



THE PEOPLE'S BANK
Banki yacu, Hafi yacu.

From	Agri Knowledge Centre
To	EMT Members, Agri Commercial Officers (ACO's)
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1. Summary – Quick Guide Tea Sector

The tea sector is the main agribusiness export sector of Rwanda and therefore very significant for the Rwandan economy. This sector is however very particular, because it is one of the very few agribusiness sectors where the plantation or tea gardens have no value without the processing capacity of a factory. The tea sector must therefore be considered in its integrity from tea garden to factory.

Value chain:

- Tea production in Rwanda is about 22,000 MT on about 19,000 hectares. Production of tea plantations are 6 to 15MT/ha of tea leaves, corresponding to 2,25 to 6MT/ha of made tea.
- Only a very small fraction of the made tea is sold in the domestic market, the vast majority being exported through the Mombasa auction market. At the moment of writing this report (July 2012) prices on Mombasa auction were about USD 2.5/kg (RWF 1,500/kg). For current prices please refer to commodity data spreadsheet.
- Production cost of fresh tea leaves RWF 35-50/kg (depending on use of fertiliser and yields). Fertilisers are most important input cost with about RWF 240,000/ha for mineral fertiliser and up to RWF 600,000/ha for organic fertilisers.
- The price of tea leaves is set by the government on an annual basis after consultation with key stake holders (i.e. farmers cooperatives, tea factories and government officials). At the moment of writing this report (July 2012), a discussion was (still) going on about linking the price of tea leaves to the prices on the Mombasa exchange.
- Fresh tea leaves are harvested all year round, there is no significant seasonality, especially for tea gardens established in marshlands.
- Fresh tea leaves can be processed in a variety of made teas including CTC, Green tea, orthodox tea and organic tea of different strengths.
- Rwanda tea has a reputation for good quality and some factories are gradually developing direct clients for their teas. Current prices for Rwandan teas in Mombasa are about USD 2.5/kg and have been steadily increasing over the past years.

While tea provides farmers with a continuous cash flow through the year, the profitability of tea production is very modest.

Main risks:

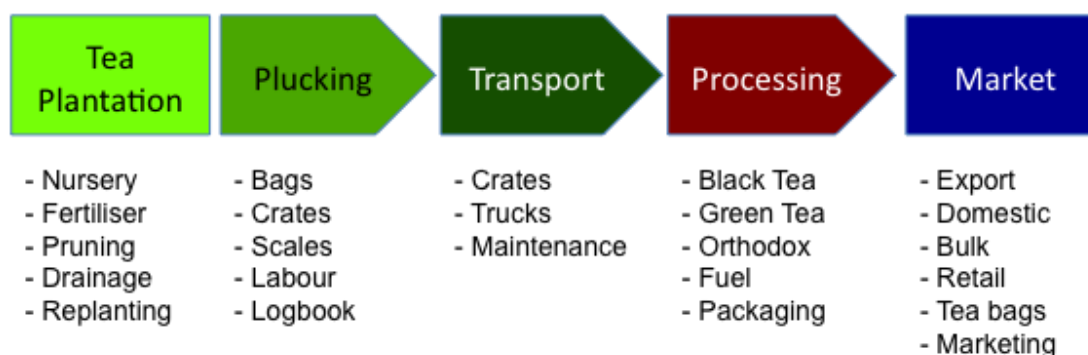
- Capacity and ability of factory to process all fresh tea leaves
- Access to markets (Rwanda is landlocked and product must transit through neighbouring lands to ports)
- Uncertainty of market demand and price at time of delivery in Mombasa
- Yields of some tea gardens insufficient to cover full costs of inputs

Most of the above risks can be mitigated through adequate factory audit, conservative estimates of market prices, track record analysis and tea garden assessment.

Financing opportunities:

- Pre-harvest (input) finance opportunities are mainly for fertilisers.
Requires:
 - o Sufficient yield of tea leaves to cover direct production costs (including inputs and labour)
 - o Sufficient and stable cash flow from sales of fresh leaves (to factory) at cooperative level
 - o Tripartite agreement between factory, cooperative and Bank
- Post-harvest raw material collection finance for tea leaves is not applicable for the tea sector as tea leaves are perishable and cannot be stored. Tea leaves need to be delivered to the factory immediately after harvest.
- Post-harvest inventory finance of tea leaves is not applicable for tea as tea leaves are sold immediately to the factory after harvest. Inventory finance of made is also not applicable as the made tea is sold through the Mombasa auction immediately.
- Asset finance may be used for (factory) equipment and transport vehicles for fresh tea leaves.
(Ref. Asset finance product description)

2. Tea Value chain



Financing any part of the tea sector requires a good understanding of the value chain, its specific risks and the factors that will influence its performance.

