



AFRICAN COFFEE SECTOR

addressing national investment agendas on a continental scale

Burundi Case Study

Sector study conducted by Agri-Logic and Valued Chain by assignment of
the Global Coffee Platform
Contact: info@agri-logic.nl

INTRODUCING NATIONAL COFFEE INVESTMENT AGENDAS FOR AFRICA



CHALLENGE:

- Currently Africa only supplies 10% of global coffee volumes, while coffee was first discovered in Ethiopia.
- In most African origins, yields are low, quality is inconsistent, and supply chains are inefficient.

OPPORTUNITIES:

- Buyers value certain coffees from Africa for their quality, and there is a potential to increase volumes to meet growing demand.
- Coffee may contribute to sustainable development in Africa's rural areas.

INVESTMENT AGENDAS:

- Greater understanding of challenges and opportunities in mainstreaming sustainable coffee production.
- Insight into required funding, return on investment, and possible public and private contributions.
- Insight into impact of investment based on quantitative research and stakeholder consultation. Benchmarks and analysis are based on 2015 data.
- Full reports available on the GCP website for Angola, Burundi, Cameroon, Côte d'Ivoire, Ethiopia, Kenya, Rwanda, Tanzania and Uganda.



CONTENT OF THIS REPORT

- Executive summary
- Positioning of coffee from origin
- Production areas in origin
- Supply & demand trend and
- Market interest in sustainability
- Value chain structure
- Farm level production systems
- Supply chain efficiency
- Differential competitiveness
- Cost of production
- Current farmer business case
- Production and price effects of investments
- Impact, cost and return per intervention
- Effect on farmer business case
- National sector business case
- Proposed public and private contributions
- Conclusion



INVESTMENT OPPORTUNITIES ANALYSIS

- The following slides describe the required investment (cost) and expected returns (revenue), as well as the expected impact on price, volume, quality and livelihoods.
- Investments are analysed on a sector level: total increased revenue in relation to total additional cost. On a sector level, all of these opportunities present a positive return on investment.
- Cost and benefits may not be attributed to the same actor in the value chain (e.g. government and buyers pay for farmer training, while the farmer gains most of the additional revenue from yield increase).
- Also, specific interventions may not lead to additional value creation, but to a redistribution of value within the chain (e.g. farmer grouping can lead to higher farm gate price, while export price and GDP contribution is not affected).
- Investment contributions are indicative based on stakeholder input. Investments and conditions to be negotiated within national public private platforms taking into account amongst others international competitiveness, governance, transparency and accountability assurance.



INVESTMENT AGENDA FOR THE BURUNDI COFFEE SECTOR – EXECUTIVE SUMMARY

- Since 2001 **coffee supply from Burundi has declined by 6.61% per annum**. Farming systems tend to be diversified with a mix of food crops and coffee. In times of low coffee prices other crops receive more priority.
- Burundi has an estimated 590,000 coffee farmers. **Cost of production at farm level is very low and so is productivity**. Even with additional investment in inputs and rejuvenation, cost of production in Burundi would remain competitive.
- Farm sizes are extremely small, on average 0.5 ha of which 0.12 ha is used for coffee. **The small farm sizes make it nearly impossible for a coffee farming family to surpass the international poverty line, whether by growing coffee or with other products.**
- Historically, the internal market was dominated by state-owned entities called sogestals. Their importance has declined since private sector investment is allowed. **National and international companies now handle around 50% of the exports**. Several of the large exporters are investing in farmer support programmes.
- Burundi has excellent quality potential and current large scale investment in washing stations by the private sector is likely to help realise this potential.

INVESTMENT AGENDA FOR THE BURUNDIAN COFFEE SECTOR – EXECUTIVE SUMMARY



- There is significant potential to increase the coffee sector value in Burundi through selective investment in farmer training, farm rejuvenation and use of inputs. **Over a period of 10 years a cumulative investment of ~43 million USD** (~24.8 million USD in farmer training, 2.5 million in rejuvenation and 16 million in inputs) **can create 144 million USD in additional value** over the same 10 year period at today's coffee and input prices.
- **The share of certified sustainable exports from Burundi is ~25%**, outperforming the continental average by a significant margin. A single company has a license for >3,400 Mt of 4C verified production, we have some doubts about the soundness of the business logic behind this. Our calculations show the Net Present Value for further, or even continued investment in certification to be negative, largely due to small farm sizes and low volumes per farmer.
- **Productivity could increase by 63%** over 7 to 9 years. This requires large-scale investment in a combination of farmer training, rejuvenating 30% of the tree stock and facilitating access to inputs.
- Much of the added value created through such investments flows into the rural economy.
- **Farmers' income can grow by 20%**, but even combined farm income will not provide sufficient income to lift the average farmer household above the poverty line of 1.9 USD/day.



BURUNDI

7

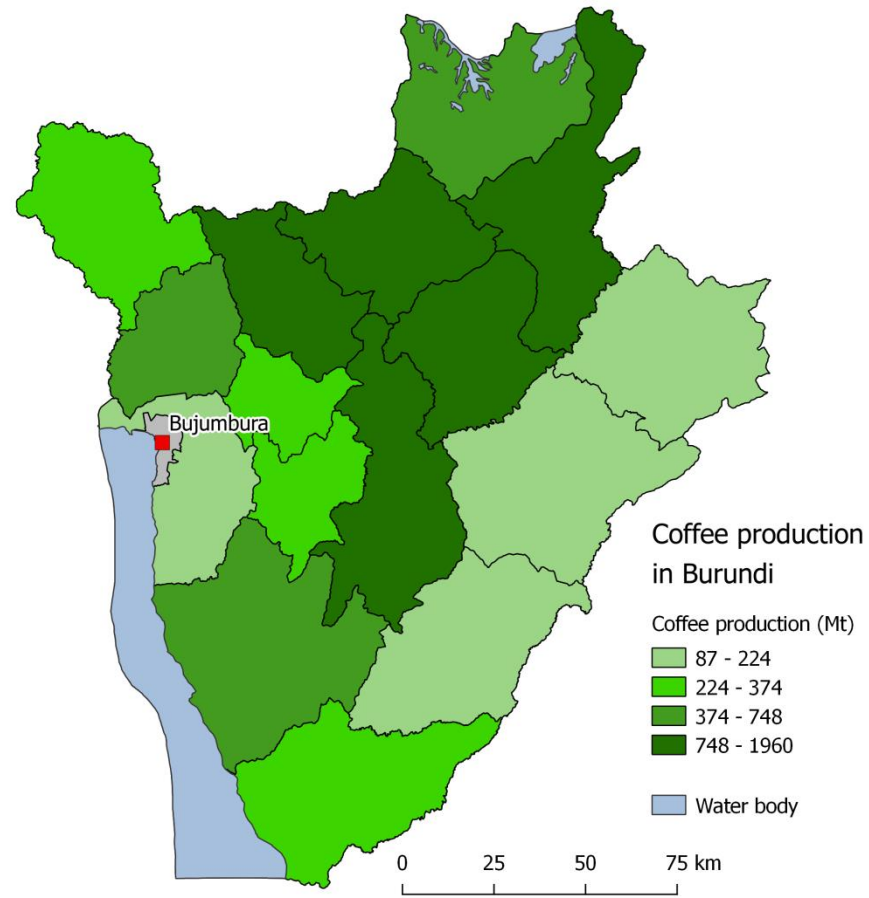
Focus on yields, rejuvenation and input use



POSITIONING OF BURUNDI

Item	Value
Total volume (3 year average)	11,600 Mt
% of global production	0.11%
% Arabica – Robusta	96% – 4%
% natural – semi-washed – fully washed	0% – 25% – 75%
Compound Annual Growth Rate of coffee production (2001-2015)	-6.61%
Main export markets	EU, USA
Market segments	Predominantly mainstream arabica, small but growing entry into specialty segment
GDP	3.09 billion USD
GDP – agriculture	1.10 billion USD
GDP – coffee	0.04 billion USD

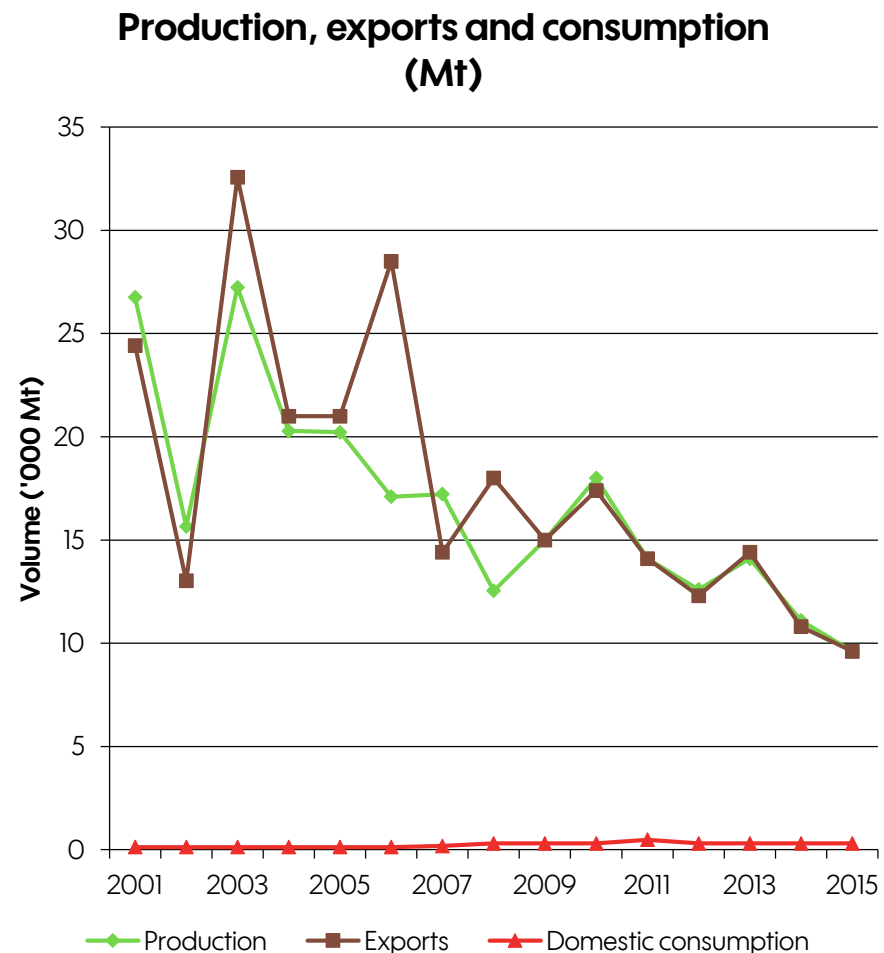
BURUNDI COFFEE PRODUCTION AREAS BY REGION, TYPE AND SUPPLY LEVELS



- Arabica is grown throughout the country with a concentration in Ngozi province and the bordering provinces.
- Average landholdings are estimated at around 0.5 ha, of which 0.12 is used for coffee.
- Population density has almost doubled over the past 35 years to 412 people per square kilometre and farm sizes have declined through successive inheritance.
- Due to high population density there is no scope for expansion of acreage under arabica, unless farmers uproot other crops which is not allowed.

