favored status vis-à-vis demand from other crops for labor. The crop is grown both in lowland and upland rainfed systems, though with a primary emphasis placed on lowland systems. Labor is all done by hand in lowland systems, while many farmers use machines adapted original from peanut production (but now widely used for other crops) for upland production. Lowland rice, like all other lowland and garden cultures in the area, makes extensive use of a locally predominant ridge and furrow system (see the photo on page 12), which seems like it could be easily adapted for SRI.
- **In the southern Peanut Basin**, commercial cropping of peanuts was introduced by the French to supply exports of oil. Rice production has, until recently, been marginal, though was much more prominent before being supplanted by peanut production. Currently farmers are returning to rice production, but the practice faces severe labor constraints due to competition from multiple other cropping systems, a short season, and priority given to peanut production. Women took over rice production when it fell from prominence after the introduction of peanut production, but now that it is gaining favor again men seem to once again be taking a more active role. Mechanization is widespread, consisting primarily of animal drawn machines with interchangeable land preparation, sowing and weeding parts, and can be adapted for SRI production by

switching out the seeding discs used, though between row spacing is wider than is conventionally recommended for SRI spacing.

- **In the Matam area**, rice farming is quite new. PRODAM and PADAER have introduced irrigation using gasoline-powered pumps from the Senegal River, and the fields lie above the river banks, which at the time of our visit toward the end of the long dry season, were substantially lower than they would be at their peak height, and required significant pumping costs. Farmers plant maize during the dry season, as maize is the base for a staple dish in the region. With good water control, no embedded cultural history of rice production, and lots of sunshine, farmers have little or no reluctance to changing their practices, and have seen quite amazing yields when using SRI – 11 t/ha on average, with highs of 13-14 t/ha being fairly common, compared to a traditional average of 5.5-6 t/ha.

Personnel

For this support trip, Mr. Devon Jenkins, a technical specialist with SRI-Rice covering the SRI-WAAPP project, was designated to participate. During the duration of the support trip, Mr. Jenkins was accompanied by Abdoulaye Sy, the National Facilitator for Senegal for the SRI-WAAPP project / ANCAR Director for the southern Peanut Basin. For a portion of the trip covering meetings in Dakar and Matam, site visits in Matam and Toubacouta, and the training in Toubacouta, the two were accompanied by Mr. Mour Guèye, Technical Expert for WAAPP Senegal / UCTF.

Calendar

Dates	Locations	Activities
26 – 27 February	Dakar	Meetings with WAAPP, Peace Corps and GWI/IED Afrique/IIED
28 February – 04 March	Ziguinchor	Meeting with CRCR; training of trainers for ANCAR agents in the Casamance
05 March	Matam	Meeting with PRODAM and Federation of Farmers' Organizations; field visit
06 – 08 March	Toubacouta	Training of trainers for ANCAR agents and NGO in the southern Peanut Basin (project target zone)
09 March	Dakar	Debriefing with WAAPP Coordinator

Contacts

Name	Affiliation	Role
Famara Massaly	<i>Peace Corps</i>	Agriculture APCD
Souleymane Cissé	<i>IED Afrique</i>	Assistant Associé de programme
Bara Guèye	<i>IED Afrique</i>	

Barbara Adolph	<i>GWIIED</i>	Principal Researcher
Amadou Kane	<i>PRODAM</i>	Promotion PME Rurale; Ing. Agronome
Saboury Ndiaye	<i>PRODAM</i>	Planification SE – Ing. Agro économiste
Mariam Drame Ndiaye	<i>ANCAR</i>	Directrice de Zone Basse et Moyenne Casamance
Mamadou Amadou Sow	<i>ANCAR</i>	Director General

Dakar – 26-27 February

Schedule:

- **Thursday 26 February** – Arrived in Dakar from Abidjan
- **Friday 27 February** – Meetings with the WAAPP Coordinator, Peace Corps and GWIIED

WAAPP Coordinator meeting

This meeting at the beginning of the trip was primarily for introductions and to present the purpose of the trip. A debriefing meeting held on March 9th covered the trip activities and follow up in detail.

GWIIED/IIED meeting

Met with Bara Guèye (IED), Souleymane Cissé (Programming Associate – IED), and Barbara Adolph (IIED) at the IED office in Dakar and discussed SRI activities in the country, and possible synergies between the WAAPP project and other local projects in Senegal. Two projects in eastern Casamance were discussed briefly – Velingara, PASAEL / World Bank; and Anambé, which involved improvement of 200ha of *bas-fonds* and valleys. The BRACE project (Building Resilience and Adaptation Against Climate Effects), a short, 3-year project, was also briefly discussed.

