

Starbucks FSC Rwanda takes Climate Change Seriously

Starbucks Farmer Support Centre Rwanda is one of nine Starbucks farmer support centres worldwide. The centre officially opened in 2009 with goal to support improve farmer's life through sustainable production of coffee using C.A.F.E practices standards.

The goal is to strengthen supply chains, their communities and environment with the main focus on:

- ✓ Agronomy practices
- ✓ Quality awareness and control
- ✓ Social development

Rwanda has one of the world's lowest per capita emissions of greenhouse gases; it is though highly vulnerable to the impacts of temperature and rainfall changes due to climate change since it relies heavily on rain-fed agriculture for subsistence livelihoods as well as tea and coffee cash crops. The country's average temperature has increased by 1.4°C since 1970, higher than the global average, and it is projected to rise up 2.5°C to by the 2050, while in the future, it could experience increased rainfall intensity during both rainy seasons.

Already, Rwanda feels the impacts of global climate change, in the form of flooding and droughts, which cost lives and resources and adversely affect agricultural output much especially the two main cash crops – coffee and tea. With higher temperatures in the future, crop pests could expand their ranges among other potential impacts.

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is working on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) to assist SMEs in its partner countries in assessing climate-related risks and opportunities more effectively and in developing adaptation strategies.

The global programme 'Private Sector Adaptation to Climate Change – PSACC' gives support to SMEs in using instruments that allow them to analyse the impact that an increase in extreme weather events has on the delivery of primary products, energy and water, on production, and on sales. Partner organisations in the pilot countries like chambers of commerce, business associations and consultants were trained to use this methodology and to advise SMEs on how to adapt their strategies to climate change. The GIZ global programme– PSACC' operates in four main areas of action:

- ✓ Raising awareness on climate change risks in the private sector
- ✓ Advising the private sector on adaptation strategies and adaptation measures
- ✓ Providing advisory services on adaptation financing
- ✓ Knowledge sharing

Extended coffee drying days, a challenge to coffee washing stations in Rwanda

Coffee is vital to the economies of many developing nations including Rwanda. In 2016, approximately 190,000 tons of coffee, valued at more than \$60 million, departed the country to buyers around the world. The coffee sector presently employs over 400,000 small householders for their livelihoods mainly growing Arabica coffee. Total area under coffee is currently 35,000 hectares grown at altitudes between 900 and 2400M above sea level.

Besides, the substantial contribution of coffee sector the Rwanda's prosperous economy, the sector is still highly vulnerable to the impacts of climate change and variability. Amongst others the sector faces disruptions in ample water supply due to extended drought periods, brokerage and silting of water channels due to more intense rains. Increase in average rainfall both increases the number of coffee drying days as well as compromising with the quality of the coffee. Generally, the increase in number of rainfall days delays the drying process of the coffee, which shrinks the production capacity of the coffee companies at large.

Why did Starbucks start to engage CWSs in CCA, what does Starbucks expect from engaging CWSs in CCA?

Starbucks FSC Rwanda participated in the 2015 Agronomy Summit that was held in Costa Rica. During the summit, different coffee drying ways were discussed amongst the participants. The team from Rwanda embraced the 'Parabolic drying' as the most feasible for Rwanda since Rwandan farmers were among the victims of effects extended number of drying days.

Starbucks FSC Rwanda aims to support coffee farmers to produce the best quality of coffee to the market. The company is piloting parabolic drying structures with the coffee washing stations they are working with in order to reduce the number of drying days from the usual 28 days to between 8 – 12 days. This would command an increase in production of coffee washing stations working with the company. Parabolic drying not only increases production capacity but also improves on the quality, extended green coffee shelf-life as well the heavier body in the coffee cup.

Muhondo Coffee Company

Muhondo CWS is owned by Muhondo Coffee Company Ltd, and operates in Muhondo Sector, Gakenke District in Northern Province. The coffee washing station is operating on a small scale but has tremendously impacted the surrounding local communities through youth and women employment, contribution to farmer's income and community involvement through social project initiated such as farmer's loan and clean water supply. The CWS is supported by Starbucks Farmers Support Centre Rwanda in agronomy, processing and quality knowhow. Muhondo operations and works closely with 1800 farmers, 40% of them being women.

