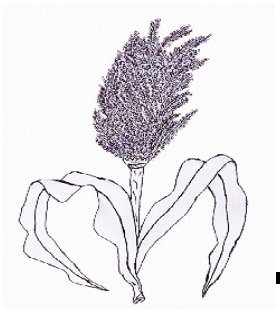

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Farm-Level Perspectives In Rwanda's Coffee Supply Chain Coordination Challenge

by

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INTRODUCTION: This synthesis is based on conversations and readings during a backstop visit by Michigan State University (MSU) faculty to the MINAGRI/MSU/USAID Food Security Research Project in August 2001. Many of the formal MINAGRI studies with reliable farm-level coffee data are from pre-war times. As such, some of the observations herein are tentative. This synthesis shows the need to update and improve household-level information on Rwanda's coffee sector, so that appropriate policies may be put into place to increase the level and diversity of smallholder and rural business income.

OVERVIEW OF COFFEE SUPPLY CHAIN COORDINATION ISSUES IN RWANDA: There is considerable interest in Rwandan coffee among private investors and donor agencies. Some innovative work is underway in improving processing and marketing Rwandan coffee. Prospects for capturing a share for Rwanda of the growing high value coffee market depend on understanding the final market, and making wise business connections and investments. Prospects for improving Rwanda's coffee harvest to facilitate such a market success story depend on supply chain considerations that begin on the farm and with inputs into coffee farming. To be able to understand how farmers will react to new opportunities, farm level information must be developed to accompany and complement varietal, input, processing, and marketing initiatives to form a comprehensive supply chain approach. Initiatives in new varieties, processing and marketing appear to have correctly identified high value market niches. Understanding how farmers will respond to market signals, and how to enhance farmer responses, is necessary to help make the transition to higher value coffee supply chain products.

Worldwide, prices are down for the **bulk** low grade Arabica type of coffee produced by Rwanda, continuing a trend that has persisted for a number of years (Ponte; Tardif-Douglin et al.) While Rwanda ranks toward the bottom in terms of its tonnage among nations that produce coffee, coffee is nonetheless one of Rwanda's most noteworthy exports to countries in the highly developed northern hemisphere. Coffee is often touted as a principal foreign exchange earner for Rwanda (Rwalinda et al.). However, Rwanda is likely participating in substantial informal and largely unmeasured cross-border trade (Loveridge; Houyoux), so claims about coffee's contribution to foreign exchange must be made cautiously. While coffee's importance in trade is likely exaggerated and subject to typical bias towards formal exports and fully convertible currencies, its role in government finance makes it a crop worthy of careful attention. Profits from OCIR Café marketing operations make coffee one of Rwanda's most important sources of government revenue.

The international coffee marketing chain is restructuring with ever-greater proportions of total value-added created in consuming countries (Ponte). According to information in Ponte (p.17), Rwanda is probably not well positioned to participate in the premium **bulk** market:

"Roasters tend not to accept coffee for their blends from countries that cannot guarantee a reliable minimum amount of supply (in the case of Arabica, around 60,000 tons a year.)" Rwanda's historic total national production and exports are about half that figure (Table 1). The most recent figures from MINAGRI (2001) suggest that postwar harvests are much lower, on the order of 14,000 tons a year. Official exports often outstrip national production figures as informal imports from neighboring countries take advantage of Rwanda's seemingly better-organized system for moving coffee to port (Rwalinda et al.; DeLucco).