Tea cultivation was introduced to Rwanda in the 1950's in the Cyangugu region and has since expanded to become one of the key agricultural sectors of Rwanda. The tea sector provides employment to more than 55,000 people, tea farmers and workers together. It is currently the largest export crop from Rwanda with a production of 22,000 tonnes of processed tea per year from about 19,000 hectares of tea gardens. Total revenues derived from tea exports in 2011 amounted to some USD 58 million.

NAEB, successor of OCIR-THE has been mandated to develop the tea sector to 21,000 hectares supported by the construction of 5 new factories by the end of 2013.

Furthermore, by the end of 2017 NAEB is to increase tea gardens by a further 19,000 hectares backed by additional 6-7 new factories, with the dual purpose of creating a protective belt around the natural mountain forests and increase Rwanda's position as a tea producer on the world market.

Tea gardens will be developed with the support of NAEB in the form of land acquisition, planting material, technical training and general coordination, while new factories will be built by the private sector.

The incentives of a guaranteed supply of fresh tea leaves, creation of necessary infrastructure (roads, water, electricity) and a tax relief on the import of equipment and machinery, is encouraging operators to invest in the tea sector, all of whom are already identified for the 5 new factories to be built by the end of 2013.

Tea is an unusual and relatively complex crop because of the need to process the fresh leaves all year round as soon as possible after plucking to ensure optimal quality. Tea gardens are therefore closely associated to, if not part of, factories that process the leaves into "made" tea. Plantations must be developed in close integration with the needed processing capacity based on

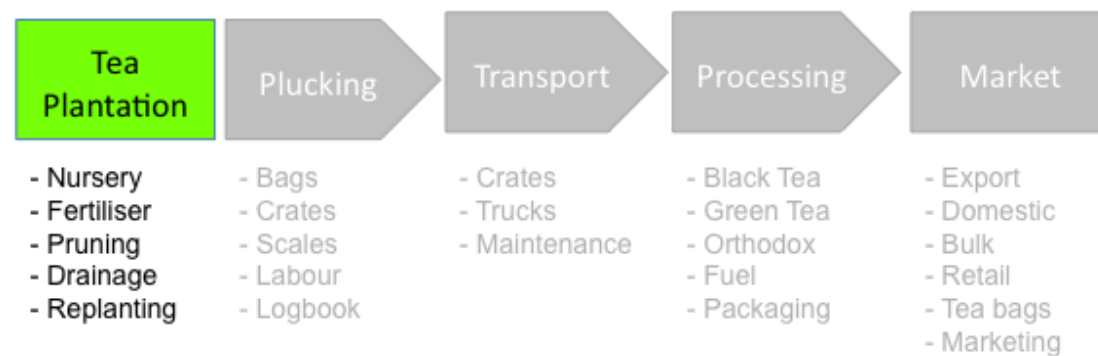
field area, expected yields and quality objectives. Any shortage of processing capacity will generally result in the loss of the fresh leaves, lower yield and poor tea quality because of delayed plucking or processing.

Contrary to most agriculture productions, seasonality in tea production is not as pronounced and production continues all year round with some variations depending on the rainfall.

For the purpose of this sector policy, the tea business will be defined as the activities ranging from the tea garden (including its establishment) to the market (sale of made tea). Each component of the tea value chain is characterized by a number of key components, needs and risks, however it must be considered as a closely integrated and interdependent set of activities, especially from tea garden to processing.

There is no significant seasonality in the tea sector, tea leaves are harvested all year round. However in highland tea gardens, the plucking yield is much lower during the dry season.