There was some general discussion about the possible benefits of doing SRI in *bas-fonds*, as it could help decrease competition for plots, and allows farmers to meet household rice needs on plots as small as .2 ha; but a question came up as well about the cost-effectiveness of trainings aimed at *bas-fonds* villages versus conducting trainings in large irrigation perimeters.

One final point of discussion concerned competing labor allocations, and contextualizing SRI and rice production in general within the whole picture of farming systems and household labor demands.

Peace Corps meeting with the agriculture sector project manager (APCD), Famara Massaly

As the National Facilitator for the SRI-WAAPP project, Abdoulaye Sy explained that one of his roles it to track all SRI activities in the country, including those conducted by Peace Corps (PC), as well as the constraints and opportunities that are present.

Peace Corps' experience with SRI started in 2002 when Famara Massaly and a Peace Corps Volunteer (PCV) started a first trial of SRI. Later another PCV followed up with a second test, and the results were positive, using direct seeding and traditional transplanting techniques,

with good tillering, but there wasn't good water control. The PCV training group that followed after this, however, didn't carry on with more trials.

In September 2012, Peace Corps Senegal sent a delegation to participate in a regional SRI training conducted by Peace Corps' West Africa Food Security Partnership (PC WAFSP) in Benin. The delegation consisted of Master Farmers Dembo Tigana, Ibou Sarr and Samba Ly, and PC staff Arfang Sadio (Programming and Training Assistant). In April 2013, a second delegation consisting of PCVs Lorraine Perricone-Dazzo, Mary Cadwallender and Lukas Olynyk, and PC staff Youssooupha Boye (Programming / Training) participated in an Anglophone training, also organized by the PC WAFSP in Benin.

After the Benin trainings, Peace Corps Senegal conducted SRI trainings in 2012 and 2013, then a national training circuit in 2014, which started in the southeast and conducted trainings through the east and along the Senegal River Valley. At least two Peace Corps Volunteers have written masters theses as part of their PC service which cover SRI field experiences (Lorraine Perricone-Dazzo and Danielle Stoermer, both of whom attended Cornell University).

Currently it's estimated that that less than 5% of the farmers who were trained are actually practicing SRI. Accordingly, Famara stated that PC needs to better follow-up with farmers. To date, trainings have been primarily practice oriented, and PC has produced some basic materials (session plans), which are available for future trainings. According to Famara, PC's strength is primarily in training farmers, especially in conjunction with their Master Farmer program (MF), and they can help other project with trainings as needed. Additionally, their Master Farmer demonstration sites are good resources for other projects. Another area where Peace Corps could contribute nationally is in importing and reproducing weeders. Typically, many PCVs are most successful in their work promoting new seed varieties, particularly for rice and peanuts. Two of the biggest challenges for PC are PCV reporting, and lack of continuity from one PCV to the next, as PCVs are not required to carry on the work that was started by their predecessor(s).

Ziguinchor / Casamance – 28 February to 04 March

Schedule:

- **Saturday 28 February** – Arrived by plane from Dakar in the afternoon, met with Abdou Hadji Badji, President of the *Conseil Régional des Coopération des Ruraux* (CRCR); Idrissa Sadio, technical support for CRCR; and Harouna Diédhiou, president of a seed producer's association.
- **Sunday 01 March** – Preparation day for the training
- **Monday 02 March** – Training day 1 – classroom sessions
- **Tuesday 03 March** – Training day 2 – field sessions
- **Wednesday 04 March** – Returned to Dakar and left for Matam

Overview

The *Agence Nationale de Conseil Agricole et Rurale* (ANCAR) has a program in the Casamance to disseminate multiple different technologies for rice production, and has included SRI into this,

but until now hadn't trained their agents in SRI. ANCAR decided to use the opportunity of this SRI support mission to conduct a 2-day SRI training for staff from across the Casamance.

Rice production and consumption are both hugely important in the Casamance, and rice has a storied cultural significance to the people in the area. The rice production systems are complicated, with mangrove rice and salt-water intrusion in the lowland systems, and rainfed upland production as well, and due to the historical and cultural significance of the crop, rice takes priority over every other crop in terms of labor allocation and timing. The traditional cropping systems use ridge and furrow setup (as seen in the photo on page 12), which is so dominant that it's applied to essentially every culture, under every condition. This could be adopted to SRI it seems, helping to prevent both inundation and salt water intrusion.