Sources: Census data, interviews, AL and VC analysis

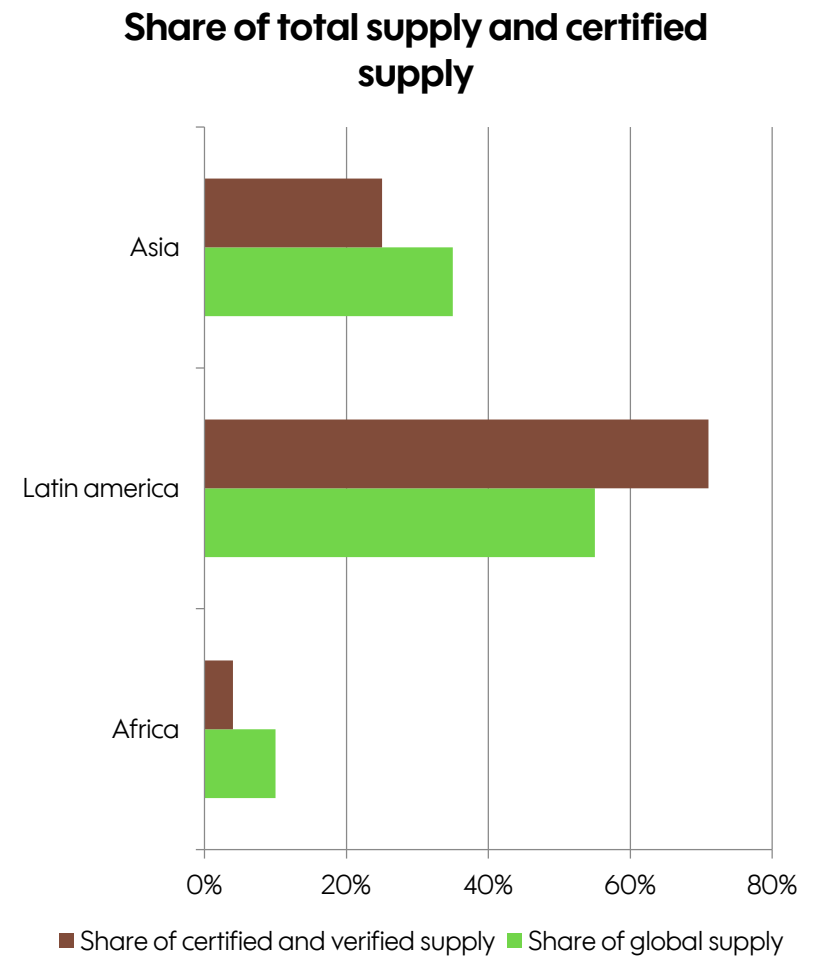
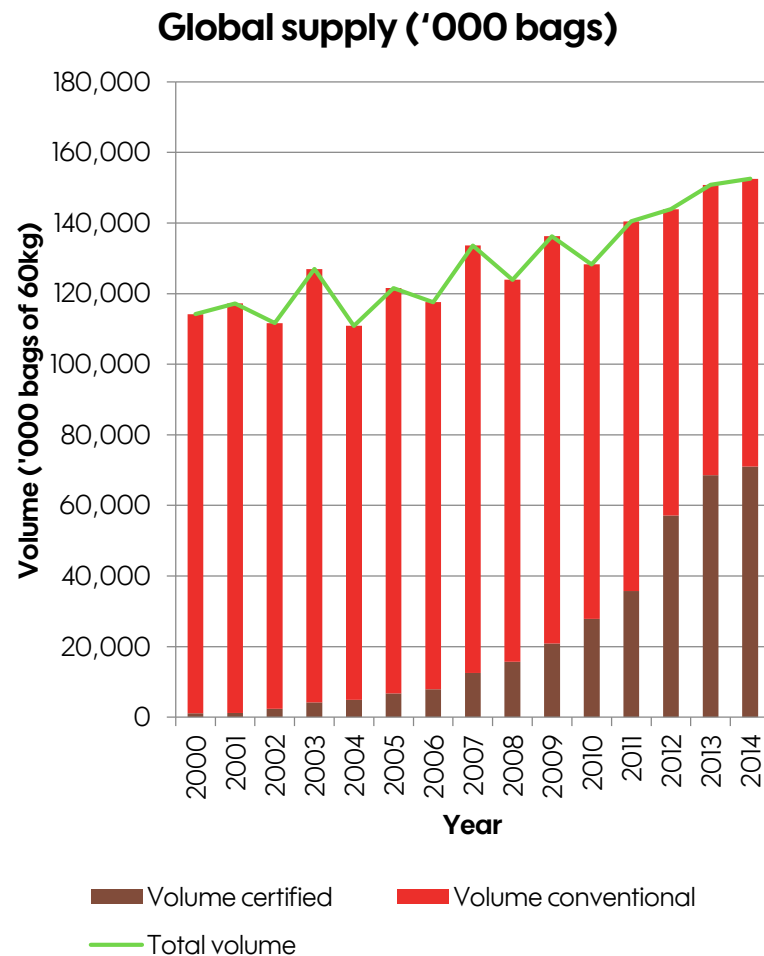
BURUNDI COFFEE VOLUMES CRASHED SINCE THE 2000S AND ARE VOLATILE



- Coffee supply from Burundi has declined significantly over the past 15 years.
- Average annual growth rate for supply was -6.61% over this period.
- Since the end of the civil war in 2006 the export figures track supply more closely, as one would expect in a country with very little domestic consumption.
- Ageing trees, soil degradation and acidic soil conditions are thought to contribute to the decline in supply.

Sources: USDA, interviews, AL and VC analysis

AFRICA LAGGING IN SHARE OF CERTIFIED SUSTAINABLE SUPPLY

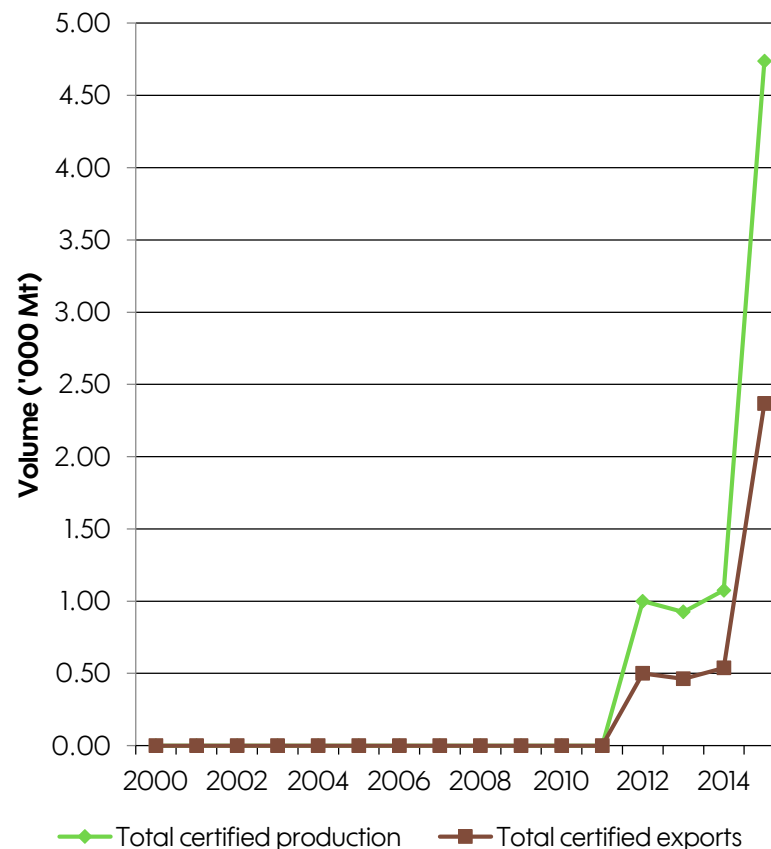


Sources: USDA, CTA, AL and VC analysis

MARKET SHARE OF CERTIFIED COFFEE IN BURUNDI HIGH IN AFRICAN CONTEXT



Supply and demand certified coffee (Mt)



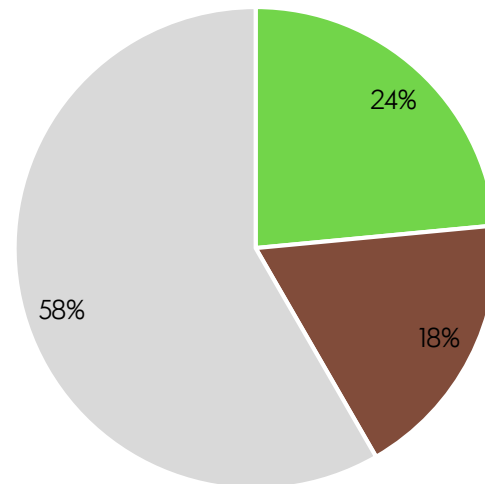
- Certified and verified “sustainable” supply in Burundi is high, around 50% of its coffee is produced under the 4C or UTZ standard.
- Around 55,000 farmers are certified, less than 10% of the estimated coffee farming population.
- Given the limited variance in farm sizes it is unlikely that 10% of the coffee farming population is able to produce 50% of supply, this may imply that supply figures are inflated.
- 4C is by far the dominant standard, accounting for 90% of certified and verified supply. Most of the remaining 10% is UTZ certified.
- Detailed export data on certified coffee is difficult to come by, our estimates are that 50% of the certified supply is sold as certified, which is much higher than the global average of 30%.

