

# Monitoring the markets in the Rwanda coffee sector

## Lessons from Costa Rica and Colombia



### In brief

The recent NAEB-IGC coffee conference in Kigali has highlighted two key priorities for the industry:

- Improve access to inputs and extension services for farmers
- Establish a regulatory framework to improve the relationship between farmers and coffee washing stations and ensure a reasonable share of the international prices reaches the farmers.

Lessons from the experience of Colombia and Costa Rica may prove valuable:

- The Colombian SICA (Sistema de Información Cafetera – Coffee Information System) includes a dynamic feature in the census. This allows storage of up-to-date information on the situation and needs of the farmers in each region, thereby improving the efficiency of input delivery by government and private sector alike.
- Integrate features of the Costa Rica Coffee Board (ICAFE, Instituto del Café de Costa Rica), regulating the relationship among actors at different stages of the coffee value chain.

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## Introduction

Coffee is an important export cash crop with the potential to lift farmers in rural areas out of poverty and increase foreign exchange reserves. Growing, processing, and marketing coffee, however, requires well-functioning markets at all stages of the chain: from input provisions and pre-harvest farming technology, to post-harvesting contract enforcement with foreign buyers.

The Draft National Coffee Plan and the IGC research recently presented at the February conference in Kigali highlight that coffee washing stations should become the heart of the value chain, from which inputs and extension services flow upstream to farmers, and high quality coffee flows downstream to buyers and exporters. However, both the National Coffee Plan and IGC research highlight challenges faced by the stations in developing stable relationships with farmers, extending inputs and extensions services to farmers, accessing credit, etc.

This note presents lessons from Colombia and Costa Rica, with a century old involvement in managing the coffee chains. Both countries represent success stories in the coffee sector, having established strong reputations for quality and an equitable distribution of rents along the chain.

We focus on two main ideas from these countries: the Live Farmer Census in Colombia and the System of Payment and Liquidation in Costa Rica. The Colombia Live Farmer Census allows for a real-time monitoring of farmers production decisions, which opens the door to a significantly more efficient distribution of inputs and extension services to farmers from both the government and private sector alike – a significant challenge in the current system. The Costa Rican system of Payment and Liquidation achieves efficient cash flow management and helps consolidate farmers' trust in the financial strength of the coffee washing stations.

## Farmers' dynamic coffee census

Farmer and plot level information is key to the design and implementation of extension programmes, and for the adequate regulation of the market at all stages. The Draft National Coffee Plan contemplates a coffee census, which would provide a picture of the field situation at the point it will be implemented. Information at one point in time is not sufficient to evaluate and improve programs, but repeating the census exercise at the frequency that information is updated would be a costly exercise.

An alternative solution to obtain up-to-date information on plots and farmers is the Colombian dynamic census, the SICA (Coffee information system): a system that automatically updates information every time a farmer makes an investment in his plot, buys inputs, sells coffee or benefits from any extension program. The extension services network of the Colombian Coffee Growers Federation manages the system.

## What can SICA be used for?

The Colombian Dynamic coffee census collects data on the exact location of the plot, the farmer owning the plot, the cultivation method, the number, variety and age of trees, as well as information on inputs/programs received by the farmers, certifications, etc. In this way, the system constantly updates information on the location, quantity and value of coffee production. Updated information at the farmer level is essential for the government to:

- **Design and implement programs targeted at the needs of specific beneficiaries.** It also allows for the monitoring and evaluation of the take up and success of the programmes.
- **Establishment/reinforcement of the relationship between farmers and extension services.** The fact that the extension services officers have to compile information on all the farmers and update it will allow them to better target programs for farmer needs.<sup>1</sup>
- **Improve farmers' access to credit.** With the creation of a system containing information on the plots characteristics, production realised and potential production, it will be easier for the farmers to obtain credit using harvest metrics and plots as collateral. This is one of the dimensions in which the advantages of the dynamic nature of the census are most pronounced: no bank/micro-finance institution would consider using data from the current census – which could be outdated by many years – to extend loans to the farmers. In contrast, a NAEB-certified integrated data system with up-to-date information on assets/production would likely be used by lending institutions to extend loans to farmers.
- **Regulate the sector.** A dynamic census provides detailed information on the plots productive characteristics, which is crucial for reliable estimates of production potential. These estimates help the regulation of the sector to evaluate the need for establishing new stations and regulating the catchment zones of the stations in any zoning regulation.<sup>2</sup>
- **Gather information on potential production.** The information on potential production will also include information on potential quality of the different areas, as a function of both geographic characteristics (e.g. altitude, soil type, etc.) and of the characteristics of the productive trees (e.g. age of the plantations, varieties, and distance between trees). This information can help the discussion on the establishment of origin denominations or any other marketing strategy aiming at obtaining value on quality-differentiated lines.