SRI adoption in the region has been spotty and will likely remain so without a major intervention. While the training of ANCAR agents will likely be a significant boost, it seems that a funded project may be necessary to really get SRI off the ground in the Casamance.

Level of current SRI knowledge and practice in the region

During the first meeting with the representatives of the *Conseil Régional des Coopérations des Ruraux* (CRCR) on 28 February upon arriving in Ziguinchor, they said that SRI was widely known of in the region, though not widely known in terms of technical details. Interestingly, there are several people in the area who learned of SRI a long time ago, including Abdou Hadji Badji, who first learned of SRI in 2000 when traveling to Madagascar. He came back, tried SRI, and was really encouraged, but despite his continued desire that it would catch on, little came of these early efforts. Hadji Badji also attended the USAID E-ATP training that was held in Kaolack in 2011, as did a number of other people from the region. After the USAID training some follow-up demonstrations were held in the Casamance with ANCAR agents, but these didn't continue for more than a couple of years.

There was mention of a number of people who've adopted SRI throughout the region during the initial meeting, including a woman (Bintou Sia Bally?) using SRI on a large plot of mangrove rice, and apparently SRI is becoming popular with local seed producers, though the means for scaling it up aren't really available yet. Everyone that the group we met knows of who has adopted SRI continues to practice it, and with good results.

JICA is just now returning to the Casamance after the civil unrest, with intentions to work with SRI in the region. There's also a French group that came a couple of weeks prior to this support mission, and will be setting up trials combining SRI and duck rice.²

There is a regional technical committee in the Casamance to coordinate all rice activities, and representatives from all rice sector actors (including extension, research, etc.) meet on a regular basis. They used to do exchange visits to view demonstration fields, but stopped last year due to lack of funds. Prior to that though, the committee had gone and visited an SRI field. With financing they'd like to continue to do this in the future.

At the beginning of the training of trainers, three people raised their hands when asked if anyone knew anything about SRI. While two of them had very little actual knowledge, the

² Canard des Rizières – www.canard-desrizieres.fr; www.canard-desrizieres.com – Barnard & Catherine Poujol – bernard.poujol@canard-desrizieres.fr

third, an ANCAR agent named Elizabeth, has been practicing and training people in SRI for three years now, and contributed her experiences extensively during the training, though it seemed that she'd mostly been practicing SRI in isolation – i.e., she wasn't really in exchange with other trainers about how to improve the practices. It was clear however, that she had been working with the same farmers over the past three years to overcome certain challenges.

Rice production systems

The visit did not coincide with a rice production season, and no visits to the field were possible. Below is a summary of the rice production systems as described during the visit:

Lowland rainfed (*bas-fonds*) – Lowland rice is the predominant production system in the area, and has a pronounced toposequence effect. The middle zones, (*nappe*) perform better than the lower and higher zones, and tend to experience alternate wetting and drying naturally during the growing season, with short inundations of up to 1-2 days following heavy rainfall. There are specific varieties of rice for each of the three main locations along the toposequence, and the *nappe* section is even treated in some respects like a separate rice system. Transplanting is the norm in the region, and spacing is generally 10-15cm, with 1-3 or 4 plants per hill. Lowland rice is predominantly tended by hand, with no weeding done in the areas that are flooded after transplanting. Soils tend to be clayey, and for this reason the farmers have a practice of planting in shallow ridges, for essentially all the crops they produce, including rice. Average yields are low – a number of 1-1.5 t/ha was quoted.

Upland rainfed rice – Transplanting or disk sowing are both normal. This training only briefly covered upland rice, since participants at the meeting on Saturday requested we focus specifically on lowland rice, as this seems to be the most predominant system in the region, and the one that most the ANCAR agents attending the training are focused on themselves. There were, however, several questions about upland SRI during the training, particularly in regards to modifying equipment for direct sowing – i.e., which disk to use, and if specific ones could be adapted for SRI, and participants with SRI experience shared their opinions on which disks worked best for SRI under their conditions.

Mangrove rice – This was not covered at all during the training, but it came up numerous times in conversations with people about rice production in the area. Through conversations during the trip it seemed that while mangrove rice may not be quantitatively a major contributor to yields in the region, culturally it plays a more outsized role.