Sources: CAS, UTZ annual report 2015, industry interviews, AL and VC analysis

MARKET INTEREST TO INVEST IN THE SECTOR MOSTLY DRIVEN BY SPECIALTY POTENTIAL



Burundi exports (% of total) and market interest to invest in sustainability in destinations



- Export to tier 1 countries with high interest/investment in sustainability
- Export to tier 2 countries with medium interest/investment in sustainability
- Export to tier 3 countries with low/no interest/investment in sustainability

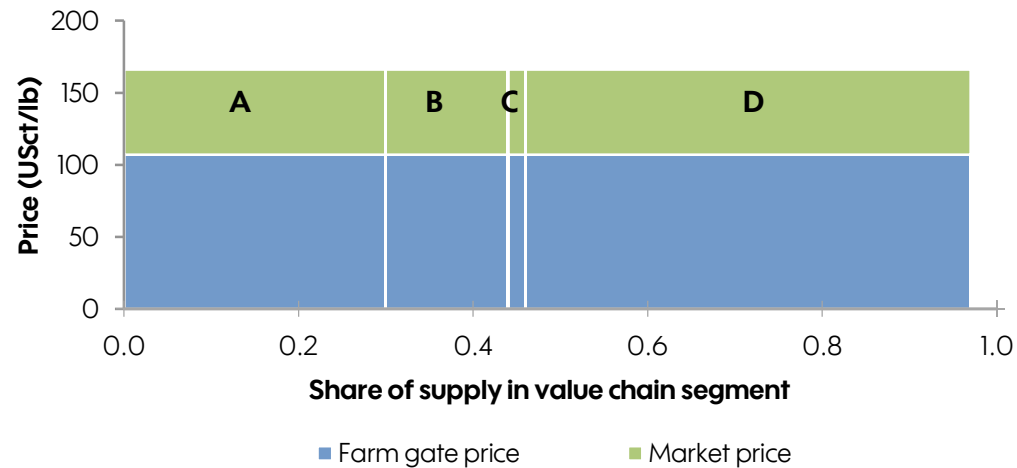
- Tier 1 markets: USA, UK, Switzerland, Germany, Netherlands.
- Tier 2 markets: France, Belgium, Italy, Spain, Scandinavia.
- Tier 3 markets: rest of southern Europe, all others.
- Currently almost all coffee exported from Burundi is shipped to the EU and the USA.
- Burundi's access to the specialty coffee market segment is growing with smaller roasters being keen on its qualities.
- Since liberalisation of the sector several large multi-national companies have invested in washing stations, most of these companies deal also in specialties. We expect Burundi's access to this market segment to grow.

Sources: OEC, , VC and AL analysis

LOCAL MARKET INCREASINGLY DOMINATED BY EXPORTERS, THE ROLE OF SOGESTALS IS DECLINING

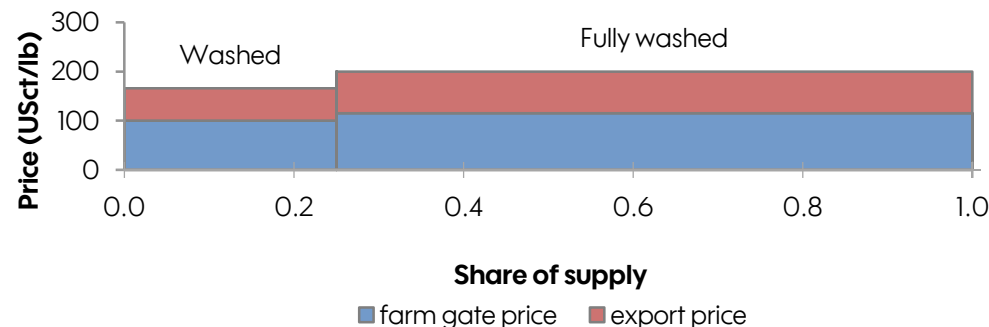


Value chain structure Burundi Arabica 2015



- 4 different market channels characterise the local market.
- Cooperatives tend to export via the so-called sogestals (**A**), these are companies in which the government has a significant share. These organisation used to do >60% of supply but their dominance has declined since liberalisation.
- Direct exports by cooperatives (**C**) are limited, amounting to around 2% of supply.
- Cooperatives sell about a third of their supply to private exporters (**B**).
- The bulk of the exports (51%) is in the hands of private exporters (**D**).
- The government sets a minimum price to be paid to farmers, interviews indicate that farm gate price differentiation is limited.
- We have insufficient data to asses price differentials across the different market channels, but the lower graph shows a modelled expectation of the washed/fully washed differential

Washed & Fully-washed prices

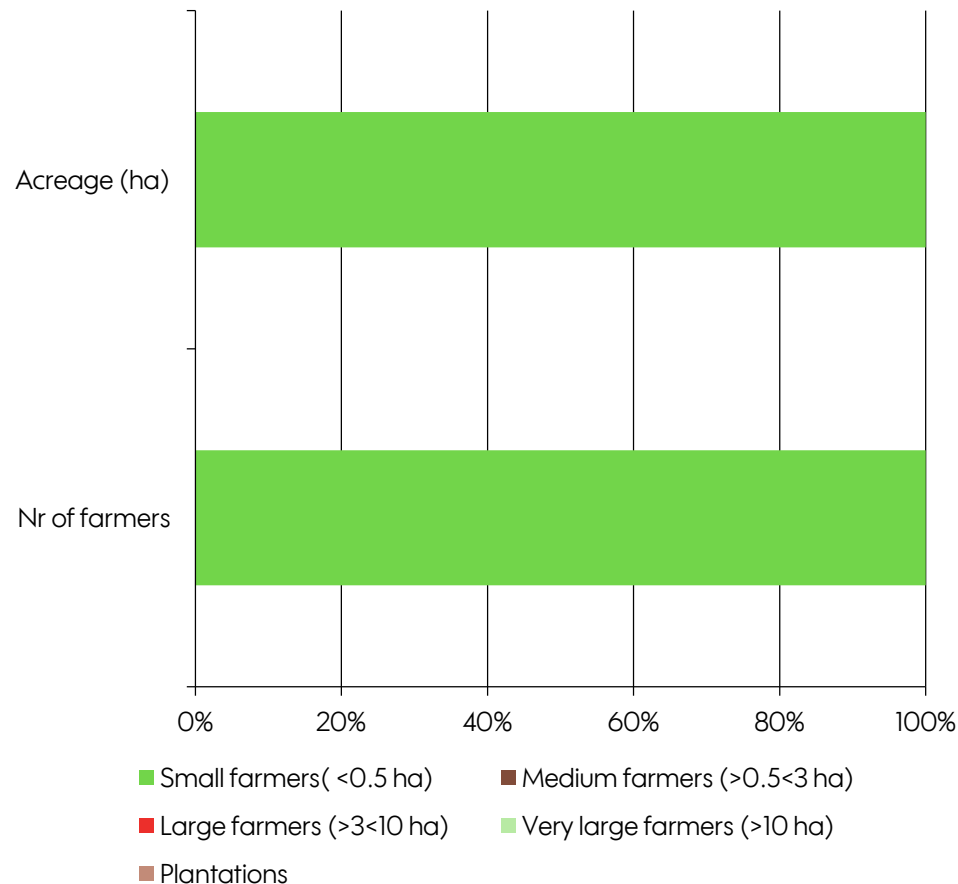


Sources: , interviews, AL and VC analysis

SECTOR CONSISTS PREDOMINANTLY OF SMALL-SIZED FARMS OF LESS THAN 0.5 HA



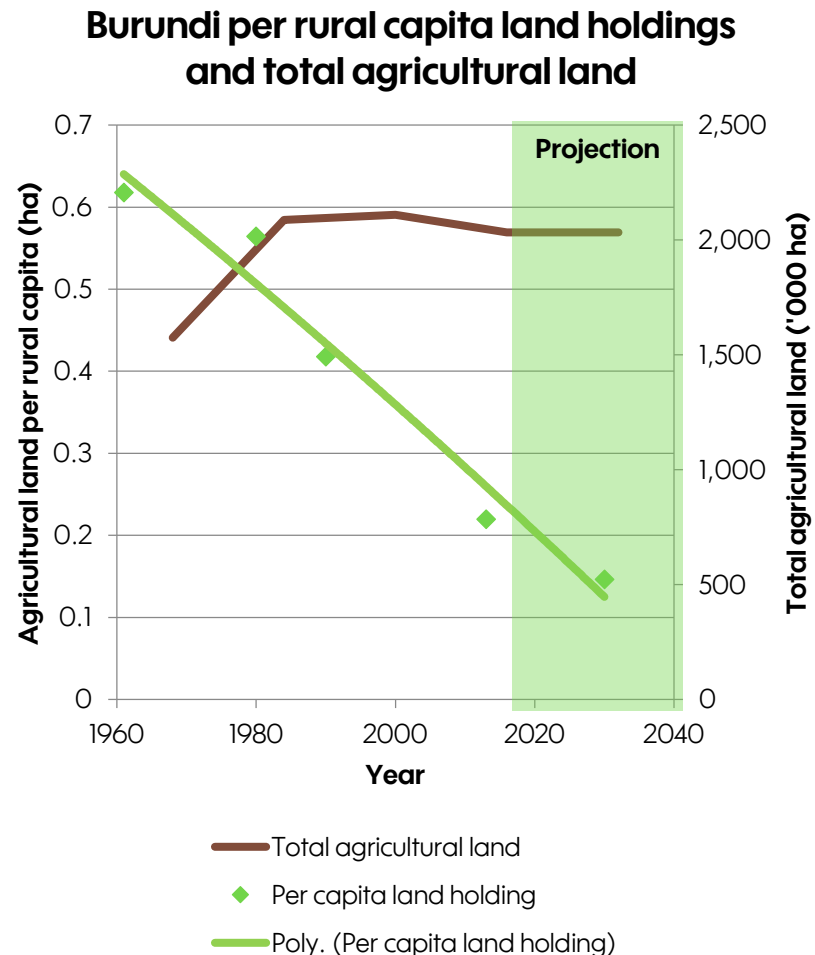
Nr of farmers and acreage distribution



- Average coffee farm size: 0.12 ha.
- Acreage and farmer numbers vary widely between sources.
- Our assumption is 590,000 farmers and 70,000 ha.
- Land shortages are prevalent, farm sizes per household have come down significantly as plots are split between siblings when inherited.
- Small-scale farmers make up the entire production base of the sector.
- According to several sources no large scale plantations are operational in the country

