

Water and Microfinance: The case of U-IMCEC in Senegal IRRIGATION PROJECTS MICROFINANCING IN AN ENVIRONMENT PERSPECTIVE



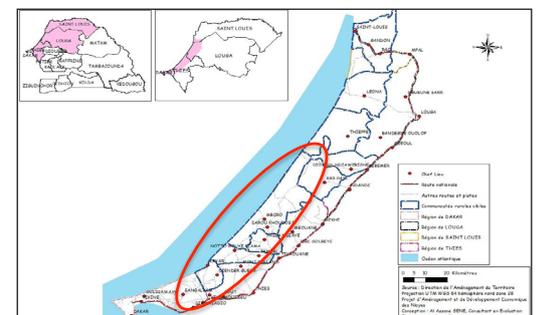
The Water and Microfinance Initiative (WMI) was launched in 2012 with the support of Swiss Development Cooperation (SDC). Currently being piloted in Benin, Burkina Faso, Mali, Senegal and Togo, the initiative aims to facilitate access to productive water - irrigation - for small-scale family farmers who are also clients of rural microfinance institutions. The goal is to secure crop production, improve productivity, increase cultivated areas, boost profitability of operations and sustainably increase producers' income.

The *Union des Institutions Mutualistes Communautaires d'Epargne et de Cr dit* (U-IMCEC) is an emerging microfinance institution in Senegal. Member of PAMIGA, U-IMCEC's branch and rural outlet network covers 12 of the 13 regions of Senegal. The institution volunteered to pilot the Water and Microfinance Initiative in Niayes, a large agricultural region that supplies the markets of Dakar and Thies, and where small-scale irrigation is widespread.

Unmet needs for productive water

The Niayes zone (covering the Pikine and Sangalkam zones of the Dakar region) and Thi s is a strip of land from 5 to 30 km that borders the Atlantic coast. A major horticultural region, the zone provides the vast majority of fruits and vegetables to the capital and surrounding areas.

The zone is cultivated by family-farmers with smallholdings of less than 5 hectares that are sparsely irrigated. The average irrigated area is 2 hectares per farm and 40% of farmers irrigate less than 1 hectare. Crop production is relatively diverse, but mainly focuses on cabbage, onion, tomato, potato, pepper and chili. The only available water comes from shallow aquifers. Accessing it requires wells, boreholes, storage reservoirs as well as costly irrigation equipment and pumps.



Observing this need, U-IMCEC decided to take action. However, offering financial services for irrigation on family farms was new for U-IMCEC, and implied technical expertise the institution did not possess. It sought out support from PAMIGA, who in turn partnered with *CEREG International*¹, an international consulting firm specialized in water and environment.

¹ <http://www.cereg-ingenierie.com>



Our approach: Integrate the environmental risks into credit analysis

In addition to exploring the aspects related to irrigation financing, U-IMCEC and PAMIGA looked for ways to integrate the approach into a broader framework of sustainable development.

Indeed, developing irrigated agriculture without taking into account environmental considerations could increase pressure on water resources, due to the a rise in water withdrawals and water pollution caused by inputs and defective withdrawal systems.

To provide irrigation solutions adapted to both the needs of small farmers and specific environmental risks, U-IMCEC and PAMIGA paid particular attention to:

Propose a financial product adapted to the irrigation needs of U-IMCEC clients

The development of a financial product specific to productive water is part of U-IMCEC's strategy to position itself as a major player in agricultural and value chain financing in Senegal over the next decade.

A market study of small market farmers, clients of rural outlets of the Thiès branch, identified credit needs in terms of use, amounts, repayment conditions and potential collateral. The study helped U-IMCEC's staff (loan officers, service point managers, branch managers) define the contours of the financial product.

The loan would be larger and with a longer maturity than the typical microcredit working capital / seasonal loan offered by Senegalese institutions. It would cover the cost of equipment (cemented wells, drilling, motor pumps, and/or distribution methods - sprinkler or drip) and the working capital needed for labor and inputs.



Before rolling out the product, U-IMCEC and PAMIGA held focus groups with potential customers to validate the main product characteristics and to make sure it would meet their needs.

Several resources were developed to accompany the product launch: a procedures manual, a business plan for the pilot phase, a financial analysis tool, training modules for loan officers (to conduct profitability analysis of a small irrigation project) and training modules for clients (financial education, with a focus on budgeting and debt management).

The "WMI" product was launched in five rural outlets under the Thiès branch, extending from Thiès to St. Louis. U-IMCEC appointed a "water champion" to oversee product management.

Integrate environmental risk management associated to irrigation:

1. Identify environmental risks associated with irrigation

To assess the potential impact of the proliferation of irrigation projects on water resources and the environment, a baseline study was carried out by CERE: the "*Etat zero de l'environnement*".

A hundred small farmers were interviewed, revealing the following key stakes:

- Water withdrawals exceed actual crop needs;
- Wells and boreholes are usually rudimentary and offer no protection of water resources;
- Irrigation is mainly manual;
- Pesticide consumption is low;
- Consumption of chemical inputs appears excessive on one-third of farms growing onions and jaxatu¹;
- Fertilizer is generally not stored in sealed areas.

2. Train U-IMCEC's loan officers on agricultural and environmental best practices

To help loan officers identify environmental risks when analyzing a loan application, a *best practices guide* has been developed. The guide offers guidelines for loan officers, distilling key agricultural and environmental concepts to make it easier to identify the principal risks when it comes to analyzing loans for productive water.

The guide is a collection of factsheets for non-specialists. It includes factsheets on crop types, types of water extraction equipment and irrigation methods.