Major opportunities

Transplanting – Transplanting is already the normal practice in the area, though it would still need to be adapted to SRI. The extension agents seemed pretty familiar with using a marking rope, though less so with using a marking rake.

Organic matter – The representatives from CRCR didn't seem to think that organic matter was much of a challenge here, though during the training the ANCAR agents weren't quite so convinced. CRCR seemed pretty convinced that farmers already know

and value organic matter as an important input. Decomposed peanut waste used to be available for free, but now is valued and sold, including to many coming from Guinea Bissau. Still, while at the training site I noticed mounds of rice straw, and when asked, was told that it was simply left out for the village cows to eat or burned. Composting isn't widely practiced at all, apparently not even on the agricultural research stations (the training took place at a rainfed rice research station belonging to ISRA – *l'Institut Sénégalais pour le Recherche Agricole* – 1km outside of Ziguinchor).

Traditional systems – The local ridge and furrow system could perhaps be adapted to SRI, allowing for better soil draining, and preventing some uncontrolled flooding early on while plants are getting established, in the event of a large rainfall, and in general to provide for some aerobic conditions during periods of inundation, as well as facilitate drainage. Farmers already use this for all of their cultures (maize, rice, vegetables, etc.), and as mentioned by Abdoulaye Sy, when farmers from the Casamance move to other regions of Senegal, they have a reputation for retaining this same system, even if it isn't really suitable for their new environment. To the right is a picture of the ridge and furrow system, as seen in town in Ziguinchor.



Major constraints

1. Water control

- Toposequence – farmers tend to have parcels at varying levels of the toposequence, some of which are more suitable for SRI than others.
- Seasonality – rainfall is variable, and can make timing the rice season tricky.
- Flooding – there was some concern about early rainfalls that submerge the fields and could kill a recently transplanted SRI plot.

2. Organization of farmers

This was mentioned during the initial meeting with ANCAR on 28 February, and came up a few times during the training as well. The basic issue was that farmers plots are affected greatly by their neighbors actions, and more broadly, by the cultural and land use practices common in their area. Without broad cooperation a change in use like SRI is difficult, but even without SRI, there are already problems that arise, like cows that are not well contained early in the rainy season, and eat any nurseries that are planted before their neighbors.

3. Composting

While CRCR said that organic matter wasn't really a challenge here, composting isn't widely practiced at all, and crop residues don't seem widely valued, at least for rice production. It was

unclear how much competition for organic matter there is, but it didn't seem to be the primary concern. Technicians were more concerned with the challenges of transporting compost / organic matter to the fields, as this could be laborious for the farmers.

4. Equipment

Animal-drawn tools are used for upland rainfed rice (not sure of the extent), but not for lowland rice. The lowland rice is taken care of by hand for the most part. In general, the use of animal-drawn tools seems to be far, far less common here than in other parts of the country.

Details / Recommendations

SRI adoption in the Casamance has been quite spotty, at best. A number of people have known of SRI for quite some time, and some have been practicing it for several years, but despite this it has still yet to make major inroads with farmers. The constraints mentioned above will need to be addressed, and most likely a larger initiative will need to be undertaken to create a critical mass for SRI adoption to fully take root. It was noted repeatedly that in the lowland the rainfed schemes found in the area, it would be difficult for farmers to adopt SRI if their neighbors didn't do so as well. Without a concerted effort, it seems unlikely that SRI adoption will move quickly beyond the low-hanging fruit such as seed producers and the occasional technician who is particularly passionate.

The ANCAR technicians present in the training seemed enthusiastic, and generally interested, though still skeptical about how well SRI would work given the constraints. It seems that a well-funded project could help address some of these constraints, and would likely make a big impact in the region given the interest in the area, and the central importance that rice production plays to the local culture.

