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# Pack 100, Item 5

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**Integrated rice-fish farming improves Mohamed Farota’s life**

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### Notes to broadcaster

Integrated rice and fish farming means growing rice and raising fish in the same field at the same time, in the same water.

Agro-pastoralism is the major activity in Baguinéda, a village located at 30 kilometres from Bamako, the capital city of Mali. There are also 2300 hectares of rice irrigated by the Niger River. This is a real godsend for the more than one thousand small-scale farmers who share it.

Integrated rice and fish farming started in Baguinéda in 2009 in an irrigated area managed by the Office of the Irrigated Perimeter of Baguinéda (OPIB), through a fish farming and rice-fish farming program funded by USAID. Baguinéda had many assets which made it suitable for introducing rice-fish farming, including the know-how of the local experts, facilities for producing fingerlings, and an agricultural research centre.

According to the head of the fisheries service in the region, the project did not achieve its main goal of encouraging more rice producers to raised fish. Only a few farmers adopted integrated rice and fish farming. And, despite trainings offered to them, these farmers raise few fish.

Mohamed Farota is an exception. He raises a lot of fish and grows a lot of rice in his fields. This script tells his story. We also hear from Mamadou Traoré, the head of an organization called *Antenne Pêche* which supports integrated rice and fish farmers*.* Mr. Traoré talks about the role of his organization and the importance of rice-fish farming in ensuring food security.

You might choose to present this script as part of your regular farming program, using voice actors to represent the speakers. If so, please make sure to tell your audience at the beginning of the program that the voices are those of actors, not the original people involved in the interviews.

You could also use this script as research material or as inspiration for creating programs on integrating fish with rice or other crops in your country.

Talk to farmers who raise fish with other crops. You might ask them:

How long have you integrated fish and crops? How has raising fish affected family nutrition? How has it affected family income?

What are some of the barriers to raising fish in your area? Have local fish farmers found solutions to these challenges? What kind of expert support is available in your area?

Estimated running time for this script: \_\_ minutes, with intro and extro music.

**Characters**

Mariam Koné, journalist at *L’Annonceur*

Mohamed Farota, rice-fish farmer

Mamadou Traoré, head of *Antenne Pêche* in Baguinéda

Moriba Diarra, rice-fish farmer

**PRESENTER:** Good evening, dear listener. Thank you for choosing *(name of radio station)*. Welcome to our weekly program, *Rural development*. Today, we present a program on integrated rice-fish farming in Baguinéda, a rural district 30 kilometres from Bamako, the capital of Mali.

Mariam Koné is a journalist at *L’Annonceur*, a women-led newspaper. Mrs. Koné travelled to Baguinéda to interview a farmer named Mohamed Farota, whose life has been changed by integrated rice-fish farming. She also talked with an extension officer. Let’s follow her story.

**Mariam Koné:** It is 10 o’clock in the morning in the irrigated lowlands around Baguinéda. I walk towards green plots of rice plants. The sunrays sparkle over the paddies between plots divided by mud bunds. Right in the middle of the field, I see a frail, barefoot man admiring his small fish. It is Mohamed Farota, a 40-year-old rice-fish farmer.

 Mohamed is married with six children. He silently squats on the small wall of a rice plot. At one end of the 25-foot long rice plot is a pit filled with dark and dirty water. Putting his hand into a bucket containing cereal bran, he pours handfuls of the bran into the pit. Inside the pit, you can see small creatures with big heads and bodies extended by a tail. These are fingerlings, young fish that have been living in the pit for two months.

**Mariam Koné:** Good morning, Mohamed.

**Mohamed Farota:** Good morning, Mrs. How are you doing?

**Mariam Koné:** I am doing fine. I am Mariam Koné, journalist at *L’Annonceur*. Today, I came here to talk with you about rice-fish farming. My enquiries showed that you are an expert in this field. Could we take a few minutes to talk about your work?

**Mohamed Farota:** Of course. Welcome to my plot!

**Mariam Koné:** Thanks. What are you doing quietly sitting here and looking at these pits?

**Mohamed Farota:** I just gave some millet bran to my fingerlings. I am observing them a little. I feel good when I see them jumping in their pit. See how my small fish are in very good health.

**Mariam Koné:** Yes, they move quickly. How many fingerlings do you have in your pit?

**Mohamed Farota:** I have one thousand altogether, including catfish and carp.

**Mariam Koné:** Can you explain to us how to build a pit for fish in a rice field?

**Mohamed Farota:** First, you have to calculate the right size for your pit, which should be about 10% of the rice plot. My rice field is 0.60 ha, which is 6,000 square meters or a little more than half a hectare. My rice-fish farming plot is 552 square meters, a little less than one-tenth or 10% of the total surface area of the field.

 You dig the pit for the fish at one end of a rice plot, for the whole width of the rice plot. You dig the pit one to one and a half metre deep and use the earth leftover from the digging to strengthen the mud bunds between the rice plots.

