# Banking Madagascar's Small Farmers:
# ABM's Cash Flow-Based Agricultural Credit Analysis Methodology

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## Introduction

AccèsBanque Madagascar (ABM) has developed "Agro Loan," a product to serve thousands of small farmers, especially those who mix subsistence farming with small-scale production of cash crops. Agro-Loan uses a cash-flow based methodology, which helps to balance farm revenues throughout the year. Farm income that is relatively constant and distributed evenly throughout the year helps to support frequent loan servicing. The raising of small-scale livestock and/or household dairy activities also reinforces the performance of this lending approach, providing a diversified source of additional income for the farming household.

## The Agro Loan Product

Cash flow-based Agro Loan represents a separate product line managed through specially trained Agricultural Loan Officers. To date, 1,700 ABM clients have received Agro Loans, representing 7 percent of all customers. Outstanding Agro Loans amount to roughly 2.4 percent of the value of ABM's loan portfolio.

ABM requires that at least half of a farmer's household income be derived from farming activity. The farmer's field must also be easily accessible. An ABM loan officer inspects all fields that represent at least 30 percent of a farmer's household income. The Agro Loan features monthly repayment, though the payment amount each month varies according to the client's cash flow. The loan may include principal grace periods, but interest must always be paid. Clients are required to make monthly payments at the branch, ensuring frequent client contact, which ABM finds to be a helpful form of loan supervision.

The minimum Agro Loan amount is MGA 100,000 (equal to about $44) and the maximum is MGA 15,000,000 ($6,600). The average disbursed amount currently stands at MGA 950,000 ($418). Loan pricing is between 3.35 to 3.75 percent per month (with lower amounts applied to larger loans), which is similar to ABM's micro loan product. For loan amounts below MGA 500,000 ABM charges 4 percent per month to cover the relatively higher administrative costs. Agro Loan is classified differently from other loans, allowing ABM to evaluate and monitor the product's performance separately.

ABM has a strict requirement about the use of loan proceeds by the borrower. Since the cash flow is a projection of future crops, it is important that the loan is used for actual income-generating activities on the farm, and not be diverted to other uses—like the purchase of a new television—that might negatively impact the cash flow projection upon which the loan is based. Incidentally, other ABM loan products like micro and SME loans are also based on cash flow analysis, however, these loans use past instead of future cash flow.

Agricultural Loan Officers receive in-house training to prepare for carrying out client analysis (use of the customer spreadsheet template, questioning techniques, etc.). They also receive external training at agricultural training centers so that they understand the dynamics of different types of crops. These specialized loan officers receive a slightly higher compensation than Micro Loan Officers.

**The Loan Process**

ABM views the loan process as a recurring cycle. After timely repayment of a loan a client can immediately apply for a repeat loan. A system of graduated incentives (including reduced interest rate charges) rewards a client's good performance, supports client retention, and helps ensure that the bank's products remain attractive.

The Loan Cycle:

1. Client applies for Agro Loan at one of ABM's branches.
2. Loan officer visits the borrower's house and field to establish the crop calendar.
3. Loan officer also inspects collateral and verifies the ownership of collateral.
4. Loan officer enters the borrower's information into a spreadsheet tool and analyzes ratios.
5. Application is presented to the credit committee and the borrower is notified immediately after a decision is made.
6. Loan is disbursed to the client at the branch.
7. Client makes a monthly repayment at the branch.
8. Loan officer conducts a follow-up visit two to three months following disbursement to check for use of loan proceeds.
9. Client takes repeat loan.

Loan officers travel to clients' farms by motorcycle. All of ABM's rural branches are equipped with 2 to 3 motorcycles. It is necessary to visit both the clients' fields and their homes. ABM serves clients within a 25km radius of the nearest rural branch. The limited distance facilitates easy supervision visits by the bank staff, while helping to ensure that clients can make their monthly payments at the branch on time.