Matam – 05-06 March

Schedule

- **Thursday 05 March** – Arrived in Matam in the morning; met with PRODAM at their office, then visited with farmers in the field NE of Thilogne ([16.105365, -13.519215](#))
- **Friday 06 March** – Travel to Toubacouta

Overview

The primary driver of SRI activities in the Matam region is the *Projet de Développement Agricole de Matam* (PRODAM). A meeting was held at the PRODAM office in Matam, with PRODAM's director, a technical expert, and their M&E expert, as well as the president of a local federation of farmers' organizations. PRODAM's director is extremely optimistic and supportive of SRI, to the point where he speaks about SRI adoption as a *fait accompli*; he's 100% sure that not only is SRI already spreading quickly amongst farmers around Matam, but that PRODAM will act as an incubator for SRI to spread to other parts of Senegal. The conditions in the Matam area are quite good for SRI – irrigated parcels, above the level of the river (water is pumped into irrigation canals using large motor pumps), with access to manure from animal husbandry in the area, and pretty high levels of sunshine. According to PRODAM, they've had no dis-adoption of SRI, and yields have increased from 5.5-6 t/ha, to an average of a bit more than 10

t/ha – with many farmers getting 13 or 14 t/ha. Amongst the PRODAM staff we met, the optimism, enthusiasm and level of understanding of how and why SRI works was very encouraging. We were told that farmers, too, seem to really understand why SRI works, and heard of one farmer who decided to do a trial transplanting SRI at 5 days, to compare the results, and some other farmers planning to experiment with growing sorghum using SRI principles.

Working in collaboration with the *Programme d'Appui au Développement Agricole et à l'Entrepreneuriat Rural* (PADER) and the federation of farmers' organizations, PRODAM has lofty goals for the coming years, and they seem likely to achieve them. PRODAM's technical staff seem very competent and to have a well developed understanding of the underlying principles behind SRI. Furthermore, we heard of many farmers who seemed to be approaching SRI with an inquisitive and empirical mindset, and conducting thorough evaluations of SRI on their own terms. Despite this, the limited exposure we had to SRI in the field seemed to show a less nuanced understanding of SRI, and the one nursery we saw showed a bit of room for improvement. It should be noted though that we were only able to meet with a small group of farmers.

Given the strengths of the Matam projects, it would be beneficial to develop stronger linkages between Matam and the rest of the country to both encourage information and idea sharing, and to reinforce the momentum that is building in Matam. Fortunately, this first visit between SRI-WAAPP and PRODAM opened up discussions about just this kind of exchange, including arranging a farmer exchange or workshop for August / September, to observe the fields during the peak growing season.

Level of current SRI knowledge and practice in the region

PRODAM seems to have substantial knowledge about SRI production and dissemination, and local farmers seem to be disseminating it amongst themselves as well, particularly with their farmer leader program. SRI in the region began in 2007/2008, with PRODAM training one of their consultant farmers (*paysans consultants*), who was able to harvest 7t from a .5 ha plot. After this, 2 farmer groups came forward asking for training for their members.

There are currently 26 villages involved in SRI as of early 2015, covering 14 villages that are working with PRODAM and 12 villages that are working with PADER, in collaboration with PRODAM. An additional 14 villages are signed up to receive training and land leveling support to facilitate SRI in 2015, and 11 other villages are on a wait list.

PRODAM and PADER work with a local federation of farmers' organizations, which is very active as well in promoting SRI. We met with the federation's president, Abdoulaye Diaow, while meeting with PRODAM at their office in Matam. The federation works with 173 groups of farmers in 37 villages in the Matam area, and along with PRODAM, recently co-sponsored farmers to attend an exchange visit to Mali to see irrigated SRI activities in the Office du Niger, where they were apparently very impressed with the level of mechanization they saw. The federation uses four farmer consultants (*paysans consultants*) to work with villages to demonstrate SRI, and one of these was the first in the region to try SRI, back in 2007/2008. His initial trial yielded 7 t on a .5 ha plot (14 t/ha), and generated considerable enthusiasm in the region, and he was with us on the field visit.

PRODAM created a simple flyer in 2011, which outlines some of the steps and advantages for SRI. When asked what training materials they use, they stated that their strategy consists in simply describing the SRI practices for irrigated rice. Since growing conditions seem relatively homogenous throughout this region, this strategy is likely easier here than in a place like the Peanut Basin, where high levels of heterogeneity even within a farmer's plot can require more nuanced trainings. In any case we were told that there wasn't a strong demand for detailed training materials.

Major opportunities

Matam has several factors that facilitate SRI adoption:

- **Good control of water**, with little perceived potential for uncontrolled flooding due to the position of the fields above the river banks
- **Incentive for farmers to reduce water consumption** – fees for water pumping are a primary cost for producers using the scheme (to the point that they measured SRI water efficiency by quantifying the amount of gasoline saved, not water), so water savings with SRI are a large incentive for adoption
- **Little previous history of rice farming** – farmers don't have longstanding habits preventing them from adopting SRI, and seem very open-minded about trying SRI

Major constraints

Proper land leveling was mentioned as the primary constraint, and is being addressed with a funded project from PRODAM over the next few years that will cover 2-3,000 ha. The market price of rice, which is fixed according to a government board based in St. Louis, is an additional constraint that, while not an SRI-specific constraint, does impact the ability and incentive for farmers to increase rice production. The price seems to fluctuate wildly, and recently had been at or below the cost of production.