Sources: PSD, FAO, interviews, AL and VC analysis

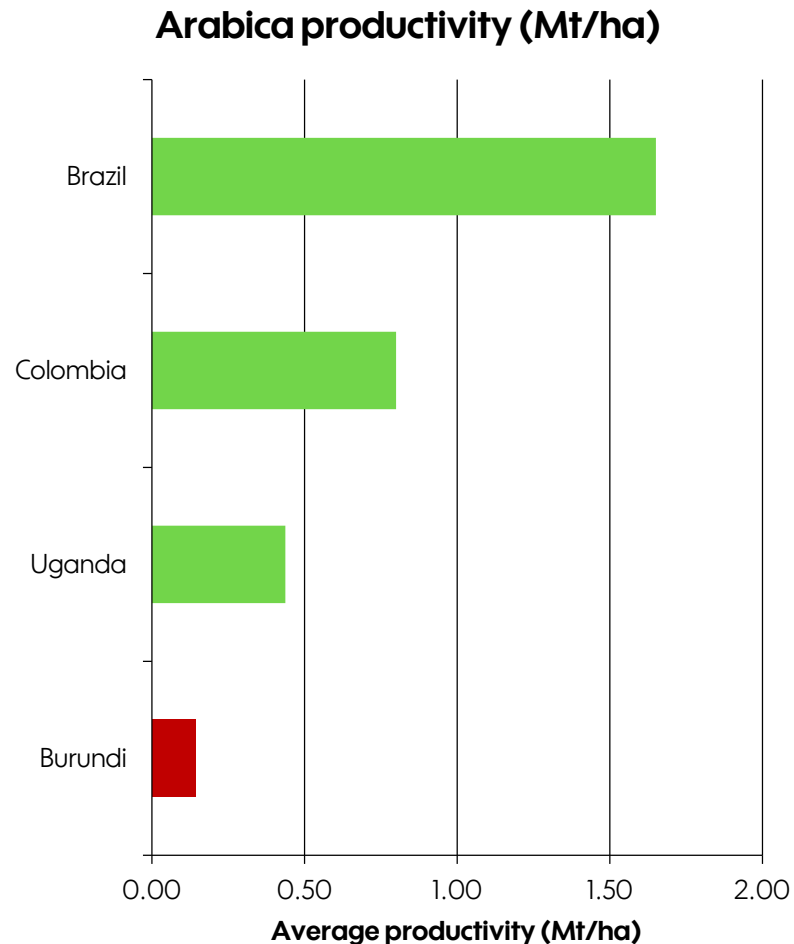
AVERAGE LAND HOLDING PER RURAL CAPITA HAS DECLINED AND IS EXPECTED TO CONTINUE DOING SO



- With strong population growth (3.3% in 2014), a high population density, and 90% of the population living in rural areas, per capita land holdings are under pressure.
- By 2030 the population of Burundi is forecast to surpass 17 million, even under the assumption that by then 80% of the population lives in rural areas, per capita land holdings would drop below 0.15 ha.
- Total agricultural land is unlikely to increase, just 4.6% of the country remains forested, often in areas that are sub-optimal for agriculture.
- Assuming stable land allocation across different crops, coffee farm sizes would fall to 0.036 ha per farm by 2030.

Sources: FAO, Worldbank, interviews, AL and VC analysis

CURRENT PRODUCTIVITY LEVELS ARE AMONG THE LOWEST OBSERVED



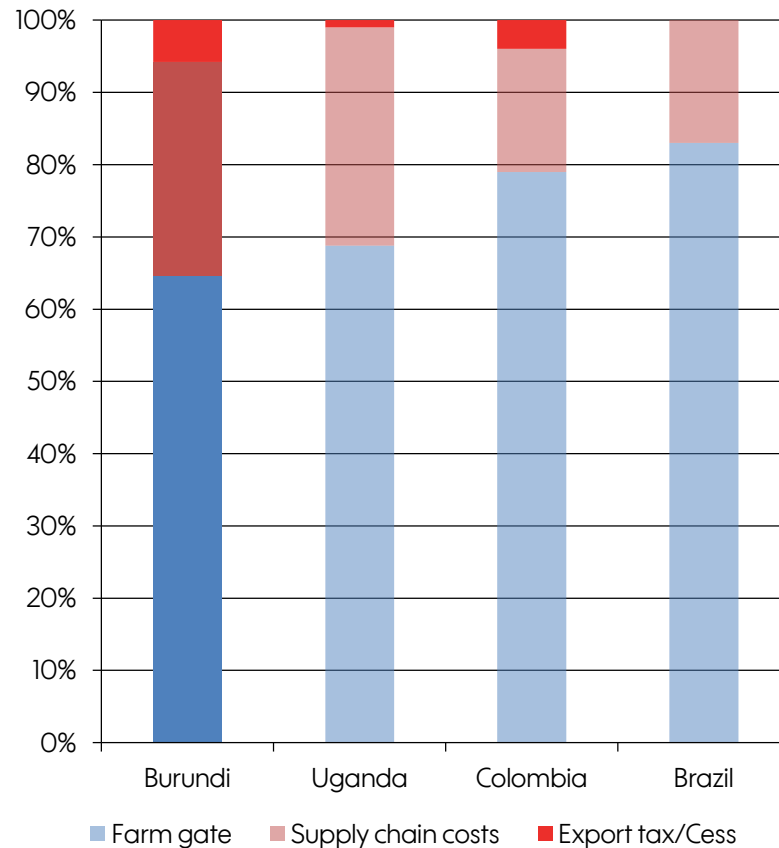
- Productivity of arabica is 140 kg green coffee per ha.
- The Burundi productivity level is among the lowest observed. Soil degradation and very limited use of inputs is often cited.
- Fertiliser input in coffee on average amounts to 2.3 kg per farm.
- Much of the tree population is over 30 years old. Many farms are planted with traditional varieties such as Bourbon. This helps entry into the specialty market, which highly values these coffees.
- If farmers had access to inputs, then modern hybrids would give much higher yields. Quality differentials would undoubtedly suffer, but we suspect overall farm income would increase.

Sources: USDA, FAO, interviews, AL and VC analysis

TAXATION IS RELATIVELY HIGH AND SUPPLY CHAIN EFFICIENCY COULD BE IMPROVED



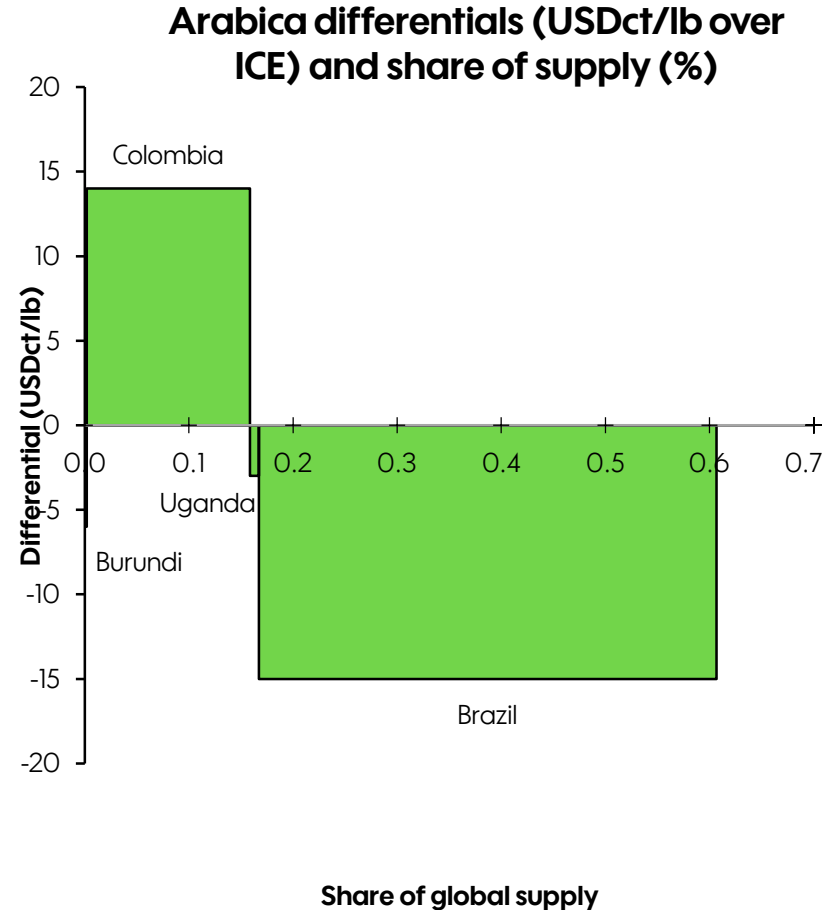
Value distribution Arabica (% of FOB price)



- Burundi exports are seeing higher export tax levels than neighbouring Rwanda and Uganda. Export tax (or cess) is used to finance several sector institutions and amounts to 5.99%.
- On average farmers receive 65% of the FOB value. Prior to liberalisation this share was much lower, sometimes down to 40%.
- There is a significant supply chain efficiency gap with other origins. Partly this is unavoidable as logistical costs are high because of transport to the port of Mombassa.

