

BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

Tuesday the 6th day of February, 2024.

Original Application No. 85 of 2023 (SZ)
(Through Video Conference)

IN THE MATTER OF

Raveendra Babu,
aged 54 years,
S/o Balakrishna Pillai,
Puthenpurayil (H),
Kallar P.O. Mundiyeeruma,
Idukki District, Kerala- 685552.



...Applicant(s)

Versus

1. Union of India

Rep by the Secretary,
Ministry of Environment, Forest and Climate Change,
Indira Paryavaran Bhavan, Jorbagh Road,
New Delhi- 110003.

2. State of Kerala

Rep by the Additional Secretary,
Directorate of Environment and Climate Change (DOECC),
4th Floor, K.S.R.T.C Bus Terminal Department of Environment,
Thampanoor, Thiruvananthapuram- 695001.

3. Kerala State Pollution Control Board,

Rep by Enironmental Engineer,
Essaren Building Anakoodu n.
Thrikkariyoor. P.O,
Thodupuzha, Idukki,
Kerala- 685584.

4. The Member Secretary,

Kerala State Pollution Control Board,
Plamoodu-Thekkamoodu Rd,
Near Raymond Shop,
Pattom P.O,
Thiruvananthapuram,
Kerala- 695004.

5. The District Collector,

Iduki District,
Kuyillimala, P.O.
Kerala- 685603.

6. The Secretary,

Vandanmedu Grama Panchayat,
Vandanmedu P.O.
Iduki District,
kerala- 685551.

7. The Secretary,

Rajkumary Panchayath,
Rajkumary P.O,
Iduki District,
Kerala- 685619.

8. The Secretary,

Pampadumpara Gram Panchayat,
Pampadumpara P.O.
Iduki District,
kerala- 685552.

9. The Secretary,

Rajakkad Panchayath,
Rajakkad P.O.
Iduki District,
kerala- 685566.

10. The Secretary,

Udumbanchola Grama Panchayat,
Udumbanchola P.O.
Iduki District,
kerala- 685553.

11. The Secretary,

Santhanpara Grama Panchayat,
Santhanpara P.O.
Iduki District,
kerala- 685619.

12. Shajimon

Aged 48 years,
S/o Mathew,
Maniyanprayil (H),
Cumbumbettu P.O,
Idukki District,
Kerala- 685551.

13. Aybi Babu

Aged 50 years,
W/o Babu, Kandathil,
Kottar P.O.
Idukki District,
Kerala- 685552.

14. Manuy Vithson,

aged 45 years,
S/o Vithson, Kuttarpallil (H),
Balagram, P.O.
Balagram
Iduki District,
kerala- 685552.

15. Joy, aged 65 years,

S/o Varghese, Attumalil (H),
Third Camp,
Balagram P.O,
Idukki District,
kerala- 685552.

16. Baby, aged 47 years,

S/o philip, Vadkedath (H),

Cumbumbettu P.O,
Iduki District,
kerala- 685551.

17. Fini, aged 55 years,
S/o George Alamcherill (H),
Pothumkandam,
Iduki District,
kerala- 685551.

18. Biju, aged 50 years
S/o Murali, Archana (H)
Balagram. P.O,
Iduki District,
kerala- 685552.

19. Basheer, aged 65 years,
S/o Muhammed Aliyar,
Elappunkel (H),
Koottar P.O,
Iduki District,
kerala- 685552.

20. Jaffar, aged 50 years,
S/o Sulaimaan, J&K Spices,
Koottar P.O,
Iduki District,
kerala- 685552.

21. Akshayshri Spices,
Mundiyeeruma,
Kallar P.O,
Iduki District,
kerala- 685552.

22. V.M. Mathew, aged 57 years,
S/o Mathew, Varunganaayil (H),
Cumbumbettu P.O.
Iduki District,
kerala- 685551.

...Respondent(s)

For Applicant(s):

M/s. Jasmine Associates, Ms. Jasmine V.H

For Respondent(s):

Mr. R. Thirunavukarasu for R1.

Ms. Mokshavathy represented Mr. E.K.
Kumaresan for R2 & R5.

Mrs. V. K. Rema Smrithi for R3 & R4.

Mr. Sajimathew for R7.

Mr. Liji J. Vadakkedom for R6, R8 to R11.

Mr. Joice George for R12 to R14, R16, R18 to
R20 & R22.

Judgment Reserved on: 30th January, 2024.