PRODAM is encouraging farmers to double or even potentially triple crop their rice, in part to greater contribute to the government's stated goal of achieving national rice self-sufficiency in 2017 (a goal that seems highly unlikely to be achieved). Farmers, however, are a bit resistant to practice multiple rice croppings, in part because of the practice of planting maize during the dry season, which forms the base of their traditional staple meal in the region. Higher rice prices could potentially offset some of this, but the cultural importance of maize consumption is unlikely to change dramatically.

Another factor in making Matam a larger contributor to national rice self-sufficiency is the average field size. PRODAM is working to increase the average plot size from .25-.3 ha – which basically just covers domestic consumption – to 1 ha per family. This larger size would allow farmers to generate more revenue, while meeting the region's larger goal of providing a surplus. It didn't yet seem clear how likely this was to happen, and there seemed to be some indications that the process was moving slowly.

Discussion / Recommendations

Combined, PRODAM and PADER have 4,000 ha that can be transitioned in the next few years to SRI: 2,000 hectares of land directly under PRODAM's leadership; 1,000 ha of land under

PADER's projects but which is managed by PRODAM; and 1,000 ha from PADER that could be transitioned at a later date. The primary constraint to SRI adoption is land leveling, and PRODAM / PADER have financing to address this.

Farmers said that labor for transplanting was much easier with SRI than with traditional practices. At the stage of transplanting, SRI plants are lighter, and fewer, so it only takes one or two people to take the plants from the nursery, whereas with traditional systems it took 4-5 people or more to transplant the older seedlings. Furthermore, SRI makes it easier for women and children to participate, again due to the lighter. With SRI, one family can transplant 1 ha of SRI in 2 days.

PRODAM proposed a trip to Madagascar to learn more about SRI, but this hasn't happened yet, and it wasn't entirely clear when or if this would happen.

In terms of varieties, the PRODAM technicians seemed to have a good amount of knowledge about which ones performed better than others with SRI management: Sahel 202 performs well; Sahel 177 performs the best, and farmers prefer it (13 t/ha in some instances); 328/329 did not perform well, owing to excessive bird predation.

Neither Abdoulaye Sy or Mour Guèye had ever visited with PRODAM to discuss SRI, and while Mr. Guèye had spent a considerable amount of time at PRODAM in the past, this trip was Mr. Sy's first. The meetings and field visits seemed to leave a strong impression on both, and before leaving it had been informally agreed upon to setup an exchange visit or workshop to bring farmers and technicians to Matam during August or September, 2015, in order to see the fields at the peak of the season, and to share ideas and experiences. Such an exchange would be welcome indeed, as it would likely strengthen PRODAM's work through inclusion of additional perspectives / resources / knowledge, and help demonstrate to other parts of the country the impact that SRI can have in a short time. The conditions found in Matam are quite different than those in the Peanut Basin or the Casamance, so direct parallels are a bit unlikely, but greater dialog and exchange would nonetheless be beneficial in many respects.

Lastly, other parts of the Senegal River Valley, in contrast to the Peanut Basin and the Casamance, do have quite similar conditions to Matam, and represent a large portion of the country's rice production. Richard Toll in the far northwest, and areas in between there and Matam all seem to have some minor adoption of SRI from reports and discussions, but nothing at all approaching the level of adoption or institutional support found in Matam. It seems that institutional, cultural and logistical factors are all at play in preventing widespread adoption or support, and that these same factors are quite different in Matam. In these other areas there is often a longer history of rice production, creating potential challenges for adopting new behaviors. Plot sizes are also much larger in Richard Toll, at least for some portion of the irrigation schemes, and apparently farmers have been much quicker to adopt SRI for their small plots, but reluctant to do so for their large, more mechanized plots. In any case, PRODAM feels confident that their success will spillover to these more western parts of the Senegal River Valley. If Peace Corps or other organizations can link up with PRODAM / PADER, it seems that they could help facilitate exchange visits to bring farmers from other parts of the Senegal River Valley to Matam, and assist with trainings and mechanization.