Sources: Interviews, TNS, AL and VC analysis

DIFFERENTIAL COULD IMPROVE IF QUALITY AND CONSISTENCY OF QUALITY ARE ADDRESSED



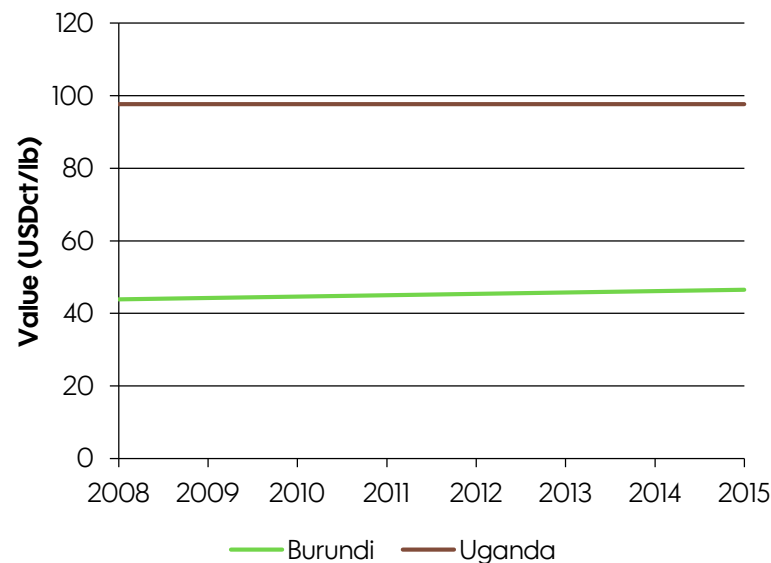
- Differential for Burundi ordinary grade is around -6 USct/lb. There is very significant potential to increase differentials as quality or consistency of quality improves.
- Exports of the better grades from Tanzania (AB South), Kenya (AB FAQ) and Ethiopia (Washed Sidamo) achieve differentials of around 10, 90 and 100 USct/lb respectively.
- Neighbouring Rwanda (not shown here) achieves a similar differential for the ordinary grade, but its share of exports into the specialty market is larger, resulting in better weighted differential.

Sources: Olam, ARFIC, USDA, AL and VC analysis

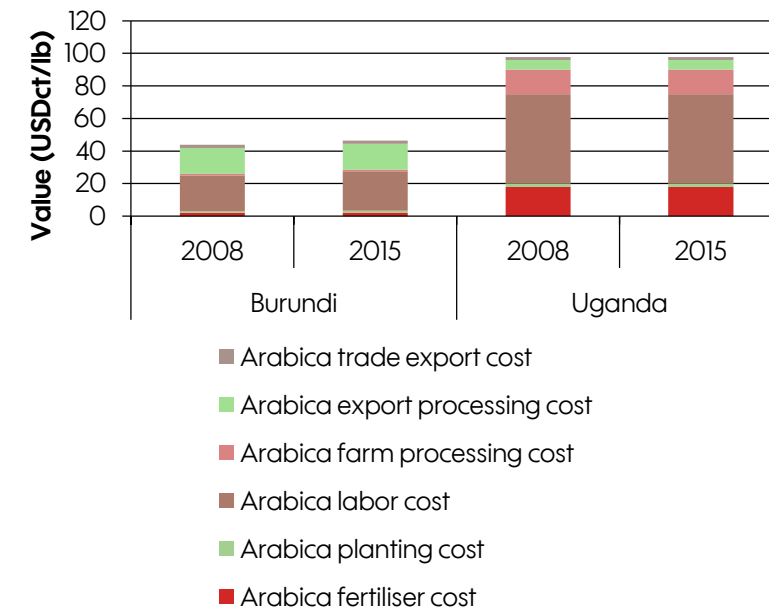
COST OF PRODUCTION IS VERY LOW AND HAMPERS GROWTH POTENTIAL



Arabica cost of production (USDct/lb, ex household labour)



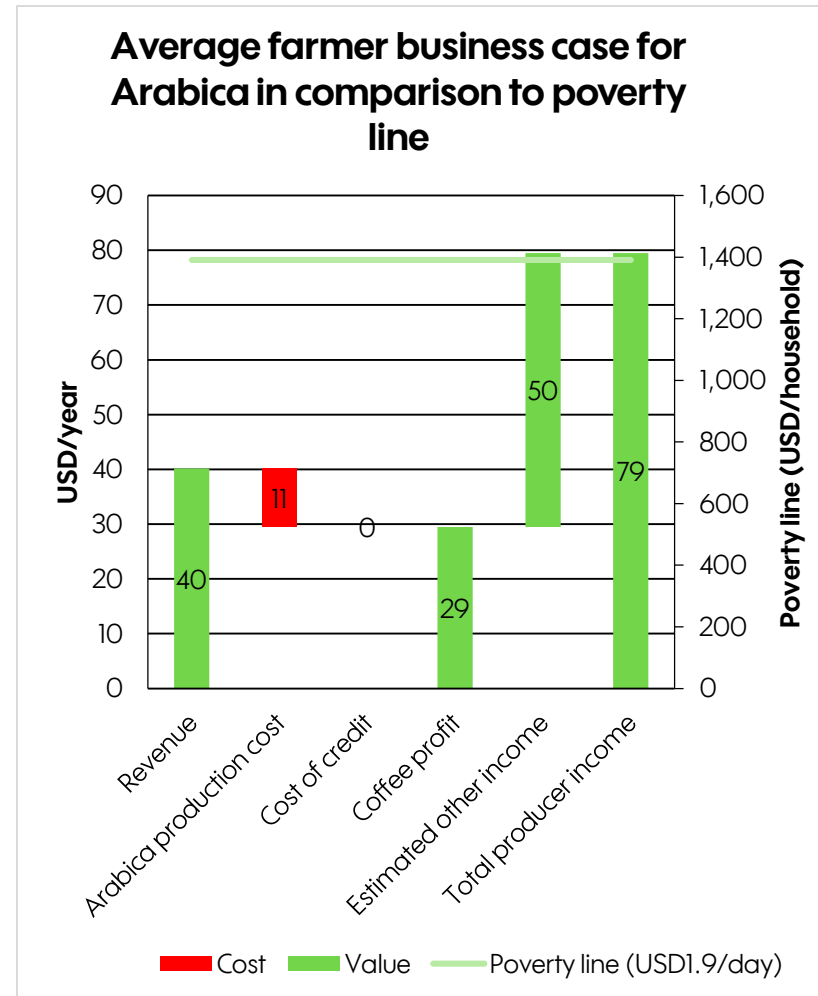
Arabica cost breakdown (USDct/lb)



- Labour and processing cost (including primary processing) make up the bulk of the cost structure. Despite having a supply chain that could operate more efficiently, low farm level cost still result in competitive production costs.
- At the same time the low investment level on the farms limits growth potential of supply.

Sources: Interviews, JDE, 4C, TNS, AL and VC analysis

COFFEE FARMERS HAVE SIGNIFICANT OTHER INCOME SOURCES BUT ARE EXTREMELY POOR



- In times of low prices farmers tend to neglect their coffee farms. Outright replacement of coffee with other crops is prohibited and acreage under coffee appears to be stable as a result.
- Many farmers have just a few scattered trees, it is unclear how many farmers are relying on coffee for the majority of their income.
- At current productivity levels per farmer other opportunities may be more attractive (bananas, vegetables, livestock), but we expect liberalisation and increasing access to the specialty market to have a positive effect on coffee supply and farmers' income from coffee.
- We assume income from other sources to amount to around 50 USD/household/year on average. We do not know the value of home consumption of other crops grown by farmers.
- Under these assumptions and with an average family-size of 5.4 people per household, total income is 17.5 times lower than the poverty line.

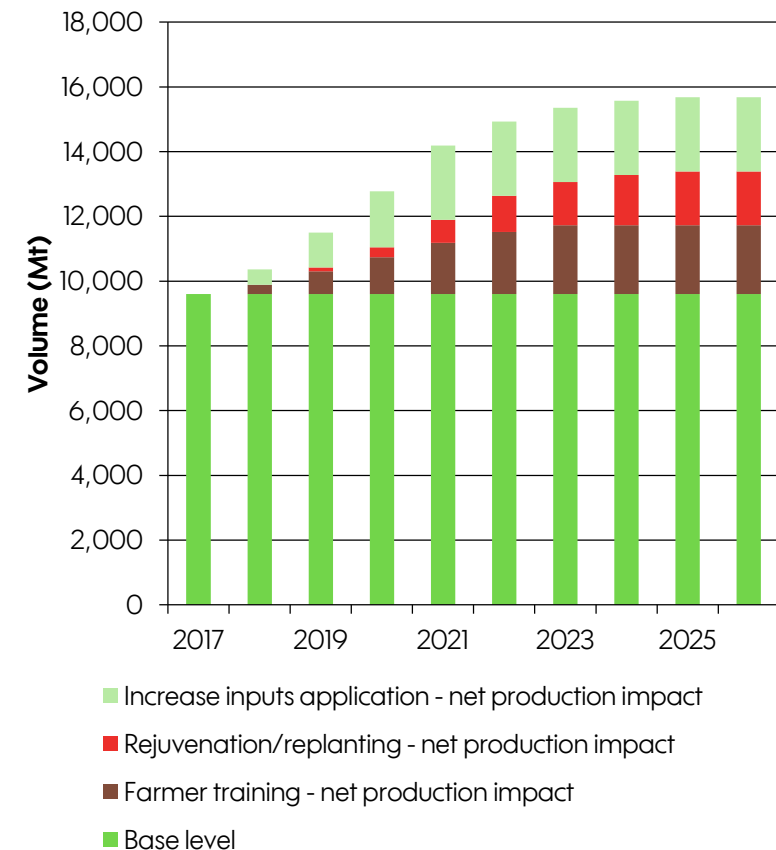
Sources: Interviews, USDA, AL and VC analysis

MODELLING INVESTMENT OPPORTUNITIES – PRODUCTION EFFECTS



- Modelling 3 opportunities:
 - Farmer training
 - Rejuvenation/replanting
 - Increasing input application
- In combination, these interventions could increase average production per farmer (and per ha) by 70%.
- This would bring national production to almost 16,000 Mt by 2024.
- We have not included certification and quality improvement because both of these are already being targeted with significant investment from the private sector. Additional investment on top of what is already being done is expected to be of limited use.