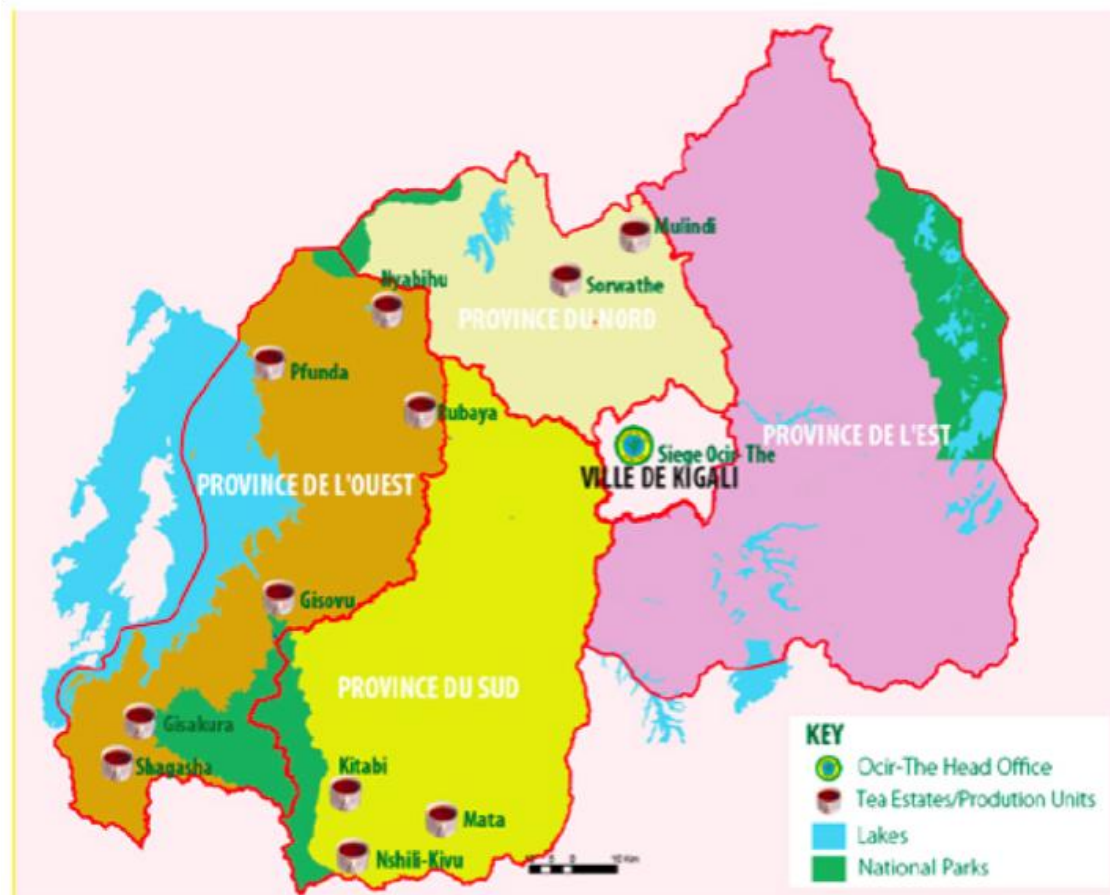
a) Tea Garden



A tea garden is established for the long term as it is expected to have a productive life of at least 25 to 50 years. Adequate preparation of the plantation site in terms of soil preparation, drainage, access roads, etc. is therefore essential as it will significantly influence the efficiency of future field operations as well as the agronomic and economic performance of the plantation.

The location of the tea garden in terms of soil and climate is critical in establishing a tea garden, in Rwanda suitable soils and climate are found in the western half of the country.

Map of soils and climate suitable for tea production in Rwanda.



The highest tea qualities are produced in the tea gardens located along the mountain ridges of Western Rwanda. Tea gardens are planted in high swamps or on hills yields range from 6 to 15MT/ha and the average yields is about 10MT / hectare of fresh tea leaves production.

Criteria that need to be assessed in the quality of a plantation?

- Location (soil, drainage, slope gradient, accessibility)
- Choice of planting material (uniformity of plants, suitability to local climate, vigour, resistance to diseases)
- Density and spacing between individual plants
- Plucking table (uniformity in colour, growth, regularity)
- Maintenance (drains, roads, pruning, replanting)
- Quality of the tea factory
- Logistics transportation of tea leaves to the factory