3. Train U-IMCEC clients on agricultural and environmental best practices

Training and coaching of U-IMCEC's clients is essential. Discussions with stakeholders from the water, environment, agriculture and regional planning sectors led to collaboration with the *Agence Nationale de Conseil Agricole et Rural* (ANCAR), a countrywide advisory board for rural areas and agriculture. The objective of this collaboration is to support, advice and train U-IMCEC's clients on good agricultural practices.

U-IMCEC is also currently exploring how it can internalize this activity and is considering the creation of rural financing dedicated department, the "*Centre for Agricultural Finance*".

¹ Le jaxatu est associé à une aubergine écarlate/tomate amère.



4. Set environmental conditions when granting irrigation loans

Concerned with the potential environmental risks, U-IMCEC was convinced of the importance of integrating the environmental dimension into irrigation loans. The objective is to mitigate these risks by setting environmental assessment criteria that are both easily applicable and understandable by non-specialists, while preserving water resources.

Criteria needed to be both technical and functional:

- Technical, because they needed to assess equipment and irrigation methods, as well as farming practices;
- Functional, so that U-IMCEC could follow up on loan usage (like ensuring maintenance of equipment purchased with the loan) and the borrower's commitment to the environmental conditions set for the loan.

Let's take the example of farmer X, who has requested a loan for the purchase of a motor pump. At the time of the loan application, the farmer was cultivating 2 ha, of which 0.5 ha of irrigated onion. Farmer X has 2 cement wells without rims, manually pumps 5,500 m³ per growing season. Every year this farmer applies 3l of pesticides, 250 kg of NPK fertilizer, 250 kg of urea and 3750 kg of manure. The main environmental stake relates to ground water contamination linked with pesticides inputs.

Under U-IMCEC's approach, the loan for the motor pump will be conditioned by building a rim around each of the wells. This will prevent direct runoff into the well water, and avoid direct pollution of the groundwater. Furthermore, to optimize the pump, U-IMCEC will orient farmer X to develop sprinkler irrigation.

5. Ensure environmental impact tracking

To track the inherent environmental impact of these new loans, U-IMCEC set up a monitoring system with two types of annual indicators:

- *Environmental indicators*, used when evaluating projects (e.g., the water extraction or irrigation method);
- *Actual farm practices* (e.g., the volume of water withdrawn per ha per irrigation season, the quantity of inputs and pesticides applied annually per hectare).

These indicators are used to assess the farming system's efficiency.

Let's go back to the U-IMCEC client, farmer X. Given actual needs for onion production, the following indicators are evaluated:

- Volume of water withdrawn during the growing season for onions = 5500 m³ compared to the actual need of 3300 m³. The performance indicator for this criteria is the relationship between the volume of water withdrawn and need. In our example, it is 1.8, which is considered average to poor. Much more water could be saved. Training and additional technical equipment may help the farmer achieve this savings;
- The amount of NPK applied during the growing season was 250 kg. But actual need is 175 kg. The performance indicator here is the relationship between the amount of NPK applied and need, amounting to 1.4 in our example. This is considered average.
- Farmer X is among the ¾ of farmers who have never received training on fertilizer and pesticide treatments; U-IMCEC will therefore recommend training in this area, to raise awareness on what products to buy, how to store and apply them, and what dosages to use.

First results

At the Thiès branch, where the product was tested during **24 months, 160 projects** were financed totaling **119.5 million FCFA** (equivalent to 182,500 euros). Average loan terms ranged from 24 to 30 months.

The 160 projects gave **more than 1,400 market farmers access to productive water, of which 74% are women**. 86% projects were for motorpumps, 11% for drilling boreholes and 10% for drip irrigation systems.

Based on the success in Thiès, U-IMCEC extended the WMI product to Dakar and Mbour. As of 30 June 2014, these branches had granted 19 and 15 credits respectively, for a total of 74 million FCFA. The Casamance region is expected to follow shortly.

The loans are so far repaid without difficulty, demonstrating the success of such investments. U-IMCEC intends to extend WMI throughout the country as one of its innovative credit products.

Key Lessons

The WMI pilot initiative suggests a high demand for access to productive water in agricultural countries subject to fluctuating climatic conditions. This demand is solvent. These kind of loans have great potential for economic, social and environmental impact, embodying the very notion of impact investing.

The obstacle to scaling up this type of financing is not so much financial resources as it is the technical expertise of financial institutions (banks and MFIs) in the area of agricultural finance. It seems consequently essential to set forward the agenda on both issues.

On this front, we can draw two major lessons from the U-IMCEC pilot:

- There is a **need to break down barriers across sectors**: currently, there is no or little interaction between the worlds of finance and the irrigated agriculture. And yet, knowledge of both is required to take environmental considerations into account when financing irrigation projects. Partnerships and training need to be developed;
- There is also a **need to integrate environmental assessment into economic development projects**, so as not to increase pressure on resources, particularly water.

From an organizational and human resources standpoint, we can point to two key lessons:

- It is fundamental to have a **dedicated team** with outreach workers who have the necessary expertise, as well as adapted products and procedures;

- An **appropriate incentive system** that values the extra efforts required to develop a portfolio of innovative loan products that are complex to analyze, monitor and master should not be overlooked.

Conclusion

Using microfinance to build access to productive water or renewable energies is real innovation. It calls for synergy among actors from different horizons, who pool their knowledge to confront a major development challenge. This goes beyond the development of purely financial products, which is why a gradual and interactive approach is needed. The return on investment promises to be significant, even if we already know it will take some time. Financing irrigation is a medium-term investment.

Building on the Water and Microfinance Initiative, PAMIGA and U-IMCEC plan to develop “*Centers for Agricultural Finance*” within microfinance institutions wishing to effectively and efficiently serve small farmers while minimizing risks. At U-IMCEC, the Centre will be a dedicated department staffed with people with agricultural expertise; it will offer specific products and procedures, with WMI as the flagship product.



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