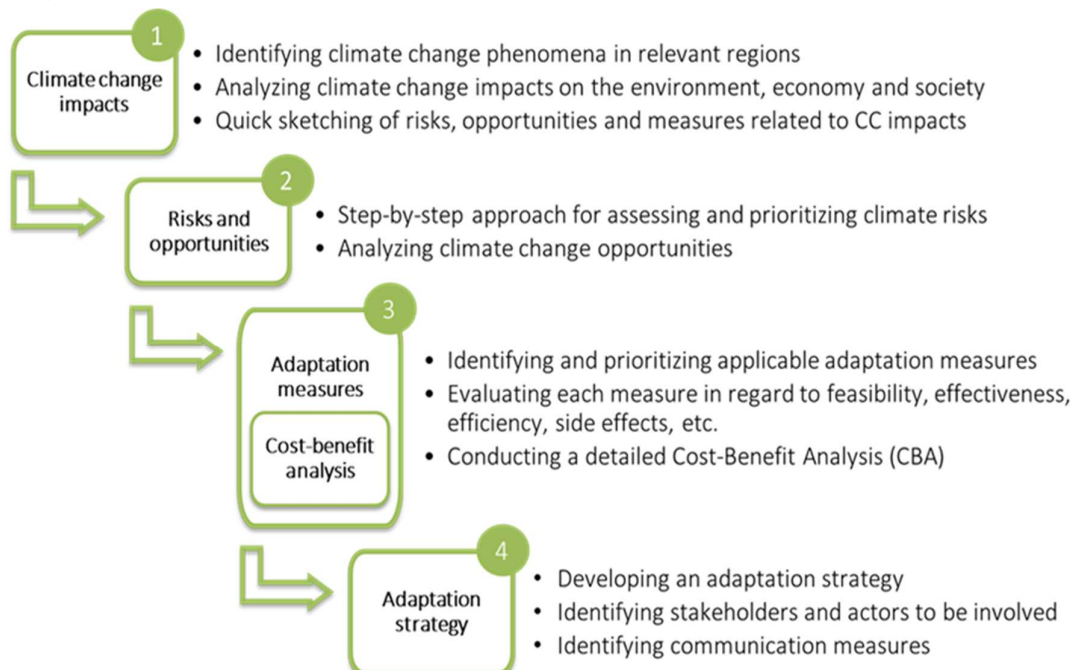
The climatic conditions associated with the geographical location of Muhondo CWS increases its vulnerability to impacts of climate change. The washing station and its associated coffee farms are located at an altitude of 1700m to 2200m with a precipitation range of 1300 to 1400 mm and Temperature range of 17 -18 degrees Celsius. Muhondo sector always experiences

heavy rains, which extends the coffee drying days up to 28 days; this affects the production capacity of the washing station in addition to increasing the labour costs and compromising the quality of coffee.

What instruments/tools/approaches did they use? What is their adaptation strategy?

Starbucks FSC Rwanda went into collaboration with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH through its global programme 'Private Sector Adaptation to Climate Change – PSACC' to test a GIZ developed tool called Climate Expert [www.climate-expert.org].

In March 2017, a team of both GIZ-PSACC and Starbucks FSC Rwanda experts visited Muhondo washing station to conduct a pilot assessment with the washing station. The tool supports the company in analysing climate phenomena, in identifying the impacts and negative effects on their business and more importantly in seizing new business opportunities arising from climate change. Throughout the assessment with the Climate Expert Tool the companies develop adaptation plans and build up an adaptation strategy. Adaptation measures were identified and prioritized. A cost benefit analysis for adaptation measures shows the demand for financial investments in order to manage risks and opportunities of climate change. The four steps of climate expert assessments are briefly presented in the graphic below.



Overview of the results of the Company Assessment

Throughout the assessment with the Climate Expert Tool adaptation measures have been identified and prioritized. A cost benefit analysis for one adaptation measure – installation of parabolic drying structures was conducted.