1. In the case of Rwanda, NAEB sector representatives could be in charge of maintaining an updated database of the farmers/plots in their sector.

2. Once data are used to regulate the sector, procedures have to be put in place to ensure the reliability of the data, as farmers/NAEB sector officers might have incentive to misreport to take advantage of regulatory provisions. This possibility doesn't invalidate the utility of the system, it simply brings attention to complementary practices that needs to be adopted to maximise the benefits of the system.

## How does the system work in practice? Can it be used in Rwanda?

SICA<sup>3</sup> is a unique database geo-referenced with national coverage. It is formed by two big databases:

- A geo-referenced database gives the location of all the coffee plots, the geographic coordinates and their altitude above sea level,
- An alphanumeric database records the number of parcels, trees and farmers in each plot, together with the plot's productive characteristics.

The database is updated by the National Coffee Federation extension services, and can be accessed by the farmers to check the information on their own plots<sup>4</sup>. The network of extension services of the National Coffee federation is very complete: almost every municipality has a local committee that provides assistance to the farmers in the locality on the Federation programs and manages information on the plots. Every coffee growing region has a regional committee, which coordinates local committee activities. The farmers democratically elect their representatives at the local committees, with high participation rates.

SICA is linked to the Coffee Grower ID card (*cédula cafetería*). This ID identifies a farmer as a member of the Coffee Growers federation and is used for all administrative matters related to the FNC (for example in the local committee elections). It also acts as a 'credit card' for the farmers to get their payments for the coffee, make payments for fertilisers, receive subsidies, and withdraw cash at local stores, among other financial services. The link between SICA and the ID is a very important asset as it identifies the farmer's socio economic situation, information on the plot, his family situation together with his economic situation (coffee sales, fertiliser bought, etc.). This can be used to directly identify his potential production and his needs. In Colombia this information is used to design targeted programs that address key concerns of farmers.

The SICA contains:

1. Total area of the plot and of the farm, area of the plot / farm cultivated with coffee.
2. Variety of Arabica coffee planted in the plot.
3. Tasks performed in the plot: new plantation, renovation, etc.
4. Distance between plants, distance between furrows.
5. Density, number of plants per hectare
6. Altitude over sea level
7. Luminosity (sun, shadow, semi-shadow)
8. Age of the plantation in years for each plot.
9. Type of plantation (old, traditional, young)
10. Programs the farmers have benefited (including competitiveness programs,

3. [http://www.federaciondecafeteros.org/clientes/en/servicios\\_para\\_el\\_cafetero/sistema\\_de\\_informacion\\_sica/](http://www.federaciondecafeteros.org/clientes/en/servicios_para_el_cafetero/sistema_de_informacion_sica/)

education, health, infrastructure at the plot)

11. Farmer coffee ID,
12. Specialty coffee traceability,
13. Environment,
14. Harvest prediction

The SICA dynamic census has been a crucial source of information for decision making in productive questions, but also for the social, infrastructure and environmental issues. As discussed above, the availability of detailed and up-to-date information is a great asset for the identification of needs and design of policies aiming at these needs. This is especially useful in the case of having farmer-plot level information geo-located, that allows identification of the relevant policy issues at the regional and individual level.

There are several similarities and differences between the Rwandan and the Colombian coffee market characteristics. Like Rwanda, Colombia has a large population of subsistence coffee farmers working on small plots of land, primarily washing coffee at the farm level. Of the 563,000 families growing coffee in Colombia, 96% are families with less than 5 hectares of land<sup>4</sup>, and many farmers are in vulnerable situations both due to reliance on subsistence production and due to the incidence of armed conflict within coffee growing regions.

Mainly due to the geographic characteristics of the coffee growing areas, Colombian coffee is washed on the farms. This is different from Rwanda. Additionally, it is likely that there are differences in education / financial literacy of the farmers across the countries and, as noted above, Colombian small-holders are significantly larger than Rwandan ones.

Additional differences are likely in the administrative capacities between the Federacion and NAEB. Notwithstanding these differences, the implementation of a Colombian style dynamic coffee census in Rwanda could be extremely beneficial to Rwanda.

