

# Report

## Cardamom Dryer Assessment in Tode, Kalimpong District, West Bengal

12-13 December, 2024



Report Prepared by: Team members

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## Introduction

A team from DAMC, FCBL, RSEBL and Norgaygang Gewog administration visited Tode in Kalimpong District under West Bengal from 11-13 December, 2024 to assess the Cardamom Dryer and grading unit installed at the Common Facility Center in Tode Pala, India.

Tode is located at 80 kms from Nagarkata junction on NH317 in India and takes 2.5 hours to reach by motorable road. It has over 600 households and more than 9000 population.

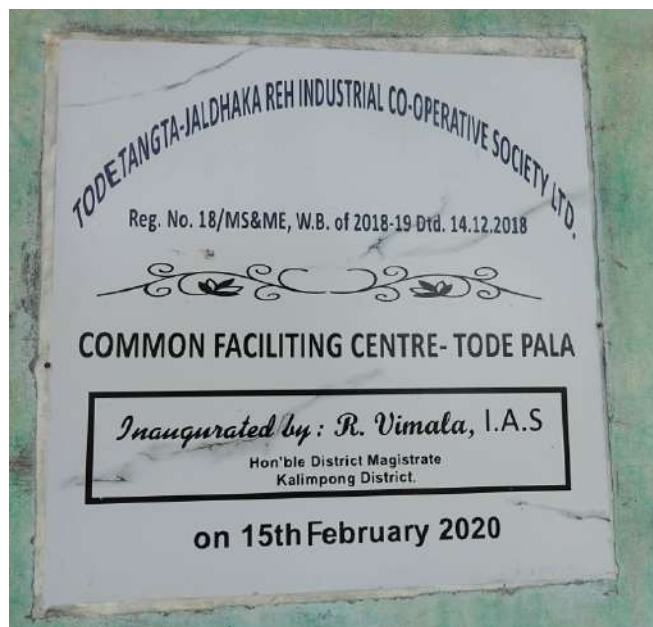
The team met with the committee members and operators of the Cardamom dryer machine. The machine is managed by the Tode-Tangta-Jaldhaka REH Industrial Cooperative Society Ltd.

The Dryer for Tode was installed as a grant as part of the development of Micro, Small and Medium Enterprises by the state government of West Bengal.

## Management of the Facility

As per the Chairman of the Cooperative Society, a total of INR 14 Lakhs was spent to procure the machinery. The shed construction and installation of remaining amenities incurred additional INR 300,000.

The Cardamom Dryer Common Facility Centre was opened on 15<sup>th</sup> February, 2020 and the specific location is at Tode-Pala village.



The Dryer installed has a capacity of 500 Kgs and the Model is LFT MIRACLE operated on the 2 motor HP capacity.

## Key Observations

1. The cardamom dryer facility is currently not operational as the cardamom harvesting season has ended.
2. During the meeting with the committee members on 12th December, it was highlighted that the Cooperative Society has initiated the process for Geographic Indicator (GI) registration of Tode cardamom under the name “**Tode Barlang**” with consulting support from North Bengal University.
3. The dryer has been in use for the past two years, with peak operations occurring during **September and October**, which align with the cardamom harvest season.
4. Drying service charges are:
  - **INR 2,500 per batch** (500 kg of fresh cardamom) for cooperative members.
  - **INR 3,000 per batch** for non-members.
5. The total annual production of fresh cardamom in Tode is approximately **400 metric tons** before drying.
6. A technician from Kerala was engaged for the initial setup and operation of the dryer.
7. The dust and discarded portions of the cardamom are efficiently reused:
  - As organic manure.
  - As a raw material for incense stick production.

## Lessons Learnt

### Comparison Between the Modern Ayush Dryer and the Traditional Bati System

Sl. No	Modern Ayush Dryer	Traditional Bati System
1	Requires a minimum of <b>18 hours</b> to completely dry the cardamom and remove moisture.	Requires a minimum of <b>28 hours</b> for drying.
2	Drying capacity is <b>fixed at 500 kg per batch</b> .	Drying capacity <b>varies depending on the size of the Bati</b> .
3	The dryer is <b>fixed in one location</b> .	The system can be <b>constructed in individual cardamom fields</b> .
4	The dried cardamom has a <b>pink color</b> .	The dried cardamom turns <b>black or ash in color</b> .
5	The dried cardamom does <b>not have a specific name</b> .	The dried cardamom is referred to as “ <b>black cardamom</b> ”.
6	Drying is done <b>using an air-cooling system</b> powered by either <b>electricity or diesel</b> .	Drying is carried out <b>using smoke from firewood</b> .
7	The <b>essential oil</b> of cardamom is <b>retained</b> during the drying process.	The essential oil is <b>lost</b> due to the drying method.