Results of the pilot assessment conducted with Muhondo washing station are summarized in the table below;

Climate Change Impacts	Climate Risks	Potential Adaptation Measures
Increase in heavy rains	<ul style="list-style-type: none"> • Flooding of coffee farms • Destruction of transport routes due to landslides • Increase in number of coffee drying days • Production halt due to power cuts (night shifts) • Quality of coffee compromised due to increase in fungus • High humidity rates in coffee storage rooms which affect the quality of coffee • Production is affected due to dirt water supply 	<ul style="list-style-type: none"> • Diversification of suppliers of coffee cherries. • Liaise with local authorities to improve the quality of roads • Construction of parabolic drying structures • Using torches and fuel-powered standby generators • Improving the quality of storage rooms with appropriate stocking racks. • Installation of solar lighting system
Mean temperature increase	<ul style="list-style-type: none"> • Inadequate water supply due to prolonged droughts • High temperatures which affect the productivity of labourers. • Disease problems to coffee trees • Inadequate coffee cherries supply due to drying coffee trees. 	<ul style="list-style-type: none"> • Installation of water storage tanks • Application of organic pesticides • Planting of drought resistant coffee species.
Shifts in coffee seasons	<ul style="list-style-type: none"> • Shortages in supplies of coffee. 	<ul style="list-style-type: none"> • Supplying of coffee farmers with shade trees • Negotiations with buyers on their flexibility regarding sale-contracts.

Parabolic Drying Structures

Parabolic structures are house structures, which are constructed mainly using wooden poles, timber, as well as bamboo sticks. As their name goes, the structures are constructed in a parabolic shape. The structure contains drying beds which are constructed in a vertical way (one on the top of the other). The structure as shown in the picture below, is roofed with a plastic greenhouse paper which allows some light through due to its transparency.



Impact for the Company, impact for the society, lessons learnt

Muhondo coffee washing station currently has one parabolic drying structure accommodating 9 beds constructed vertically. The washing station intends to have two functional parabolic drying structures by the start of 2018. Muhondo has reached different advantages of parabolic drying as summarized in the table below:

Area	Impact
Land	Since drying beds are constructed vertically in parabolic drying structures, it requires smaller portion of land compared to horizontal beds.
Production	Increased production. In tradition drying ways, production of 2 containers of green coffee, would require 100 beds in 60 days contrary to the around less than 11 parabolic drying structures for a few number of days (16-24).
Quality of coffee	An extended drying period of coffee comprises the quality of coffee due to accumulation of mould and fungus. This is minimized in the parabolic drying. Coffee beans dried in parabolic drying structures also have a heavier body in cup and it is easier to roast. Parabolic drying ensures a longer shelf-life of green beans.
Price	Under-shed coffee attracts a higher price on the market due to its high quality.
Staff	Parabolic drying structures provide shelter to workers during heavy rains, which increases the productivity of workers.
Community	Farmers that are willing to adopt appropriate farming techniques, will get an increased pay for the supplied coffee cherries.

Arsene Musafali – Business Advisor Starbucks FSC Rwanda: *‘Since we introduced parabolic drying with our coffee washing stations, we have discovered that the mechanism is beneficial to them as it improves the production capacity, improves the quality of coffee and more importantly reduces the cost of production. Starbucks FSC Rwanda intends to pilot the mechanism to more coffee washing stations starting early 2018’. The pilot climate expert assessment with Muhondo, more sparked of our efforts and vision with coffee washing stations towards climate resilient operations. Thanks to GIZ PSACC for developing the tool which is easy and much needed for companies most especially when assessing risks and quantifying the investment possibilities for specific adaptation measures.’*

Wellars Muhondo – Muhondo Coffee Washing Station Manager: *‘We recently got contacted from a new buyer and he ranked our coffee at the 90% in quality the figure we hadn’t reached before. The price was also high. The structures have also reduced on the bills of paying workers’. Generally, we will also always ponder on other recommendations of the assessment to improve our operations. However, we would welcome external funding for adaptation measures which require big investments.’*

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