**The Crop Calendar**

The crop calendar lies at the heart of the CFB-ACA methodology. It is a plan that is jointly drawn up between a loan officer and his or her client, and represents a projection of the timing, investment cost, and potential revenue of the client's household and farm activity. The data collected in the calendar is transcribed to ABM's spreadsheet tool to calculate client repayment capacity on a monthly basis. The crop calendar provides answers to some of the following key questions:

- How many and what kind of crops will be planted over the next 12 months?
- In what order will these crops be planted?
- When will preparation of the fields begin?
- Where do the farmer's seeds come from? Has the farmer saved seeds from the previous harvest or will the farmer purchase specially treated seeds? When does planting begin?
- When will the plants be fertilized?
- Will laborers be employed for sowing and/or harvest, and how much will they cost?
- What is the projected harvest (tons/kilos of paddy, tomatoes, beans, etc.)?
- What is the difference in the price of the farm's produce from the beginning to the end of the harvest season?
- Where does the farmer sell the produce? What are the farm to market transportation costs?
- Does the farmer own or rent the land?

**Cash Flow Analysis and Cross Checks**

The data established in the crop calendar is transferred to a customized spreadsheet developed by ABM. The client's repayment capacity is calculated based on projections of future crop yields, plus additional income from other activities, e.g., dairy cows, chicken breeding, or small food store. These revenues are compared to projected household expenses and potential repayment of other loans. The repayment capacity is determined by netting all revenues and expenses.

In order to properly assess potential revenue from each crop, ABM considers information received from the client, and then performs a cross-check using market data from the region in which the client lives. In Madagascar, regional farm price information is available through NGOs and farmer associations.[1] By comparing the farmer's declaration with publicly available price data, ABM can further determine the veracity of the claim. Another important cross-check is the evaluation of rice stocks available at the time of the first visit to the client's home. In order to know the potential amount of harvest, the stock available at the household is compared with daily consumption, and the amount of time passed since the last harvest. This allows the loan officer to estimate the harvest capacity of the farmer's fields—and also helps to prevent being fooled by a farmer who might try to represent someone else's fields as his or her own.

**Balance Sheet Analysis**

ABM also constructs a household balance sheet for each borrower, a process that requires a lot of patience and cross-checking by the loan officer. In many cases farmers are not fully aware of the value of their own assets, while in other cases, farmers are not keen to share information with a bank about some of their assets. Current assets are composed of:

- *Savings.* This is evidenced by cash kept at the client's home or, alternatively, a bank statement, MFI savings book, etc.
- *Stored crops.* The loan officer calculates the value of stored cash crops during the visit to the client.
- *Stock of rice.* Rice is considered separately, and the amount that is stored for home consumption is valued at the price of production.

[1] FERT, a French NGO working with the farmer associations, provides a useful weekly bulletin showing updated crop prices.

- *Crops to be harvested.* The values of standing crops are also included, calculated as the amount of investment costs already incurred, e.g., operational costs, cost of seeds and fertilizers, etc.

Fixed assets on the client's balance sheet typically consist of:

- *Animals.* The value of the animal is estimated by the loan officer based upon the size and age of the animal. For "beasts of burden", like oxen, the client must prove that the animal is her/his actual property. In Madagascar every farmer with an animal—the local "zebu" being the most common—has a registration book (*bokin'omby*) in which the local community leader verifies by signature that the animal is the farmer's exclusive property.
- *Implements.* All materials used for working the fields, such as tools, carts, and any small-scale storage facilities.
- *Rented Land.* If the farmer is renting the fields from someone else and has a written agreement--even a hand-written piece of paper—the amount of any advanced payment made is considered under fixed assets (adjusted by the number of years that have passed since the upfront payment).
- *Owned Land.* If the farmer has purchased the land within the past five years, the value of the land as per the purchase price is included as a fixed asset.[2]

In addition, since farmers do sell produce on credit from time to time, produce delivered but for which payment has not yet been received is considered as a current asset—but only if the transaction has taken place within the past month. All produce delivered, but for which no payment has been received in over one month is considered a loss.

The possibility that the farmer may have other debts, e.g., with another financial institution or NGO, has to be carefully evaluated. Since the opportunities for cross-checking (Madagascar has no credit bureau) are highly limited, the loan officer has to develop the skills to get this information from the client directly, by "teasing out" the debt information through questioning and other cross-checks.