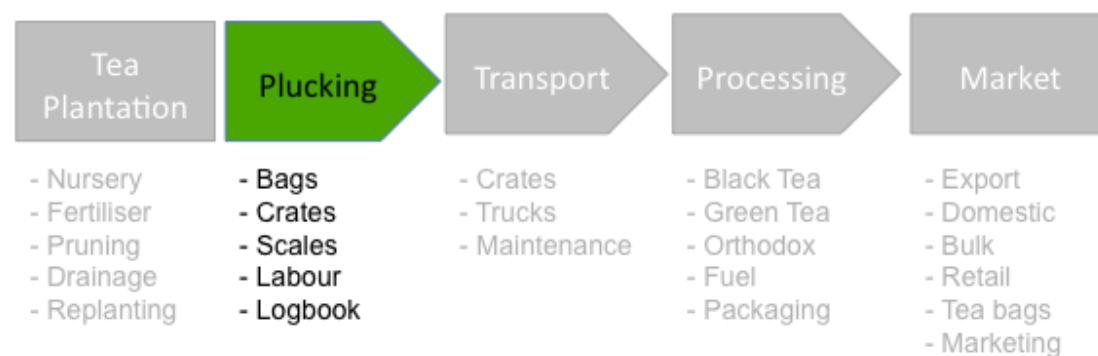
Indirectly the quality and availability of nursery material will also be a strong indicator about the quality of the overall plantation. The nursery ensures that good planting material is made available in a timely manner for expansion, replanting or filling without compromising the uniformity of the fields.

Key issues to developing tea gardens are:

- Financing, only limited availability of financing sources to establish, maintain and operate tea gardens.
- Difficult access to land for the privately owned tea gardens (factories)
- Time to production, a tea bush will only become productive 2-3 years after planting
- Availability and experience of technical staff in tea garden management

As a result, the development of a large tea plantation generally requires a strong support and involvement of the government.

b) *Plucking*



Plucking is crucial to the yields and tea quality of a plantation both in the way it is executed (training of pluckers, adequate baskets or bags, quality control) and the frequency of the plucking in a given field.

When plucking tea, the tops of the branches including the leaves are picked. The main difficulty in managing tea plucking is that generally quality and yield are inversely proportional. That is, the smaller the leaves, the better the quality but the lower the yield (MT/ha). As pluckers tend to be rewarded on weight rather than quality, they are tempted to pick longer tops containing more and heavier tea leaves with a lower quality. Without adequate management of field operations, the quality and therefore value of fresh tea leaves can decline very quickly, even in a good plantation. Labour used for plucking must be trained and retained, requiring an adequate balance between incentives and basic wages.

Quality control is exercised in the field during the plucking and again during the weighing. Trained staff exercise quality control and require continuous training and monitoring to maintain and improve quality levels. A logbook must be kept to monitor yield and quality (including quality feed-back from factory) for each field, this will enable traceability of yield and quality on a long-term basis and help management identify those fields that either require replanting, improved management or staff training.

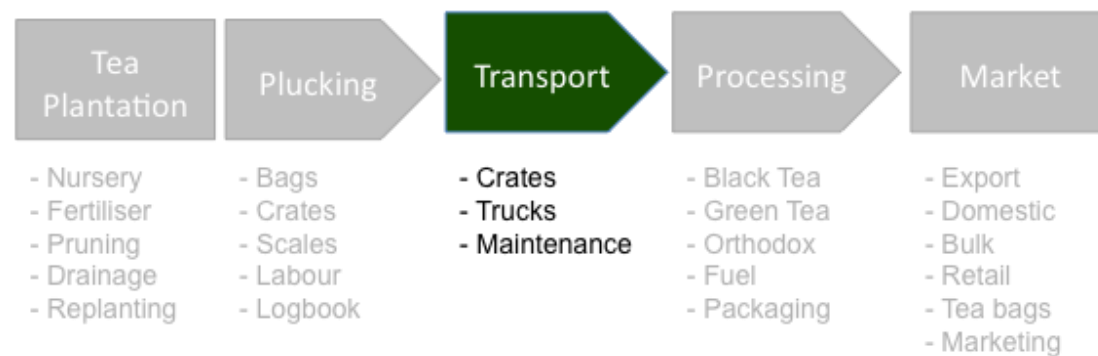
Factory tea gardens, which are generally better managed than cooperative tea gardens, achieve average yields of 10-15MT/ha of fresh tea leaves. Cooperatives in Rwanda currently register fresh tea yields of 6-10MT/ha, which, besides being significantly lower than the potential as demonstrated by the factory tea gardens, is insufficient to adequately cover the input costs such as fertilisers and providing an adequate income to the farmers.