This pessimistic outlook for long-term Rwanda coffee prices is tempered by Rwanda's geography. The high altitude makes it a good place for growing premium coffees that have begun to make market inroads, particularly in the US, but also in some European countries. The Financial Times estimates that American consumers daily drinking specialty coffees in 2001 will be roughly 27 million (cited in Ponte, p. 19). OCIR Café recently adapted to market signals by switching away from dwarf to the taller varieties more appropriate to the specialty market. However the solution is not simply a matter of selling the high altitude heirloom coffee at a premium price. The road to producing specialty coffee appears to involve a combination of improved farm-level and washing/processing quality, and better marketing, especially direct marketing to importers where trust can be established (Ponte.) Rwandan coffee faces quality challenges in the size of the typical bean and in its traditional farmgate methods of initial processing (DeLucco; Walker). Another aspect of quality is not only in price but overall market image. The image of a consistently low quality bean will take time to overcome. The North American specialty market is the most highly evolved and includes three types of specialty coffee: organic, shaded, and fair market (Giovannucci, 2001). While fertilizer use is minimal, most Rwandan coffee farmers historically used chemical inputs for pest and disease control (Rwalinda et al.), effectively closing the organic market. The shaded market is otherwise known as "bird friendly" and may also be a difficult market for Rwanda to enter as it implies growing coffee under full grown trees–a practice not common in Rwanda. It is not clear whether intercropping with banana–the most likely future scenario in Rwanda--would qualify for certification as shaded.

The remaining specialty market coffee category is "fair trade" in which cooperatives or other methods are used to guarantee a higher price to producers. Since fair trade coffee depends on market structures rather than production practices for its designation, it would seem that this segment of the market holds the lowest barriers for entry of Rwandan coffee. In his 2001 survey of North American specialty coffee vendors, Giovannucci found that 54% carried fair trade coffee. Fair trade coffee carried a premium over standard coffee of 62 cents per pound–slightly higher than organic or shaded coffee. Among importers, the premium was even higher–72 cents per pound, but the variety predominant in Rwanda (Arabica) carried a much lower premium of 43.2 cents per pound. The survey also revealed that Africa provides fair trade coffee to more vendors than it does either organic or shaded coffee. Increasingly, fair trade coffee is also organic, moving from 1% of the market in 1996 to 36% in 2000. Over 93% of respondents thought demand for fair trade coffee would increase or remain the same.

Table 1. Coffee Production in Rwanda: Comparison of MINAGRI data and OCIR data, Selected Years (metric tons)

Year	1984	1989	1990	2000
Minagri Production Data	35,785	27,306	41,008	14,079
OCIR Production Data	41,532	39,092	39,576	16,098
OCIR Exports Data	33,296	39,024	34,661	14,641

Notes: Years selected based on data availability from Minagri's household production surveys. The 1984, 1989, and 1990 OCIR data are from a 1999 Agro Consulting Business report to Minagri's Office de Cafe. The 2000 OCIR data are from personal communication.

Giovannucci reported that "quality or taste" was overwhelmingly important among specialty vendors in selecting coffee, outstripping considerations such as profit margins or differentiation. Coffee washing may improve quality (DeLucco; Schluter and Finney; Walker), and the National University of Rwanda (PEARL Project) with various partners has established an experimental washing station for a local cooperative with USAID and other partner financing (Schilling). If higher prices can be achieved by washing, farmers may respond with increased production. Another advantage of washing from the farmer's perspective is that the process relieves them of laborious depulping operations (Schilling).

A challenge in operating a washing station is that coffee cherries must be processed within eight hours of harvest to achieve quality (Walker; Schilling). Burundi established a number of washing stations with World Bank financing in the 1980s and some Burundi coffee does enter the specialty market. It is important to learn from what has been done in Burundi. For example, Schluter and Finney report a US$0.19/lb. (US$ 418 per metric ton) premium for washed coffee in Burundi, but qualify the report by saying there were distribution problems that year. In the same report, they estimate the cost of operating a washing station at US$ 398 per metric ton.