The adoption of the system should naturally be tailored to local circumstances and could be, to a certain extent, carried out progressively over time (e.g., starting with basic information and establishment of a “coffee farmer ID card”). I would be happy to support NAEB in the design of the census.

## **Improving the relationship across stages on the value chain.**

As documented by Macciavello and Morjaria (2014), there is a concern on the low rates of cherry sales on credit to the coffee washing stations, that ultimately lead to low shares of coffee exports being fully washed. To improve the relationship between farmers and washing stations, it is worth looking at the structure of the

4. Source: Federación Nacional de Cafeteros de Colombia.

sector in Costa Rica.

### **Description of the Costa Rica system**

Costa Rica is a small country with a market dominated by small farmers, where all coffee is fully washed. Traditionally the aim of the authorities has been to protect the coffee growers. This is clearly reflected in the composition of the ICAFE (Instituto del Café de Costa Rica) board: out of seven members, four are representatives of the producers, one of the washing stations, one of the exporters, one of the roasters and one representative of the national executive powers.

The law regulating the relationship among the producers-washing stations-exporters includes three points that are of special relevance to the Rwandan case: (i) The establishment of a registry of farmers, washing stations and exporters, (ii) The registry and need for approval of all the contracts between washing stations and exporters, and (iii) The implementation of a profit-sharing rule between washing stations and farmers, and of a mechanism to enforce this rule ensuring farmers on their sale of cherries deposited on credit to the washing stations.

### **Structure of the Costa Rica final liquidation process**

1. **Advance payments and reception of cherries:**

At the moment the farmer deposits the cherries, the CWS issues a receipt for the coffee and an advance payment. The deposit is on volume.

2. **Coffee Washing station:**

The CWS has to update every two weeks the amount of coffee received from the producers to ICAFE.

3. **Export sales and National consumption:**

The sales from the CWS to exporters or national roasters have to be approved by the ICAFE in accordance with international prices and current price differentials.

The sales are backed by contracts registered at ICAFE.

4. **Three monthly payments:**

The CWS should make payments every three months to the farmers as function of the advancement of sales up to that moment.

5. **Payment of the final liquidation:**

At the end of the season the CWS should pay the producers the final liquidation that is the result of sales minus production costs minus the profit for the CWS (9% of sales – costs) and contribution to FONECAFE (Coffee Stabilisation Fund).

The final liquidation prices should be published in the newspapers of national circulation, and once they have been published the CWS has 8 working days to proceed with the payment to producers.

In describing the system, we begin by focusing on the relationship between washing stations and farmers, and then turn to the relationships between washing stations and exporters. The first part will highlight similarities with the Colombian case discussed above.

## Relationship between washing stations and exporters

To ensure an equitable division of the revenues generated by coffee on the foreign markets, the ICAFE requires all washing stations to submit all contracts with exporters to the board for approval. Given that the price that the farmers ultimately receive for their produce is regulated as a function of the price received by the washing stations, this price control is key to ensure a proper distribution of profits across the chain. The board sets the reference prices in relation to the NY future prices at the time of the coffee delivery, not allowing contracts below the price that would imply smaller revenues for the farmers than expected at that given point in time.<sup>5</sup>

Note that a key advantage of this system is that farmers are paid based on a weighted average of the prices prevailing in the coffee market throughout the year. Therefore the system not only allows for a more equitable distribution but it also reduces exposure of farmers to international price fluctuations.

## Relationship between washing stations and farmers

The contracts between farmers and coffee washing stations are closely monitored by the Liquidation Commission (Junta de Liquidación). This commission, with two members from the ICAFE board (one representative of the farmers and one of the washing stations) and one representative from the Economics and Trade Ministry, has the role to track all the cherries deposited by the registered farmers to the washing stations, the contracts signed and executed by the washing stations, and the working costs of the washing stations according to the standards of reporting and accounting.

The process is structured as follows:

- Stage 1: The farmer deposits the cherries at a washing station and 3-copies of a receipt are made: one for the farmer, one for the washing station, and one for ICAFE. The CWS should report the received coffee to ICAFE every 15 days. The farmer receives an advance payment.
- Stage 2: The washing station, every three months, gives an advance payment to the farmer proportional to the executed sales of the washing station. The amount is reported to ICAFE.
- Stage 3: At the end of the season, the washing station reports the final liquidation price, based on sales, costs, allowed profits for washing stations and contribution to the national coffee fund. This price, which needs to be approved by the Liquidation commission, is published in the national newspapers. The washing stations must make the final payment to the farmers within 8 days of the publication of the final prices.
- In case a farmer does not receive the payment in the expected time, he can use his sales receipt along with the published prices to the Liquidation Commission to claim his payment. The Commission will follow legal procedure of the washing

5. Crucially, the differential applied (week-by-week) on to the NYC price is not disclosed to market participants.

station to ensure the payment.