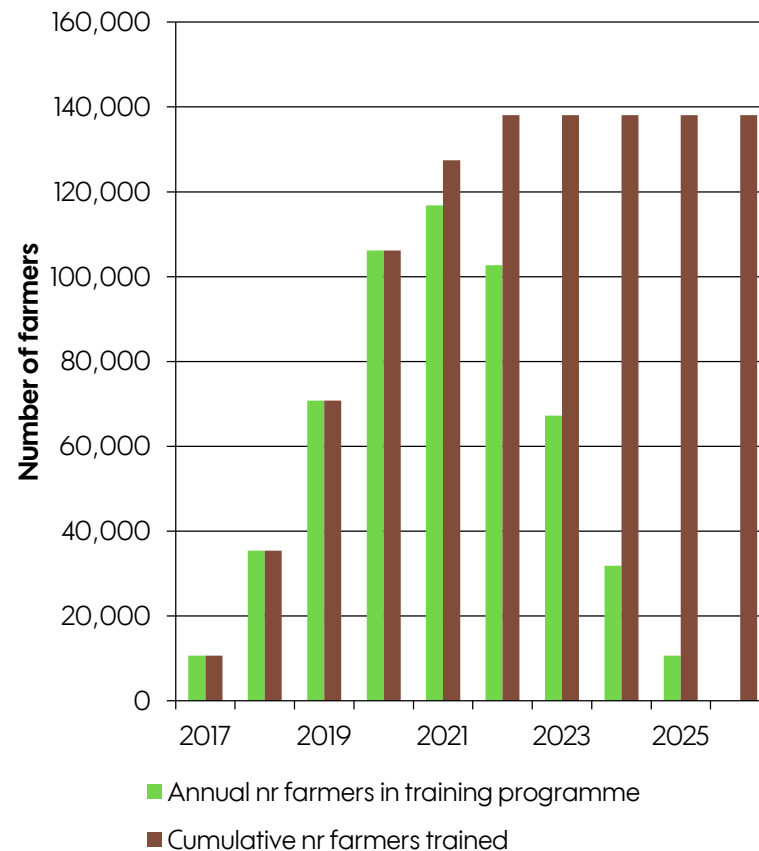
Production effect of investment opportunities



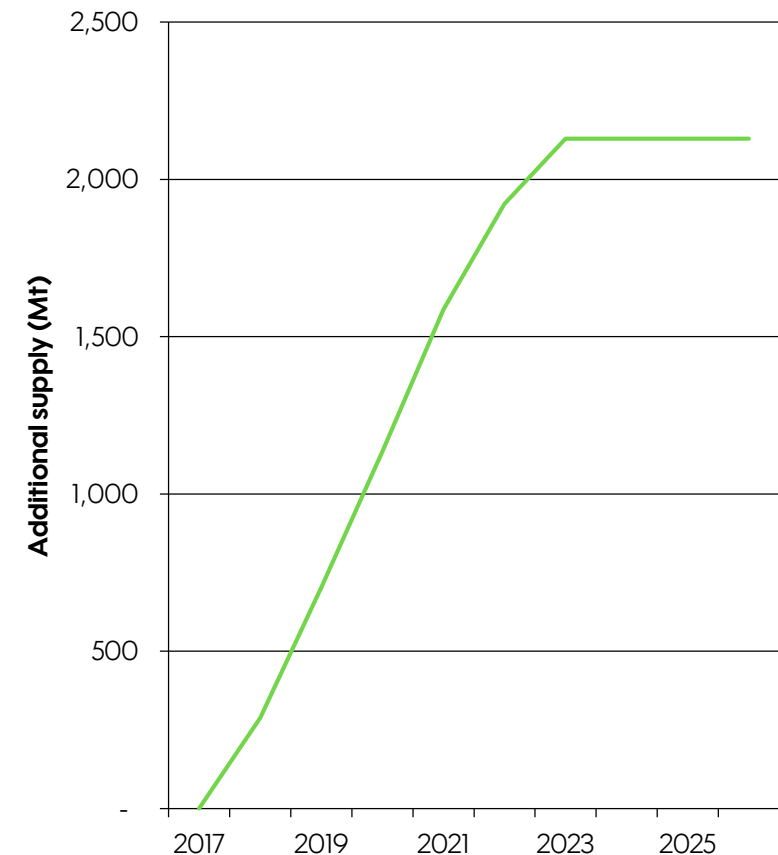
FARMER TRAINING INVESTMENT CAN GROW CURRENT SUPPLY BY 22%



Number of farmers enrolled in training program



Additional supply from farmer training programme (Mt)



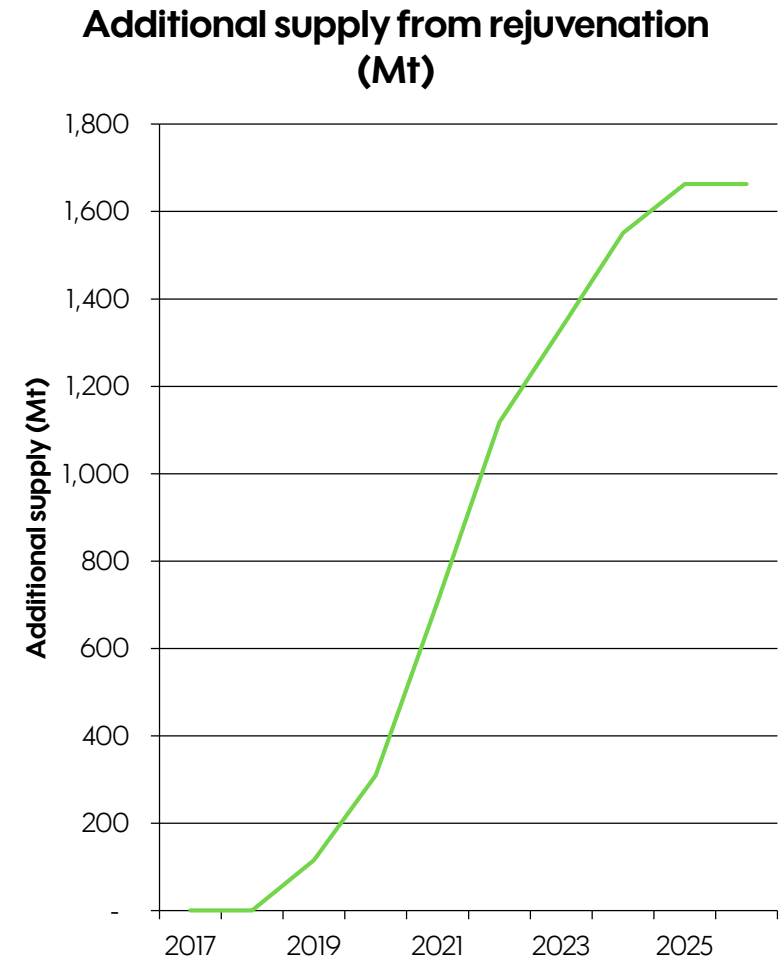
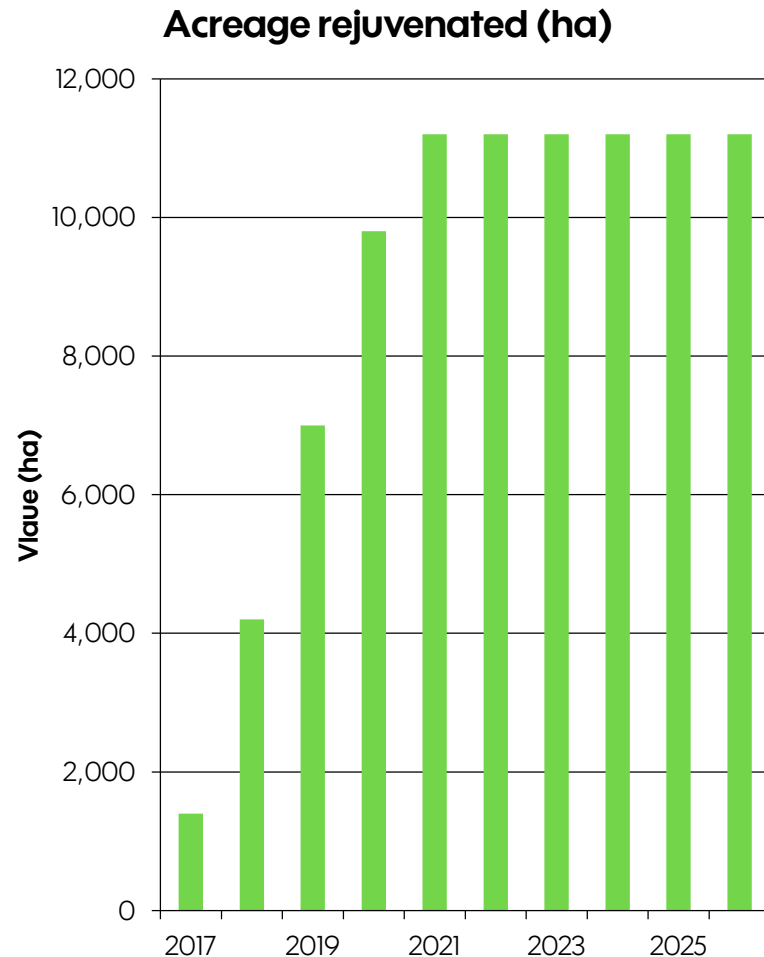
FARMER TRAINING OFFERS LIMITED RETURNS ON INVESTMENT



- For training on Good Agricultural Practices to be effective it needs to be participatory, intensive and should run for at least 4 years.
- Against this background and based on interviews with current investors in the sector, we budget 45 USD/farmer/year in training costs.
- We expect this programme to reach 23%, or roughly the upper quartile of farmers that are most motivated and able to invest in their coffee production.
- Despite heavy selection, we expect the effect of this intervention to be more limited than in neighbouring countries. The dire poverty that coffee farmers are in is expected to limit their risk appetite to try new farm management techniques or make the required investments.
- A number of large scale programmes recently started or are about to start (World Bank, Sucafina and Olam with USAID) and will reach large numbers of farmers.