Criteria that need to be assessed for the appropriate management of plucking:

- Location of fields (accessibility, distance to factory)
- Availability and level of training of labour
- Availability and level of training of field monitors
- Weighing stations and procedures
- Transport equipment (crates, bags, trucks)
- Track record of yields and quality (logbook)

Indirectly feedback should be sought from the factory about fresh tea leaves' quality and regularity. When plantations and factory are closely integrated, the factory feedback is self-evident because of the common interest.

c) *Transport*



Transport of green tea leaves from the field to the factory is a crucial operation in terms of ultimate quality of made tea. Transport must be conducted promptly as leaves should be processed as soon as possible after plucking to ensure optimal quality. Damage through crushing and bruising of green tea leaves must also be avoided by using adequate loading systems (crates, shelves or other container types) and maintaining access roads in adequate state of repair (to avoid both shocks and delays).

The quality of fresh tea leaves can easily be spoilt as a result of lengthy and poorly organised transport between the field and the factory. This crucial aspect in the tea value chain, including cost issues, also means that the location of the fields and the factory will generally preclude green tea leaves to be delivered to any other than the nearest factory.

Criteria that need to be assessed in transport:

- Availability of containers (bags, crates)
- Adequacy and level of maintenance of trucks

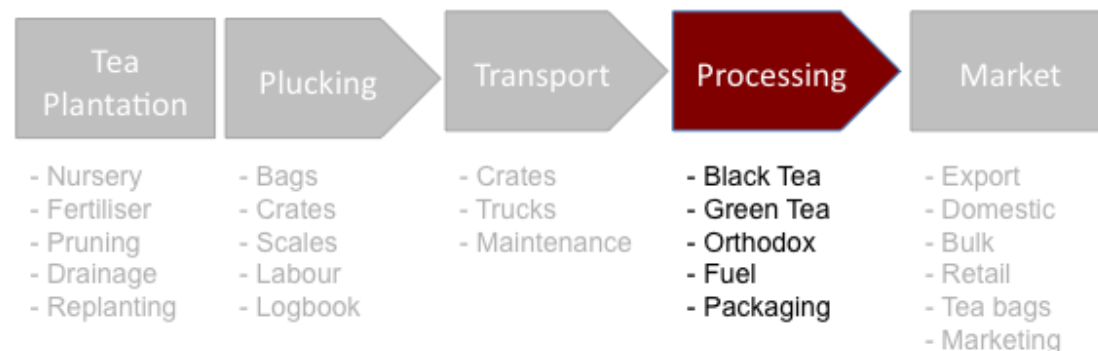
- State of repair of roads
- Distance from fields to factory
- Back-up in case of breakdowns

Indirectly, availability and quality of workshop for maintenance and repair, fuel and drivers for transport fleet needs to be assessed.

Criteria that need to be assessed for the financial performance of a tea garden / cooperative?

- Average yield per hectare (per year)
- Average price received per kg of fresh tea leaves produced, and corresponding average revenue per hectare (per year)
- Average fertiliser cost per hectare (per year), and corresponding cost per kg of fresh tea leaves sold
- Costs of other operations per hectare (fertiliser application, plucking, transport, drain & road maintenance, etc.)
- Other revenues (per year) such as Fair Trade premiums, dividends, subsidies, etc.
- Annual management costs (Cooperative, Union, Ferwacothé)

d) Processing



The final quality of made tea will depend on the quality of the factory equipment and management, however even a good and well managed factory will not be able to produce top quality tea if the fresh tea leaves are either of poor quality or not delivered to the factory in a timely manner.

The integration of tea factory operations with field operations are crucial in terms of distance (time from plucking to processing), quality specifications and logistic coordination (plucking only those quantities that the factory is able to process).

Fresh tea leaves can be transformed into a variety of products, however for the purpose of this policy only black, green, orthodox tea manufacturing (and possibly their organic versions) will be considered. Each of these products target specific markets and requires specific machineries and manufacturing procedures.

Tea manufacturing is considered as some form of art and requires a high level of know-how and experience to achieve consistent high quality levels. The characteristics of green tea leaves will vary depending on season, weather and other biological factors that require adjustments in its processing.

The process of transforming fresh tea leaves into made tea is relatively quick, in theory made tea will be available within 24 hours for sale to the market (assuming it is adequately packed and labelled).

Besides fresh tea leaves, a tea processing factory consumes a large amount of energy in its operation. The source and availability of the energy (electricity and wood fuel) required will have a significant impact on the economic performance of the factory.

Finally, made tea will need to be packaged, to meet the requirements of its customers (paper for bulk sales and retail packaging for domestic sales), which represent a significant cost and logistical issue as the packaging materials need to be imported.