<b>8</b>	The dryer can also be used to dry <b>other vegetables and spices</b> such as ginger, squash, and chili.	It is <b>only suitable for drying cardamom</b> .
<b>9</b>	The dried cardamom has <b>slightly higher weight per volume</b> due to some retained essential oil.	The weight is <b>reduced</b> significantly as moisture and oil is fully removed.
<b>10</b>	Shelf life is <b>lower (about 3 months, although not verified scientifically)</b> as residual sap inside the pod may lead to <b>fungal infection</b> . Shelf life may be increased by using vacuum packaging or storing in air-tight containers.	Shelf life is <b>over 2 years</b> as both the outer shell and inner sap are fully dried.

## Existing Challenges

### Lack of Market for Pink Cardamom

- There is no established market for cardamom processed using the Ayush Dryer, which produces a ‘pink’ variety.
- Farmers are reluctant to use the Ayush Dryer because the ‘pink’ cardamom fetches the same price as traditionally dried ‘black’ cardamom.
- This situation is similar to Bhutan’s organic vegetable production, where products do not receive premium prices and must be sold at the same rate as inorganic produce.
- Traders from Siliguri discouraged the use of the Ayush Dryer, as they lack market connections with trading partners who are willing to purchase the pink cardamom. This is mainly due to its shorter shelf life. (3- 4 months)

### Transportation Challenges for Fresh Cardamom Harvests

- The long distances between the farmers’ fields and the drying center pose significant logistical challenges.
- Transporting raw cardamom to the center is costly and inconvenient, deterring many farmers from utilizing the Ayush Dryer.

### Harvest Season Congestion & Scale of Production

- Since cardamom is harvested simultaneously across the region, farmers experience delays at the drying center. This often leads farmers to opt for the traditional **Bati system**, which is more accessible and immediate.
- The limited scale of production makes it difficult to meet bulk orders, creating challenges in market expansion.

## Future Prospects of using Ayush Dryer for Cardamom Drying

- 1. Production of High-Grade Essential Oil**
  - The Ayush Dryer preserves the essential oil from cardamom, which is of high quality and value.
  - There is potential to explore premium markets in Europe, where demand for high-end cardamom products could be tapped.
- 2. Research and Collaboration Opportunities**
  - A research and learning partnership can be established between **Tode village** and **Norgaygang Gewog**, two major cardamom-producing regions that share a border.

- Such collaboration can enhance technical knowledge, improve drying processes, and optimize cardamom production.
3. **Joint Market Exploration and Export Development**
- Collaboration between the two regions can help achieve the required production volume for larger export markets.
  - Close coordination between the **Tode-Tangta Cooperative** and the establishment of a **cardamom cooperative in Norgaygang** will be essential to facilitate joint market exploration and ensure collective success.

## Way Forward

- 1) Market exploration and sample dispatch to other countries for the pink cardamom.
- 2) Organic Certification of cardamom grown in Norgaygang.
- 3) GI registration of Norgaygang Cardamom
- 4) Ideation and consultation to designate Norgaygang as a community-led Cardamom Research and Development centre in Bhutan.
- 5) Collaborations can be undertaken between GTA or Kalimpong District Administration and the RGoB to extract and find market for essential oil from cardamom.

## Annexure 1: List of Members of Cooperative Society who participated the meeting on 12<sup>th</sup> December, 2024

SI No	NAME	DESIGNATION	AGE	ADRESS
1	Frenchise Xavier Rai (Contact: +91 8900354933)	Executive Assistant	60	Chisang, Tode- Tangta Gram Panchayat,
2	Birman Tamang	Society Chairman	66	
3	Chewowg Pladen Bhutia	Vice Chairman	54	
4	Suman Lepcha	Member	46	
5	Rohit Raz	Member	30	
6	Pintsho Bhutia	Member	42	
7	Pema Dorjee Tamang	Panchyat Member	48	



Photo 2: Meeting with Cooperative Society members

## Annexure 2: List of Officials Participating in the Trip

- 1) Shyam Kr. Gurung, Gup, Norgaygang Gewog
- 2) Sujan Pradhan, Offtg. Chief PPO, NPHC
- 3) Tshering Dorji, RD, FCBL
- 4) Sangay Thinley, Chief EDMO, MIRD, DAMC
- 5) Deepak Tamang, Technician, FCBL
- 6) Dawa, Head, Policy Division, RSEBL
- 7) Kinzang Dorji, GAO, Norgaygang
- 8) Wangchuk, AES, Norgaygang
- 9) Kusum Dorji Tamang, Aggregator, Norgaygang
- 10) Nil Kumar, Chairman, Aggregator Network of Samtse
- 11) Nirmal Rai, Cardamom Aggregator, Denchukha



Photo 3: Officials & hosts at Tode