



Solar Dome Dryer Technology for Coffee Farmers / Processors

Background

Myanmar has around 49,000 acres of coffee plantations with an annual production of 8,000 tons of coffee beans. Shan State and Mandalay Region contribute to 90 percent of the production with the high-quality Arabica beans cultivated at higher altitudes, while Kayin State produces Robusta which grow at lower elevations. Coffee is also grown in Chin, Kachin and Kayah. Myanmar coffee is exported to 16 countries, including the US and Japan.

Coffee industry in Myanmar has been developing rapidly in recent years and specialty coffee beans becoming well-known globally. As a result, the area under coffee cultivation is increasing with a higher demand for coffee berry processing facilities. Exports of coffee from Myanmar have increased in recent years. However, much of what is exported is sold to border traders at prices substantially below international prices.



Challenges

Although Myanmar has specialty coffee species, coffee growers and producers still face challenges due to: poor production and post-harvest technologies; lack of infrastructure; small-scale production; lack of well developed value chain linkages between growers, processors and consumers etc.

Majority of the coffee growers and processors in Myanmar use the traditional open sun drying method, which is prone to cause contamination by rodents, birds, insects and micro-organisms.

Also, there is a risk of unexpected rain or storm which increases the moisture in the product, and inadequate drying will lead to subsequent growth of aflatoxins which leads to major spoilage or low price.

Some of the other disadvantages of open sun drying are: over / insufficient drying and discoloring of coffee beans by ultraviolet radiation, thereby leading to rejections by international buyers and low prices in the domestic markets and cross border trade.





Business Benefits

Solar Dome Dryer technology offers the following business benefits to Coffee producers and processors:

- Significant reduction in the risk of spoilage and contamination caused by dust, water, pests and farm animals.
- Increase in selling price of the coffee beans due to the better quality and access to export markets.
- 30 to 40% reduction in drying time, depending on the required product standards and geographical locations.
- Investment of MMK 20 million can be recovered in about 2 years.

Other Benefits

18 tons of Coffee Beans	Open Drying	Solar Dome Drying
Labour costs	2.25 Million MMK	0.9 Million MMK
Increased revenue due to higher price	11.9 Million MMK	19.5 Million MMK
Increased profits per year for a capacity of 18 tons per annum	8.9 Million MMK	

- Decreased stress and workload for the farm workers about the post-harvest challenges with traditional methods of drying.
- Stability of long-term orders due to increased buyer’s confidence, as a result of the improvement in food safety standards.

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Description of the Responsible Technology

Solar Dome Dryer Technology for enhancing food safety of Coffee Beans and improving the efficiency of the drying process.

Solar Dome Dryer reduces the post-harvest losses of coffee substantially by preventing the survival of bacteria and fungi, apart from increasing the food safety standards. Coffee growers and processors use the Solar Dome Dryer all-round the year, as it is enclosed by polycarbonate sheets on a metal frame and the coffee dried in such an environment is protected during all seasons.

Solar Dome Dryer also enables Coffee growers and processors to precisely control the moisture content of the dried coffee,



Lesson Learnt

- Since the Solar Dome Dryer Technology is new to Myanmar, it is necessary to develop Standard Operating Procedures (SOP) to control moisture and temperature of the coffee drying process using accessories such as humidity meter and thermometers.
- Since Coffee harvest is seasonal, farmers should consider drying of other crops, using Solar Dome Dryer Technology, which will generate additional income.
- Need to closely monitor the quality of polycarbonate sheets, metal frames and sealants, all of which are crucial for high quality drying.
- Investment in other processing equipment is necessary to succeed with the improvement of food safety standards and enhance the overall product quality .