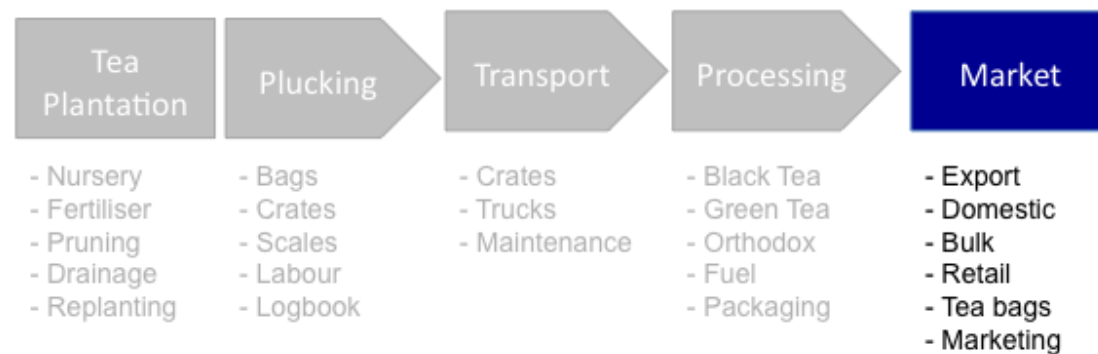
Key issues to take into consideration in a factory:

- Management experience and skills
- State of repair and maintenance of the equipment
- Labour availability, level of training and cost
- Fuel availability and cost
- Packaging material sourcing

Criteria to be assessed for the financial performance of a tea factory:

- Average quantity of fresh tea leaves processed (per year)
- Average quantity of made tea produced (per year)
- Average price paid per kg of fresh tea leaves purchased (or produced) (per year)
- Average cost of processing per kg of made tea (including energy & other utilities, labour, management, amortisations, marketing & sales)
- Average sales price per kg of made tea
- Cost of other operations (such as environmental support, R&D, financing, Fair Trade & other certifications, etc.)
- Other revenues (per year) such as rents or leases, Fair Trade, etc.
- Fees (tea producers' association, other organisations)
- Existing loans and repayment schemes

e) Market

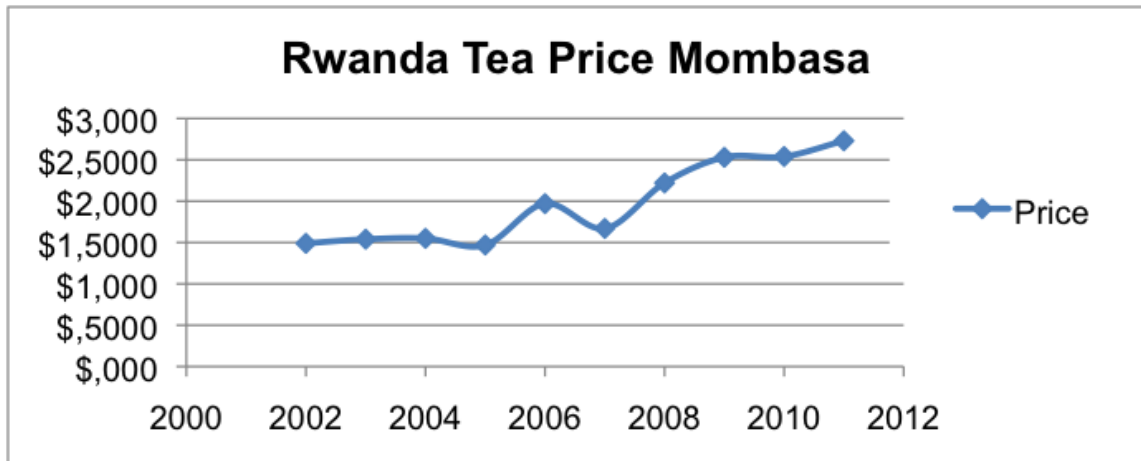


The market for Rwandan tea can be distinguished in 3 main categories:

- The domestic market, essentially in the form of retail packaging (including small packs and tea bags) generally sold under own brand, which represents the smallest market portion
- Export sales to direct customers, generally wholesalers, blenders or trade businesses, who will deal directly with the factory to order specific tea products, the importance of which varies from one factory to another; and
- Export sales through the Mombasa Auction (2nd largest in the world), where most of the Rwandan tea is sold, in competition with other tea origins on offer.