Toubacouta / Peanut Basin – 06 March to 08 March

Schedule

- **Friday 06 March** – Arrive in the evening in Toubacouta
- **Saturday 07 March** – Training Day 1 – Theory, M&E
- **Sunday 08 March** – Training Day 2 – Practice; leave for Dakar

Overview

The training consisted largely of ANCAR (government extension) agents, with participation as well from DRDR and a local NGO (ONG Symbiose), and the presence of WAAPP representatives as well.

Level of current SRI knowledge and practice in the region

Mixed. Some people have multiple years of experience, some have none. There's more experience here it seems, in terms of number of people though perhaps not in terms of duration, than in the Casamance.

Discussion / Notes

ANCAR is also setting up a program to train agents in improving water control for lowland rice production, as a compliment to the SRI trainings.

In the upcoming rainy season the project will try and reach all its goals for the first two years (in terms of farmers trained, etc.) in the target zone, to allow for better monitoring of adoption in the final year, so this year will be essential to get a good start and better be able to measure the project's impact later on.

During the training Abdoulaye Sy presented some project objectives for the target zone:

- 101 farmers' organizations would be reached
- 219 sites included
- 24 local ANCAR offices (CARs), and on average each will work with 4 villages
- 466 ha of SRI
- 5,163 producers trained

The technical portion of the training was conducted in the field of a local farmer just outside of Toubacouta. He had been practicing SRI for several years in a recessional pond setting, in addition to large-scale market gardening.

Dakar – 09 March

Schedule:

- **Monday 09 March** – Meetings with WAAPP Coordinator and ANCAR Director General

Overview

Two debriefing meetings were held on the final day in Dakar – with the WAAPP Coordinator at the UNCF office; and with the Director General of ANCAR (the national agricultural extension agency) at their office.

WAAPP Coordinator meeting

Through a very fruitful and positive discussion it was clear that UCTF / WAAPP Senegal is very supportive of the project, and committed to understanding and addressing any challenges that come up. The WAAPP Coordinator had a number of poignant questions about the project and what was observed on the trip, including:

- ***Is everyone who is practicing SRI in each of the regions using all of the principles?*** The answer to this is varied – in Matam all the principles are practiced, though more could be done with sourcing and incorporating organic matter. In rainfed lowland areas in the Lower Peanut Basin and the Casamance, Abdoulaye stressed that of the four principles, early establishment and reduced competition were the primary ones being pushed, as water management and organic matter use was variable, and especially for water management, more difficult
- ***What is the hardest practice for farmers to follow in the target zone (Lower Peanut Basin)?*** Water management, followed by organic matter incorporation.

There was a discussion of better incorporating Peace Corps into project activities, though the difficulties with data collection and temporal lack of project continuity between Volunteers was cited as a challenge.

ANCAR Director General meeting

The ANCAR Director General is new to his post (within the past 5-6 months), but seemed to be bringing substantial agricultural knowledge to the job, and specifically a strong background in rice production as well. He was well versed in SRI, having known Tim Krupnick (who did his PhD research on SRI in the Senegal River Valley in the 2000's) and having seen SRI demonstration plots himself on numerous occasions, though never on a large scale. His knowledge as well of the irrigated rice production schemes in the north was extensive.

The overall impression was that he was keenly interested in supporting the SRI-WAAPP project in Senegal, and was eager to see SRI scaled up in the country.

Appendix A – Pictures



Matam

Farmers participating in the discussion in the field



Matam

A view of the nursery, which was to be transplanted within 2 days for a first test of dry season SRI



Matam

The President of the Famer's Organization Federation Abdoulaye Diaow, and SRI-WAAPP National Facilitator Abdoulaye Sy, along the banks of the Senegal River, which is the irrigation source for the neighboring rice field



Matam

Cheirou Oumarsi, the first farmer in the region to try SRI, squatting at center, who is also one of four farmer consultants in the region working with PRODAM; at bottom right, examples of the syphon tubes that PRODAM popularized amongst farmers



Ziguinchor

Group photo from the training



Ziguinchor

Discussing field preparation at the training



Ziguinchor
Seeding the nursery at the training



Ziguinchor
Moving the measuring rope for transplanting at the training



Toubacouta
Mariam Ndiaye giving a presentation on M&E for the SRI-WAAPP project



Toubacouta

Discussing seed sorting methods



Toubacouta

Rinsing seeds in preparation for soaking after sorting to remove unfilled grains