Indicator	Value (10 years)
Cumulative nr of farmers reached	138,048
Additional volume coffee per annum in steady state (Mt)	2,130
Total investment	\$ 24,848,694
Total return	\$ 51,550,909
NPV (10%)	\$ 11,330,541
NPV (20%)	\$ 5,014,058
Investment per farmer	\$ 180

REJUVENATION INVESTMENT TAKES A WHILE TO SHOW EFFECTS...



...BUT RETURN ON INVESTMENT IS POSITIVE



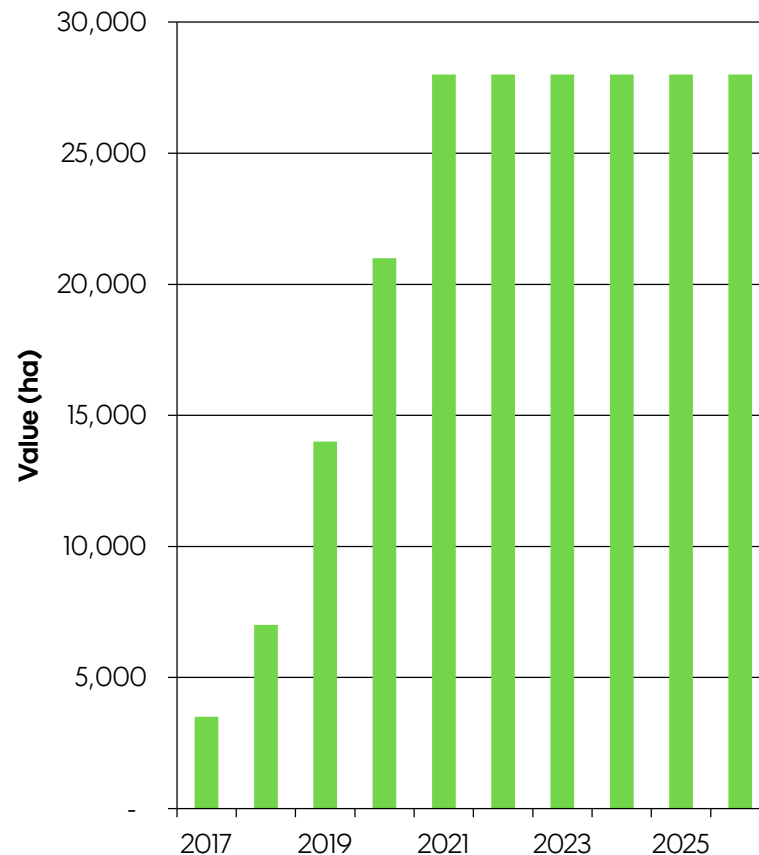
- A large share of the coffee tree population in Burundi is over 30 years old.
- Most of the trees are of the Bourbon variety or derived from it. The advantage is a potentially great quality, the drawback is lower productivity and greater susceptibility to diseases such as Coffee Berry Disease and Leaf Rust.
- Careful consideration in variety selection should be given to cup profile and disease resistance. Ideally buyers of Burundi coffee are consulted on desirable cup profiles of modern disease resistant varieties during the selection process.
- We assume that a 30% replanting rate is required and that around 70% of the farmers that receive training are able to replant. This would result in 16% (or 11,200 ha) of the acreage being replanted.
- As labour is relatively cheap, investment in replanting amounts to 225 USD/ha all-in.

Indicator	Value (10 years)
Cumulative acreage replanted (ha)	11,200
Additional volume coffee per annum in steady state (Mt)	1,663
Total investment	\$ 2,500,000
Total return	\$ 30,797,984
NPV (10%)	\$ 13,267,965
NPV (20%)	\$ 6,742,180
Investment per ha	\$ 225

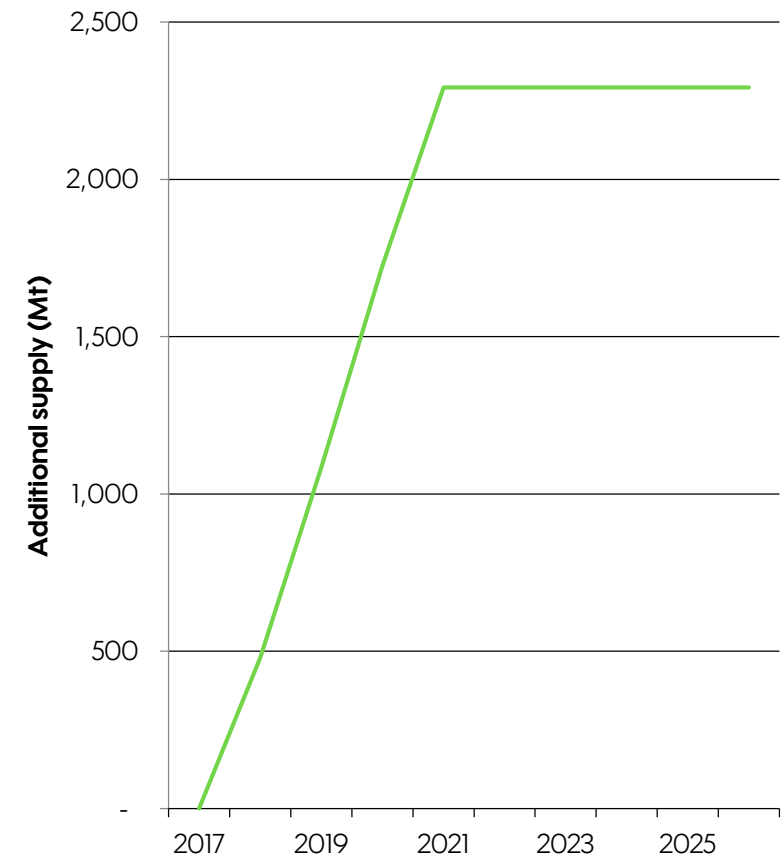
INPUT SUPPLY INVESTMENT CAN HAVE A WIDE REACH



Acreage with enhanced input use (ha)



Additional supply from input use (Mt)



INPUT USE STILL LOW, BUT COULD GROW AS FARMERS' EQUITY INCREASES



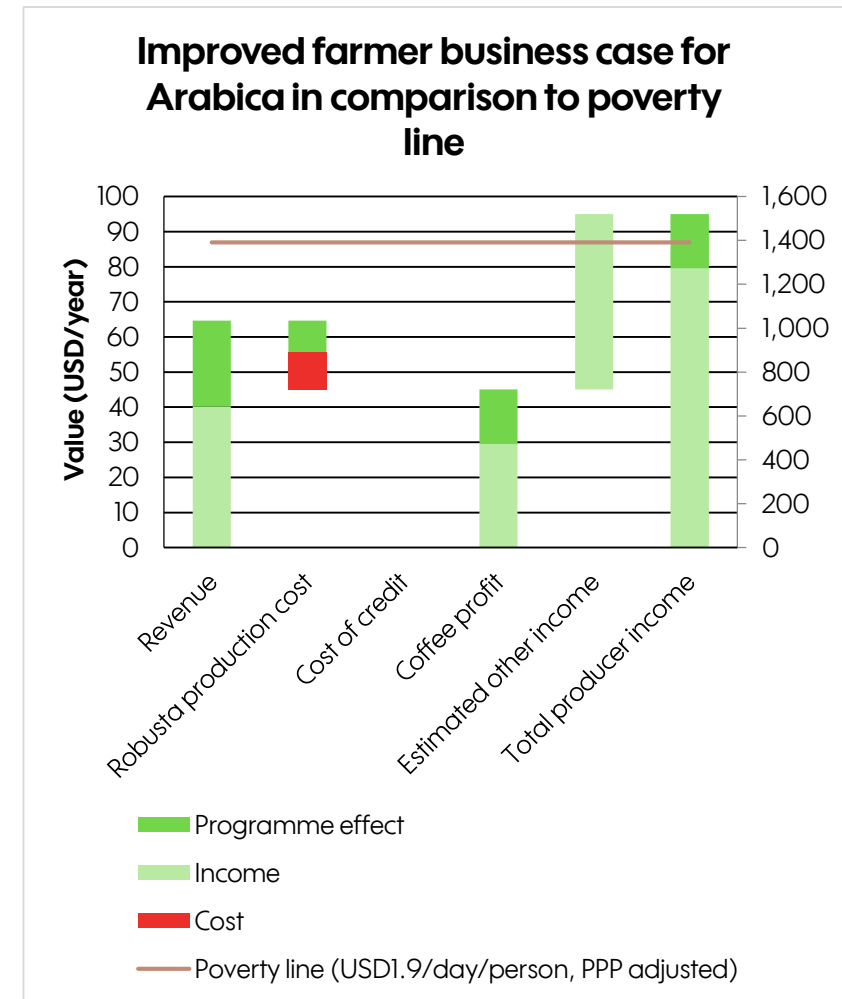
- Small-scale farmers tend to be risk averse as one failed crop is enough to undermine their living conditions.
- Fertiliser investment can be risky, but farmers would have to finance 20%-30% from equity.
- Limited extra use of inputs can be promoted to match risk appetite of farmers and generate additional production.
- With 75 USD/ha/year investment the current investment in fertiliser per ha would be doubled.
- Only farmers that are part of the training programme should make use of the additional input supply investment to ensure optimal use.
- Acidic soils mean that adequate regional soil testing is required to arrive at sound economically viable fertiliser recommendations.
- Experience from several coffee projects in Uganda shows that 20-30% of fertiliser made available for coffee will be used on food crops, limiting its impact on coffee.