Such a close monitoring of the transactions between farmers and stations produces enormous advantages in access to credit for both farmers and stations. First, stations receive more credit from farmers and, therefore, need to borrow less. This is possible because the promise of a future payment from the station to the farmer is enforced by a contract.

Second, farmers benefit as well. This is enabled by the registry of farmers. The registry of farmers contains information on their location and their coffee deliveries to washing stations. The registry is the basis of the mechanism to ensure the relationship between farmers and washing stations described above. In addition, the registry facilitates farmer's access to credit – a notoriously challenging area of policy intervention.

Both commercial banks and washing stations provide credit to farmers guaranteed by harvest sales. These working capital loans have to be paid back at the end of the harvest to cover costs as inputs, harvest labour, and transport. All these working capital loans are registered with ICAFE and included in the farmers' registry. When the loan is provided by a commercial bank, the farmer needs to report the debt to the washing station so that the washing station can directly pay the financing institution at the moment of the harvest payments.<sup>6</sup>

### **Can the system be implemented in Rwanda?**

To the best of our knowledge, the Costa Rican system is the one that achieves the highest market efficiency and an equitable distribution of rents between farmers, processors and exporters. The system, however, is not easy to implement.

First, the system requires enormous political capital and a strong commitment by the board in promoting and protecting the interests of farmers. Second, the system requires high administrative capabilities to manage its sophisticated information structure.

The effectiveness of the liquidation system in Costa Rica is the result of the trust placed in the structure by all the participants in the value chain. This trust is the result of lengthy historical relationship between participants and the governance boards of the ICAFE, which have a democratic and representative structure. The failure of similar systems in neighbouring Central American countries evidences the importance of the distribution of power: inequality in land distribution and political power of exporting companies have been the main factors contributing to the failure of the system to replicate Costa Rica's success even under similar growing conditions.

It is beyond the scope of this note to assess whether political conditions in Rwanda would guarantee the success of the system. Low degree of corruption and high competence in public sector bodies (including NAEB) do provide Rwanda with the

6. Similar successful schemes are being increasingly adopted in other East Africa contexts (e.g., tea, dairy in Kenya).



right pre- conditions for implementing the system.

There is no question the Costa Rican system requires the capacity to process substantial amounts of information and legal procedures. On the administrative side, almost all the information has been digitised, so the cost is minimal. As a late adopter, Rwanda could probably jump-start at the frontier w.r.t. digitizing the system. On the enforcement costs, that will obviously depend on the behaviour of participants, and will be difficult to estimate. That being said, cases of non-compliance with farmers have been rare in Costa Rica, given the need to ensure supply and the high competition of CWS at the local level.

## Conclusions

This policy brief aims to provide policy recommendations for improving access to inputs and extension services by farmers and establishing a regulatory framework to improve relationships between farmers and CWS.

Up-to-date information is a key element for achieving these goals: from both the regulating authorities and market participants (farmers, stations, exporters, banks, input providers) point of view. The two suggestions presented – the Colombian dynamic census and the Costa Rican ICAFE liquidation process – have at their core, an emphasis on transparency of information at all stages in the chain: those ingredients are needed to build trust (enforce contracts) between market participants.

The first recommendation presented is to establish a dynamic coffee census, similar to the Colombian SICA. This system, managed by the Coffee Federation extension services, has the great advantage of efficiently using data technology to keep up-to-date information for the coffee board while giving the farmer an ID card to allow him to track all matters related to his coffee. In Colombia, this system has evolved up to the point that the ID card is also a bankcard for the farmer to get his coffee payments and government benefits and to pay for inputs and other payments.

The second recommendation presented is to establish a regulatory board comparable to the Costa Rican ICAFE to improve trust between farmers and CWS. This system is based on transparency of information and reliability of the institution backing up the contracts. The participation of Rwanda in NAEB, a well-trusted institution, suggests that such a system could be successful.

The implementation of these systems must be adapted to the Rwandan context. To economise on scarce administrative capacity, NAEB might consider initially focusing on:

- Implementing the dynamic farmer census (distributing farmers ID and setting up a system to update farmer-level information, once or twice a year)
- Monitoring contracts between CWS and Exporters and consider providing farmers information on CWS performance

## **About the author**

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