INSIGHTS FROM PRIOR MINAGRI STUDIES: In 1992, Minagri competed a farm-level survey of attitudes towards coffee using a national sample of rural households (Rwalinda et al). The study noted the need for better extension information about chemical fertilizers and more attention to depulping operations. Traditionally, farmers have tended to divert chemical fertilizers given for coffee to other crops (DeLucco). The Rwalinda et al. study also noted that farmers were discouraged by the (then) current official price of 115 Frw/kilo, and recommended liberalizing coffee marketing--a process that is now underway (DeLucco). The study also recommended increasing the number of on-farm coffee trials. At the time of the Rwalinda et al. study, Rwandan farmers were not permitted to uproot their coffee plantations, and mulching and monocropping of coffee fields were required of farmers. More recently, the government has liberalized coffee policies and farmers can manage their fields with their own decisions and priorities. As a result, the farmer may be much more price responsive; this has implications for government finance in a period of declining world coffee prices. Rwanda coffee production may be poised to drop precipitously. Also, farmers must bear more risks in the liberalized markets as prices are no longer fixed at consistent prices for years at a time. Thus they may be less responsive in increasing production for higher prices.

In 1998, Jaakko Kangasniemi completed a PhD dissertation at Michigan State University using data from Minagri's Division des Statistiques Agricoles. The data included household production data and a year's worth of monthly retrospective purchase and sales data for crops and household labor. Kangasniemi initially focused on 1993-4 data, but the genocide and war interrupted the work, and he completed further analysis of data used by Loveridge. Kangasniemi's study focused on the role of bananas in household consumption and income, but sprinkled throughout the study are findings and implications for coffee as well as closely related household food security that have not previously been gathered in a summary. Here are a few of his findings, based primarily on 1990 Minagri/DSA survey data:

1. Bananas are by far the most remunerative smallholder cash crop, whereas coffee was not particularly attractive to farmers at 1980s and 1990s prices. The farmgate price for coffee was 83 Frw/kg in the 1990 survey data. (pp. 65-66)

2. Average coffee yields were 256 kg/ha per season. (p. 66)

3. In terms of share of land under coffee, coffee is favored on the larger smallholder farms in the more densely populated areas. (p. 90)

4. While age of the head of household is positively associated with banana production, it is negatively associated with coffee production (p. 92).

5. Coffee sales are related to low off-farm incomes; farmers selling a lot of coffee tend to do less off-farm work. (p. 92)

6. Average coffee sales were Frw 2,684, or roughly 10% of total annual smallholder household cash sales (p. 110), and 11% when net sales are computed (p. 152). Only banana beer and labor accounted for a larger share of cash sales. (p. 110)

7. The coffee and banana cropping/selling zones overlap substantially. (p. 113-4)

8. In the banana zone, coffee sales were more important proportionally in cash income of the poorest households, but the top two income quartiles sold far more kilos of coffee. (p. 118)

9. Farm size does not correlate as strongly with coffee sales as does farm income. (Comparison of p. 118 and p. 122.)

10. Holding other variables constant, increasing the number of people on a farm is statistically significantly related to a decrease in the amount of land in coffee. (p. 130)

11. The poorest farmers are subsistence oriented, selling little banana beer or coffee (p. 133), but coffee makes up 10% of cash farm sales by the poorest farmers. (p. 152)

12. Twelve percent of smallholder households use coffee sales as a third or more of their source of cash income. The proportion is slightly higher among the top two income quartiles. (p. 154)

13. Political insecurity is likely having a disproportionately negative effect on incentives to tend long term crops like coffee. (p. 195)

14. Coffee should be one of the three main focus crops for agricultural research and extension.
(p. 198)

15. Farmers in neighboring countries prefer intercropping coffee with bananas. Intercropping may produce coffee needed for export at lower opportunity cost for the land and lower labor costs. (pp. 200-201) Rwanda prohibited coffee intercropping from colonial times until very recently.