**Ratio Analysis**

In order to assess the client's capacity to a) strengthen the farming business and b) repay the loan without difficulties, ABM does some basic ratio analysis. The following are the most important ratios used in CFB-ACA:

- *Installment/Repayment Capacity:* Maximum 70%; the client should have a monthly reserve/contingency fund in case of emergency.
- *New Loan/Own Capital:* Funds from ABM destined for an investment should not exceed the amount of the client's own funds to be invested.
- *Own Capital/Debt + New Loan:* To avoid over-indebtedness, the client's own capital must always be greater than (or equal to) any existing debt plus the new loan.

[2] Interestingly, if the farmer has owned the land for more than 5 years, the value of the land is NOT added to the balance sheet, because in most cases the land is hereditary with values that have been proven difficult to determine. In addition, there is likely no definitive documentation proving the farmer's exclusive property rights, therefore it is prudent for the bank not to include any estimated value of this kind of land.

**Collateral**
Collateral is a challenge in Madagascar. Smallholder farmers generally have little in the way of collateral, and what they do have may be of questionable economic value. As a general rule, ABM includes most common household items as security for a loan, with the exception of some essential items, like kitchen utensils, beds, etc. Animals as well as equipment and carts are also accepted as collateral. Oxen or cows are only considered as collateral if the farmer has a minimum of two; at least one animal must remain so the farmer can continue farming activities should one be seized. Every animal taken as collateral has to be registered as such with the community leader, with a stamp in the *bokin'omby* validating that the animal is deemed as collateral under the loan agreement.

**Challenges**
In a nutshell, ABM's CFB-ACA works very well in the Malagasy agricultural environment, as proven by the impeccable repayment rates. Currently, for small holder agricultural loans the PAR 30 figure is 0.53 percent on a loan portfolio with 1,670 clients (as of 31 July 2012). However, there are also some significant challenges with this approach, which underscore the need for ABM to consider other potential ways to expand outreach to rural households.

- The methodology is very much a hands-on, case-by-case approach, and thus there is limited scope for standardization and scaling up.
- Differences in the quality of the soil in different areas can have a large impact on the yield of certain crops, requiring specific regional and sub-regional knowledge by loan officers. In contrast to traditionally urban-based microfinance, lending to farming households requires that financial institutions fully understand the risks of agricultural lending and its regional and sub-regional context.
- The bank needs more experienced and highly trained personnel to execute an effective agriculture finance strategy. ABM has found training of specialized loan officers to be critical. Loan officers must have substantial knowledge of the agriculture sector in order to accurately assess the client's situation, and to be able to perform necessary cross-checks. Loan officers should also receive regular external training on agricultural techniques used in the country. This training is costly, and there will be cost implications that come from having a highly trained and experienced workforce.
- The repayment experience for ABM has been very positive, albeit with a fairly limited outreach to date. ABM is encouraged by this success to explore other ways of reaching out to rural clients, and will consider supply chain approaches and parametric lending. With the assistance from the Agriculture Finance Support Facility (AgriFin), ABM will look at ways to provide a more standardized loan for agricultural production that can be offered to smallholders. ABM may also look to provide more credit to intermediaries, like traders, who already have strong relationships with farming households and can supply more credit down the value chain given additional resources.
- Based upon the growing number of good clients, ABM has a baseline of lending experience in rural areas upon which to build its agriculture finance strategy. This experience provides a wealth of data that can be analyzed to determine key factors underlying clients' creditworthiness. Though there is still insufficient data upon which to develop a statistical-based scoring system, there is already a scope for developing client "scorecards" based upon the critical factors that appear to impact repayment. ABM, with support from AgriFin, will

consider how to streamline the process of approving clients by selectively testing scoring models. If found to be robust through extensive testing, scoring-based approaches might provide a path to lowering the cost of client acquisition, and reduce credit risk.

- The lack of "aggregators" like strong, effective farmer associations means that there are limited opportunities to apply leverage to expand outreach. ABM may also look at creative ways to develop partnerships that can increase outreach to rural clients. To date, the experience working with farming organizations has not been entirely positive, so great care must be taken in dealing with these organizations. Nevertheless, farmer-based organizations can play a role in strengthening supply chains and creating opportunities for financial institutions to expand services to farmers if given appropriate technical assistance.