Indicator	Value (10 years)
Acreage using additional inputs in steady state (ha)	28,000
Additional volume coffee per annum in steady state (Mt)	2,292
Total investment	\$ 16,012,500
Total return	\$ 62,064,144
NPV (10%)	\$ 24,750,432
NPV (20%)	\$ 14,598,506
Investment per ha per year	\$ 75

POSITIVE BUT LIMITED IMPACT ON FARMERS; OTHER INCOME NEEDED



- The 3 investment opportunities have a limited impact on farmer livelihoods, improving annual household income by 20% to 95 USD.
- This falls way short of a sufficient income for a full farming family in relation to the poverty line (value of home consumption of other crops not factored in).
- Given the extremely small average farm size it is unlikely that these investments have a chance of lifting farmers out of poverty.
- Pressure on land is already significant and likely to increase as the population grows and farm sizes become smaller still through successive inheritance.

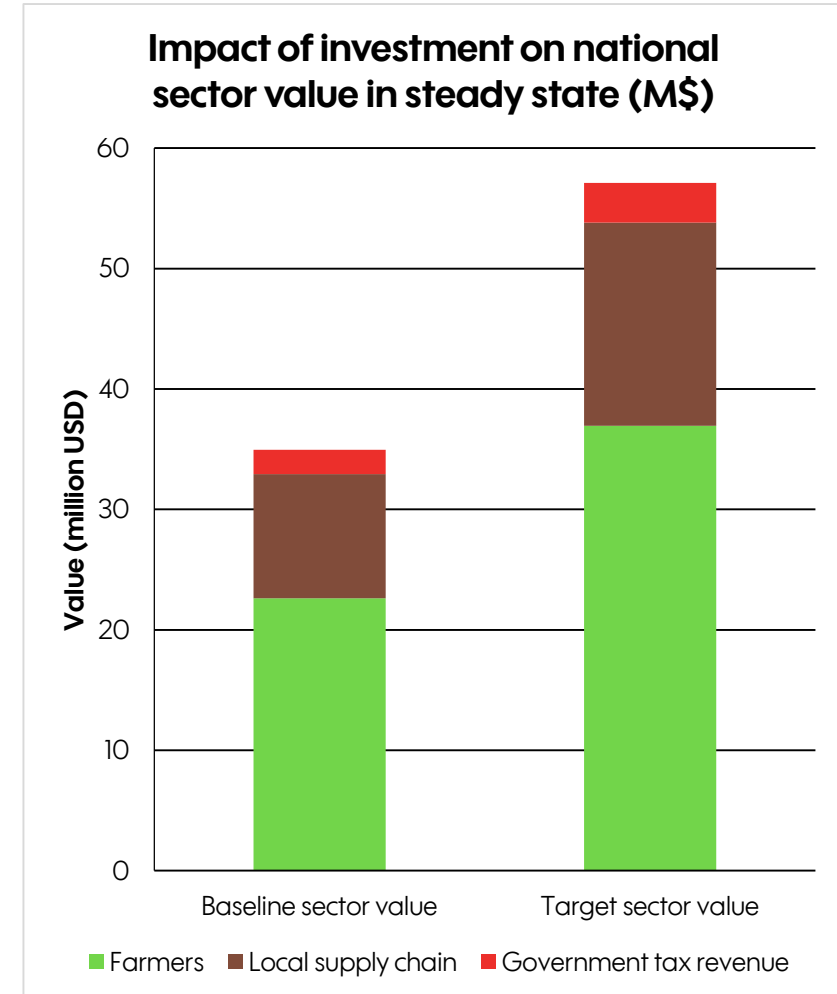


NATIONAL BUSINESS CASE: SIGNIFICANT INCREASE IN SECTOR VALUE FOR ALL



Summary	USD over 10 years
Total investment	43,381,194
Total return	\$ 144,413,036
NPV (10%)	\$ 49,348,938
NPV (20%)	\$ 26,354,744

- Investment in coffee can significantly increase the sector value for all actors in the value chain. The majority of value flows into the rural economy, but effect on individual farming households is limited due to small farm sizes.
- As productivity improves, local supply chains benefit, primarily from additional supply.
- Export tax (cess) could be reduced to 1.5% after 9 years to improve competitiveness and reduce incidence of smuggling.

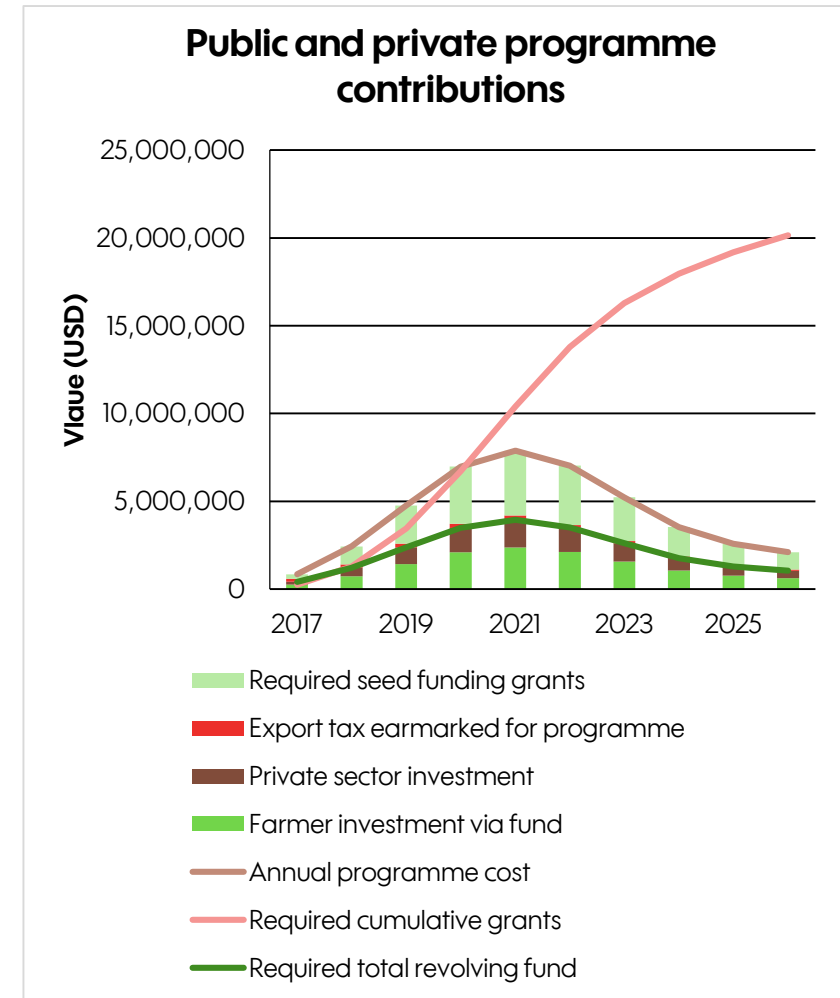


INVESTMENT SHARED BY NATIONAL GOVERNMENT, PRIVATE SECTOR, GRANTS



- Assuming that 30% of export tax (cess) is invested in the programme, significant external funding remains required.
- Private sector investment by farmers (mainly inputs) and buyers/traders (training, processing), financed from ACF revolving fund and/or commercial funds. ACF conditions need to be competitive compared to current financing.
- Current initiatives in the sector (e.g. the 75 million USD World Bank programme) could perhaps be used to help mobilise private sector investment.

Summary	Value
ACF revolving fund size	\$ 3,940,727
Required grant funding	\$ 20,156,492
Required grant funding %	46%
Required national budget (% of export tax invested)	30%



Contributions are indicative based on stakeholder input. Investments and conditions to be negotiated within national public private platforms taking into account amongst others international competitiveness, governance, transparency and accountability assurance.



CONCLUSIONS

- The coffee sector in Burundi is tiny by international standards, but of considerable importance nationally. It contributes around 60% of the national export earnings and contributes to the livelihoods of over half a million households.
- There is significant potential to increase coffee sector value in Burundi through selective investment in farmer training, farm rejuvenation and use of inputs. Productivity can increase by 63% from 0.14 Mt/ha to 0.22 Mt/ha. The increased value largely flows into rural economy, but its effect on household income is limited due to small farm sizes.
- Coffee alone will not provide sufficient income for a full farmer household, under current conditions it appears unlikely that the gap to the poverty line can be filled with agricultural activities. It is unlikely that farmers will be lifted out of poverty in the short- to mid-term, despite investments.
- Total programme investment amounts to an estimated 43 million USD over 10 years that would generate a return across the sector of 144 million USD at current prices.



Sources

Global Coffee Platform, Sucafina, Olam, Café Africa, Lavazza, ARFIC

Data

US Department of Agriculture, Food and Agriculture Organisation, International Coffee Organisation, USAID, 4C Association, UTZ Certified, Agri-Logic

About the Global Coffee Platform

The GCP is a collaboration between the 4C Association and the Sustainable Coffee Program of IDH – The Sustainable Trade Initiative. The Global Coffee Platform is an inclusive multi-stakeholder sustainability platform aligning the activities of a diverse network of stakeholders to set into action the global commitments made through Vision 2020 and create a thriving and sustainable coffee sector.

About Agri-Logic

Agri-Logic – management, consultancy and research – operates where agricultural production, development, international trade and consumer markets intersect. We combine a thorough understanding of farm level reality and commodity trade with scientific research skills and a track record in sustainability strategy design and implementation, to help clients deal with sustainability challenges and market requirements.

About Valued Chain

Valued Chain is an independent consultancy. We support organizations in understanding their value chain and stakeholders, identification and mitigation of risks, and realization of opportunities. We believe in integrating commercial objectives with sustainability of the business and its stakeholders. Working from Amsterdam and Lagos, we connect Europe and Africa.