**Mariam Koné:** What else is in the pit apart from fish?

**Mohamed Farota:** I add compost to the pit.

**Mariam Koné:** Really! Why?

**Mohamed Farota:** So that the pit provides the fish with food and also fertilizes the field.

**Mariam Koné:** How does that work?

**Mohamed Farota:** Before the pit is under water, we fill it with materials to be composted and then leave them for a while to rot. The main objective is to have something that the fish can eat regularly. I also come once a day to feed them.

**Mariam Koné:** How does the compost remain in the pit without scattering?

**Mohamed Farota:** The pit is not completely filled with compost when we add water to it from the irrigation canal which is connected to the Niger River. A small amount of compost remains at the bottom of the pit to provide the fish with regular food. The compost pit is also a refuge for the fish. The water remains in the pit and acts as a refuge for the fingerlings before the water rises.

**Mariam Koné:** In addition to the millet bran, what else do you feed the fish?

**Mohamed Farota:** I give them smoked fish meal, bone flour and fly larvae.

**Mariam Koné:** Who taught you integrated rice-fish farming and when did you start practicing it?

**Mohamed Farota:** In 2009, Mamadou Traoré, the head of *Antenne Pêche* in Baguinéda, introduced this method to us. I bought into the idea without any hesitation. And since then, I consider myself an integrated rice-fish farmer.

**Mariam Koné:** How long does it take to raise fish to maturity?

**Mohamed Farota:** Six months. We harvest the fish at the same time that we harvest the rice. Six months is long enough to raise big fish ready for sale.

**Mariam Koné:** Do you sell all of them?

**Mohamed Farota:** No, we eat a small part.

**Mariam Koné:** Can you tell me how much fish you harvest?

**Mohamed Farota:** During the harvest period, I can get 150 kilos, and I use 50 kilos for my family needs.

**Mariam Koné:** Your family alone uses 50 kilos?

**Mohamed Farota:** I give some to my spouse’s family and to some neighbours. We are in Mali, so tradition obliges us to help each other.

**Mariam Koné:** Who do you sell your fish to?

**Mohamed Farota:** To the women of the Baguinéda fishmonger organization.

**Mariam Koné:** Do you sell the fish by the kilo?

**Mohamed Farota:** Yes. I sell carp at 1,500 FCFA per kilo and smoked catfish at 1,750 per kilo.

**Mariam Koné:** Why do you smoke the catfish before selling them?

**Mohamed Farota:** Because fresh catfish is not as highly valued as carp. Usually, consumers like catfish when they are smoked. The fishmongers do not hesitate to pay a lot when the fish are well-smoked. Besides, it does not cost me anything to smoke them, other than some firewood.

**Mariam Koné:** How much can you get in total from selling fish?

**Mohamed Farota:** I earn over 100,000 every season.

**Mariam Koné:** Can you tell me exactly how much you earned during the previous six-month period?

**Mohamed Farota:** (LAUGHS) Oh dear! You journalists! … I earned a total of 162,500 CFA – exactly.

**Mariam Koné:** (JOKING) So, with this money you were able to marry a new shepherdess or change your old motorcycle for a new one?

**Mohamed Farota:** (LAUGHS) No, this money helps me pay my water fees and cover other expenses for my plot.

**Mariam Koné:** Other expenses like what?

**Mohamed Farota:** I buy fertilizers and pay employees who work in my rice field. I even dehulled part of my paddy rice with the rest of the money.

**Mariam Koné:** Apart from making good money, what are the other benefits of integrated rice and fish farming?

**Mohamed Farota:** My rice production has increased.

**Mariam Koné:** Can you be more specific?

**Mohamed Farota:** Before doing integrated rice and fish farming, I used to produce one and a half tonnes of paddy rice. But now I produce two tonnes.

**Mariam Koné:** Mohamed, what challenges do you face with integrated rice and fish farming?

**Mohamed Farota:** First, fingerlings are very expensive; especially carp fingerlings, which cost 200 FCFAs each. We can buy catfish at the same price, but we often produce them ourselves. This helps us reduce expenses.

Catfish farming is easy. As the season draws near, we build a fish bowl in the mud at the water’s edge. The hole is a little more than half a metre deep and two metres wide. We have hundreds of small catfish and some adults in this hole.

**Mariam Koné:** Who sells you the fingerlings?

**Mohamed Farota:** A big fisher family and a private fish hatchery.

**Mariam Koné:** Do you face any other challenges?

**Mohamed Farota:** We have problems with water. This is often due to poor management of the irrigation water by the authorities. We have problems with predators like toads, reptiles, and birds that eat the fingerlings. This is why I add dozens of extra fingerlings to the quantity I should normally have, so that I can harvest the expected quantity. The third challenge is theft. Robbers spy on us and steal our fish when we are away from the field. That is why we must spend a lot of time in the field during the harvesting period, even at night.

**Mariam Koné:** How long does it take to harvest the fish?

**Mohamed Farota:** Three days. To be able to smoke catfish in good conditions, it is better to catch the fish and smoke it the same day.

**Mariam Koné:** Dear Mohamed, I thank you for spending your precious time with me. Do you have anything to add before we separate?

**Mohamed Farota:** I recommend that other farmers try integrated fish and rice farming because it is a good solution for food insecurity for small-scale farmers like us.