Key aspects of the market to take into consideration:

- Proportion of sales through different channels (volumes, price volatility, margins). The vast majority of the tea produced in Rwanda is sold through Mombasa, however this proportion may vary from one factory to another. Payment for teas sold through the Mombasa Auction can take up to 45 days after the tea has left the factory gates (being the transportation time from Rwanda to Mombasa plus time for payment to be transferred into the factory's account).
- Market price volatility (general & specific for Rwanda tea). Rwandan teas tend to be considered as high quality with a relatively stable demand and price. However variability between different Rwandan tea producers needs to be assessed.
- Price difference between different tea origins and producers within Rwanda. The tea origin and quality is certified by NAEB.



Indirectly the market for Rwandan teas will be influenced by global trends in the market such as world demand and production, transport costs and consumer tastes, which in turn influence medium-term profitability potential and trends. The current market trend is one of growing demand outpacing production and therefore supporting a positive trend in world market prices for quality teas. Such trend may however change very quickly as a result of changes in other production origins within and outside Africa.

The significant tea garden expansion undertaken by Rwanda is generally seen as a positive development for the national tea industry because it will enhance the visibility of Rwanda as a tea producer on the world market and enable producers to reach a critical mass in sourcing requirements of traders.

3. Financing Needs

Any financing opportunity in the tea business should be considered on the basis of the cash flow that will be generated and how secure this cash flow is. Because tea is mainly grown in Rwanda for export with an all year production, the cash flow from these export sales represents the main stream of financing repayment to consider.

	Input finance	Raw material collection finance	Inventory finance	Asset Finance
Farmers				
Cooperatives	X			X
Processor				X

a) Input finance

The needs for farming inputs in tea production are limited to fertilisers, which are the only recurring expense that tea gardens must incur to maintain their productivity. This is also one of the few areas where the Bank may play a role.

Input financing is often organised by the factory because: (i) the factory has its own tea gardens and therefore also has own fertiliser needs; (ii) grouping fertiliser purchases at factory level is more economical; (iii) the factory usually has easy access to cash or financing because of the significant assets and verifiable cash flow; and (iv) it is ultimately the factory that will pay for the fertiliser through its payments for fresh tea leaves.

b) Asset finance

There are some asset needs at the tea garden level, such as crates or sacks for the collection of freshly plucked leaves and transport vehicles to carry freshly plucked leaves to the processing plant.

At the factory level, asset finance requirement can be very significant for buildings, equipment and vehicles.

c) Raw material collection finance

There is no opportunity for aggregation finance, as tea is plucked all year round and immediately delivered to the factory and paid for by the factory on a continuous basis throughout the year.

d) Inventory finance

As fresh tea leaves cannot be stored and need to be processed immediately and made tea is sold continuously, mainly on the Mombasa auction floor, there is no need or opportunity to finance stocks.

4. Strength, Weaknesses, Opportunities & Threats (“SWOT”)

The SWOT analysis of the tea sector is summarised in the table below:

<u>Strengths</u> <ul style="list-style-type: none">- Suitable soil & climate (western half of Rwanda) for tea production- All-year production- Recognised and stable quality- Consistent good prices on world market- Cost competitive	<u>Weaknesses</u> <ul style="list-style-type: none">- Small producer on world market- Land-locked, dependence on neighbouring countries and infrastructure for market access- Limited specialty / quality teas due to (current!) high reliance on Mombasa tea auction- Lack of “cooperative” experience and management skills
<u>Opportunities</u> <ul style="list-style-type: none">- Large areas of land available for tea garden expansion- Develop direct customer base for quality teas- Potential for organic and special teas with increased value-added	<u>Threats</u> <ul style="list-style-type: none">- Shortage of labour in some areas- (Longer-term) transport costs to market in comparison with Kenya and Uganda- Competition from Kenya and Uganda

When preparing a SWOT analysis for a client in the Tea sector please keep in mind that this SWOT analysis will almost certainly not be the same as the SWOT analysis for the sector (as presented above). The reason is that client will most probably at least a number of different weaknesses than the sector and the same counts for the opportunities and threats.

5. Risks

There are several areas offering financing opportunities in the tea sector. First of all, a distinction should be made between (i) the plantation activities, which, save for the original cost of establishing the tea gardens and possibly some transport equipment, essentially require working capital financing, and (ii) factories, where financing needs are mainly for capital investments.