16. High taxes on industrial beer may discourage coffee by making banana beer more valuable, but would be a rather blunt instrument in the promotion of coffee. (p. 205)

17. Information on the extent to which farmers have stopped mulching their coffee and started intercropping, and the number of fields switched to other crops (uprooting coffee trees) would be valuable for the design of coffee policy. (p. 219)

In 1991, there were an estimated 125 million coffee trees in Rwanda, of which 83% were in production (Rwalinda et al.). Minagri's December 1992 report on production trends listed 52,774 hectares in coffee for the 1990 crop year, and yields of 764 kg/ha. Minagri's data on the 2000 agricultural year show 28,314 hectares planted in coffee, for a yield of roughly 497 kg/ha. Price changes over time are consistent with the downward worldwide trends. In 1990, OCIR was paying $0.96/kg and Kangasniemi reported an average farmgate price of $0.69/kg. In 2001, OCIR's price was $0.44/kg and the USAID-supported washing station was paying a premium to attract farmers at $0.66/kg.[1]

SUMMARY AND IMPLICATIONS: Rwanda's coffee sector seems to be at a crossroads. Selected organizations are making strides towards better practice in marketing and processing. Specialty coffee cultivars are available and being distributed. But production, planted area, and yields all appear to be declining along with world prices for **bulk** coffee. The country may soon reach a point where national production falls below quantities needed to maintain its marketing structure. At the same time, if sufficient and consistent quantities of high quality coffee can be obtained and marketed to targeted markets, it may be possible to raise prices to farmers. There is a need to develop a better understanding of the forces driving changes in Rwanda's coffee sector. Several opportunities for improving farm-level information about Rwandan coffee present themselves at this time.

First, MINAGRI/FSRP has an existing farm household data collection infrastructure to which a questionnaire similar to the one on which the Rwanlinda et al. study was based is being added. Second, MINAGRI/FSRP cooperated with

[1] Figures converted to US dollars using parallel market exchange rates of 120 Frw/dollar in 1990 and 455 Frw/dollar in 2001.

MINECOFIN's Enquete Integrale sur les Conditions de Vie Menages (EICV) to coordinate the selection of rural households included in the two sample surveys. As a result, one-third of EICV's households are the same as MINAGRI/FSRP households, and 100% of FSRP households have participated in the EICV survey. As a result, we are able to paint a much more complete picture of income and cropping activities with the year 2000 MINAGRI/FSRP sample than would otherwise be possible. MINECOFIN plans to make the EICV data available within the next few months. The time is thus ripe to better understand cash crop activities in a whole farm context in the postwar/genocide era in Rwanda.

RECOMMENDATIONS:

1. MINAGRI/FSRP Conduct a Supplemental Farm-level Coffee Survey. Suggested timeframe: January. Revise and field the Rwalinda et al. and Tardif-Douglin et al. farm level coffee studies with a single questionnaire to FSRP 2002 agricultural year households. This farm-level information could include comparison with other crops used as a short-term sources of cash; prices required to move farmers from low-quality coffee channels to high quality channels; information about the coffee cultivars currently under crop; attitudes towards inputs. Explore potential for collaboration with OCIR Café and others on the study design and execution.

2. MINAGRI/FSRP Analyse Joint FSRP-EICV Data for Insights on Coffee and Related Food Security Issues. Suggested timeframe: February-April. Collaborate with MINECOFIN to join FSRP and EICV data sets for overlapping households. Replicate key tables from Kangasniemi for coffee and other cash crops to establish a baseline of postwar conditions and more importantly, evaluate farmer response to the liberalization of coffee planting policies.

3. Private and Public Sector Coffee Interest Groups Join Together To Develop a Rwanda Coffee Supply Chain Working Group. Using information from items 1 and 2, develop a synthesis of coffee growing conditions in Rwanda to be used by advisors in discussions with coffee marketing groups, researchers and policy makers. This could be a first step in creating a coffee working group involving donors, policy makers, and representatives of the private sector to develop strategies for the sector in the future. The synthesis of information from this variety of sources could for example be used to develop a strategy for private investment placing processing facilities in areas where there is sufficient volume to merit the activity. The working group could also address issues such as systems for private sector distribution of inputs under privatization, and farmer repayment of input loans when there are multiple buyers of coffee.

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