**Mariam Koné:** Mamadou Traoré is the head of *Antenne Pêche* in Baguinéda. *Antenne Pêche* is a government department in charge of promoting fishing and fish farming in the area. Mr. Traoré provides advice to integrated fish and rice farmers. He also supervises the fish hatchery that the government of Mali is building to help producers in this area have easy access to fingerlings. Mr. Traoré regularly visits rice fields to see the state of the fish pits. We met him standing in the middle of some rice fields talking with Moriba, an integrated fish and rice farmer who was complaining that his fingerlings were not fattening up.

**Mariam Koné:** Good morning, my brave farmers!

**Mamadou and Moriba:** (LAUGH) Good morning, Mrs.! How are you doing?

**Mariam Koné:** As we say in Mali, not bad. I am looking for Mr. Traoré, the head of *Antenne Pêche* ─ (JOKING) and who is by the way my slave!

**Mamadou Traoré:** (LAUGHS) So! I can tell by listening to your voice that you are a little Diarra or Koné. Let me warn you, there are no beans here! (*Editor’s note: This is a joke. Beans are the Diarra and Koné peoples’ preferred food*.) We produce rice and fish here.

Welcome to the irrigated lowland of Baguinéda! I am Mamadou Traoré, your master. (*Editor’s note: He is continuing the joke. In the past in Mali, people from the Koné tribe were slaves of the Traoré*).

**Mariam Koné:** Thank you for the warm welcome. But I am not here today for beans. I am interested in integrated rice and fish farming.

I am from *L’Annonceur* newspaper. I came here to talk to Mohamed Farota because I heard about his commitment to this kind of farming. He talked about you during our discussion. What role do you play in promoting integrated rice and fish farming?

**Mamadou Traoré:** The mission of the OPIB officers is to coach, organize, and support rice-fish farmers with technical advice.

**Mariam Koné:** What are the results?

**Mamadou Traoré:** They get a good yield of rice and fish. Rice-fish farming is an effective way to fight food insecurity.

**Mariam Koné:** Mohamed talked about a compost pit under the water. Can you explain how the process works?

**Mamadou Traoré:** The farmer must dig a pit at least one metre deep and five metres wide where fish can take refuge. He or she must also build trenches about 0.60 metres deep and 0.80 metres wide on each side of the rice plot that lead to this refuge and help fish move easily within it. The total area of the pit should not be more than 10% of the surface of the rice plot. The mud from digging the pits and trenches is used to strengthen the mud bunds between the trenches. The bunds must be at least a half-metre high. Adding compost to this fish refuge continuously fertilizes the water.

**Mariam Koné:** Is the compost added to the rice fields after harvest when the water is removed from the paddy fields?

**Mamadou Traoré:** Yes, you are right. You must prepare the rice plots by pulverizing, harrowing, leveling the soil, puddling and transplanting. Then, we flood the rice plants up to 20 centimetres deep.

**Mariam Koné:** What happens with the fish? Do you add them right after the field is flooded?

**Mamadou Traoré:** No. We wait a few days after the rice is transplanted, when the rice plants recover. We monitor the growth of the fish and the rice and maintain the whole system up to harvest.

**Mariam Koné:** What benefits does rice-fish farming offer to the soil and to rice production?

**Mamadou Traoré:** Rice-fish farming protects rice against insect pests because the fish eat some of them. It also reduces the need for chemical fertilizer and improves soil structure through continuous organic fertilization, which helps increase rice yield.

**Mariam Koné:** Mohamed told me he has had problems with the high cost of fingerlings. How can the OPIB solve this issue?

**Mamadou Traoré:** The government is developing a fish hatchery so that we can provide rice-fish farmers with a high volume of quality fingerlings at a low cost.

**Mariam Koné:** How much will you charge for your fingerlings?

**Mamadou Traoré:** We will charge 75 CFA each for all species.

**Mariam Koné:** Thank you, Mamadou, for these technical details, which will help our listeners better understand some of the issues. Do you have any last words?

**Mamadou Traoré:** As a rural development and extension officer, I would like to urge everyone, including decision-makers, technical and financial partners, extension agents, researchers, communities, and everyone else to advocate for the development of rice-fish farming that I call “tô ni nan sôrô duman” in the Bambara language, which means “the best way to get rice with good sauce.”

This country has plenty of land which is suitable for rice-fish farming. Wherever the land is suitable, rice-fish farming can contribute to food and nutritional security in the Republic of Mali.

**Mariam Koné:** Dear listeners, today we were on the irrigated lowland of Baguinéda to talk about rice-fish farming, a kind of farming that can help small-scale farmers increase food security. I talked with Mohamed Farota, a rice-fish farmer, and Mamadou Traoré, the head of an organization called *Antenne Pêche*. Goodbye until next week.

## Acknowledgments

Contributed by: Mariam Koné, Journalist-reporter at L’Annonceur newspaper

Reviewed by: Boubakary Cisse, Program Assistant, RSD (Rice Sector Development), AfricaRice

**Sources of information**

Mohamed Farota, Rice-fish farmer in Baguineda

Mamadou Traoré, Head of Antenne Pêche, Office du Périmètre Irrigué de Baguinéda (OPIB)

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