The risks related to the tea sector financing will in turn depend on the stage of the value chain being financed. The tables below summarises the main risks and some of the possible mitigants for each type of financing.

a) Input Finance

Risk	Description	Mitigants
Price	- Risk that the price for the sale of fresh tea leaves is lower than expected	- The price for fresh tea leaves is set by the government, with an agreed component for fertiliser cost ¹ .
Market	- Risk that the plantation is unable to sell its fresh tea leaves	- Tea garden has generally only one off-taker, which in turn has only one supplier. The risk is therefore indirectly the market risk of the factory (see below). - Off-take agreement between factory and cooperative should be in place
Repayment	- Risk that the financing is not repaid as agreed	- Repayment should be on basis of payments for fresh tea leaves received from the factory through a BPR client account. Establish tripartite agreement between cooperative, factory and Bank regarding cash flow of fresh tea leave sales
Off-take	- Risk that the factory is unable to take the fresh tea leaves produced (lack of capacity, machinery break-down, financing, utilities)	- Processing capacity is known and should have at least 20% margin to allow for plucking variation. - Factory should be in reasonable state of repair and adequately maintained. - Factory should have sufficient energy buffer (wood & stand-by generator). Financial performance and position of factory should be analysed.
Usage	- Risk that the funding is not used to buy inputs or the inputs subsequently sold to other users	- Financing must be on the basis of agreed supply contracts with trustworthy counterparts for a pre-agreed part (e.g. 80%) of the costs of the inputs concerned
Operational	- Risk that plantation is not managed correctly (f.i. fertiliser not applied correctly)	- Assume conservative performance figures based on track record of past years. Check

¹ Discussions are ongoing regarding the possibility to link the fresh tea leaves' price to market price.)

	<p>and in a timely manner) and does not achieve expected yields and quality levels</p> <ul style="list-style-type: none"> - Factory is unable to absorb production 	<p>with factory on production, quality and other issues in past years.</p> <ul style="list-style-type: none"> - Check state and ability of factory to process projected production levels
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b) Asset Finance

Investment finance needs are essentially concentrated in establishment of new tea gardens and the factory, which requires large buildings, equipment and other infrastructure that will be amortized over a (large) number of years. Smaller investment finance may also be required at the plantation level for garden expansion, weighing stations and transport equipment.

Risk	Description	Mitigants
Usage	<ul style="list-style-type: none"> - Risk that financing is not used for intended investments 	<ul style="list-style-type: none"> - Financing to be granted on the basis of acceptable invoices from acceptable suppliers for maximum (e.g. 80)% of invoice amount or direct payment of invoice of reputable supplier. - (Part of) the sales revenues should transit through BPR accounts.
Performance	<ul style="list-style-type: none"> - Risk that the acquired equipment does not reach its planned production targets 	<ul style="list-style-type: none"> - Track record of production performance of similar equipment or competitors and analysis of related activities (availability of sufficient raw materials, energy needs, maintenance capacity (spares, etc.), operating expenses)
Market	<ul style="list-style-type: none"> - Risk that access to market and prices do not meet expectations - Risk that the factory is unable to sell its made tea 	<ul style="list-style-type: none"> - Assess historic market price and trend for proposed product, and allow for conservative evaluation of potential (e.g. 75% of sales projections should cover financing needs for investment) - Rwandan teas are considered as quality product on the market and relatively small volumes are making risk of unsold products very unlikely. - Made tea can be stored for long periods of time.

Price	<ul style="list-style-type: none"> - Risk that the price for the sale of made tea is lower than expected 	<ul style="list-style-type: none"> - Asses historic market price and trend for proposed product, and allow for conservative evaluation of potential (e.g. 75% of sales projections should cover financing needs for investment) - Market prices for Rwandan teas have been stable and rising over the past years, with limited volatility. - Increasing level of direct sales vs. auction would also be a favourable indicator. Revenues from tea sales (or part thereof) should transit through BPR account.
Usage	<ul style="list-style-type: none"> - Risk that the funding is not used in the agreed manner 	<ul style="list-style-type: none"> - The risk exists that funding for asset finance may be used for other purposes (f.i. working capital needs). - Funding on the basis of invoices for maximum (80)% of amount limits this risk or direct payment of the invoice to acceptable counterpart. - Tea factories are generally not in need of significant working capital financing due to regular cash inflows.
Operational	<ul style="list-style-type: none"> - Risk that own garden or the garden of the cooperative is not managed correctly and does not achieve expected yields and quality levels 	<ul style="list-style-type: none"> - Track record of production in own gardens or cooperative based on which performance can be conservatively estimated