CORAM:

HON'BLE SMT. JUSTICE PUSHPA SATHYANARAYANA, JUDICIAL MEMBER

HON'BLE DR. SATYAGOPAL KORLAPATI, EXPERT MEMBER

JUDGMENT

Delivered by Smt. Justice Pushpa Sathyanarayana, Judicial Member

1. The applicant a resident of Idukki District in Kerala which is known for its scenic beauty and pristine climate is seeking the intervention of this Tribunal to take action against unauthorised cardamom drying units functioning in the district causing heavy pollution.
2. Cardamom cultivation is the main occupation of the people residing in Idukki District. Cardamom drying is a crucial step in the post harvest processing of cardamom where moisture is brought down to 10% from 85% to prevent spoilage during storage and ensure long term quality. It is also important to preserve the colour, aroma and flavour of the cardamom in the process. There are several methods of drying cardamom including sun drying, tray drying and kiln drying. Sun drying in the traditional method of drying the cardamom drying in the sun for several days till the desired moisture content is reached. Tray drying involves placing the cardamom pods in trays and exposing them to warm air in a well ventilated room. Kiln drying is the quickest method where the pods are dried in a hot air chamber. The drying process has to be monitored closely to ensure that the cardamom is dried evenly and to the correct moisture content. Over drying or under drying can

negatively affect the quality of the cardamom and reduce its market value.

3. The applicant states that the drying process of the cardamom in Idukki has been causing several hazardous health problems to the people living there. Local people dry cardamom in dry houses meant for this purpose. Drying is done by burning wood and plastic briquettes and the units are situated in the premises of houses situated in the thickly populated residential area. It is stated that wood fired dryers consumes wood in the ratio of 4:1 i.e., about 800 kg of wood is used to cure 200 kg of finished product. The smoke that is emitted into the atmosphere is filled with carbon and other gases and causes various diseases including cough, wheezing etc.

4. The applicant also has mentioned about the disadvantages of burning wood as the wood smoke contains a mixture of pollutants which can be harmful to human health including particulate matter, volatile organic compounds, carbon monoxide and polycyclic aromatic hydrocarbons. These pollutants can cause health problems including respiratory problems etc. To minimize the health risks associated with smoke, it is important to reduce the use of wood as a source of fuel and adopt alternative sources of energy. The other method prevalent is the use of plastic briquettes in the dry houses. This is still worse as it releases large scale toxic gases into the atmosphere posing threat to vegetation, human and animal health. Highlighting the risk of using wood or plastic briquettes the applicant is seeking intervention of the Government to advise the cardamom processing units to give up

wood drying or burning of plastic briquettes and switch over to any other method which would save the environment particularly the Idukki District which is a hilly area.

5. The Secretary to Government, Environment Department, Government of Kerala, who is the 2nd respondent,

had filed an action taken report. The report states that the cardamom is the major crop in four taluks and its price changes affects the economy of these areas. Conventionally cardamom dryers use wood or wood briquettes as fuel in the drying units. Wood is being burned in a furnace and hot air is generated. Fresh cardamom is placed in a tray and the hot air is allowed to pass through the bed to release the moisture in the cardamom slowly. Total dry period is around 14 to 16 hours and the temperature will go up to 60° to 70°C.

6. After a complaint was received in this regard inspections were conducted in the areas concerned and found that all the cardamom dryers are using wood or wood briquettes as fuel. During these inspections no case of using plastic briquette as fuel could be observed. The Kerala State Pollution Control Board also inspected 11 cardamom drying units on 20.07.2023. Out of which only three had valid consent from the Pollution Control Board. Hence show cause notice was issued to these units. Cardamom drying comes under the 'Green' category as per the categorisation of industries based on the air, water pollution potential. The distance criteria to be maintained from residence and building are 03m and 05m respectively in small scale.

7. In order to assess the impact on the ambient air quality due to the operation of the cardamom dryers ambient air monitoring was conducted. As per the ambient monitoring agro based fuel was used in the cardamom drying units and the particulate matter (PM10). The ambient air quality with respect to particulate matter was found to be 38.0034 micro gram/m³ within the limit of 100 micro gram/m³ as per the National Ambient Air Quality standards.

8. The Government has further stated that unless the source of electricity is from renewal energy sources like solar, wind etc., there is no positive effect to the environment by switching over to electrical source of energy. It is mentioned that in the State of Kerala the share of power generation from hydro electric is 67.92% only and the rest is being purchased from the outside the State, mostly thermal energy. Hence switching over to electrical energy will not have any positive effect on the environmental point of view. It is also pointed out that electrical heating system may create more financial burden to the dryer operators as both electrical energy and electrical heating dryers are expensive and hence the cost of drying per kg will be more. Another negative impact of switching over to electrical energy is that in these areas electrical supply failure is more common especially during rainy season and hence the dryer operators have to depend on other source of electricity such as diesel generators which would again lead to gaseous emissions. The State Government has stated that there is no serious environmental issues noticed during the inspection and change of process to electrical cannot be insisted by the Kerala State Pollution Control Board alone.

9. The Kerala State Pollution Control Board, which is the 4th

respondent in its report has stated that the Cardamom drying is coming under 'Green' category and have accepted the report filed by the Secretary, Environment Department, Thiruvananthapuram in all respect by stating that unless more detailed technical study by incorporating experts from the concerned field is done and evaluate the socio economic impact on these areas on switching over to electrical systems may not be possible for the time being.

- 10. The private respondents, who are the cardamom dryers,** had filed their report. It is stated in the report that small Indian cardamom which is an endemic species of the Western Ghats is being grown under the shades of large and thick canopy. In a way cardamom cultivation is promoting the growth of green cover by preserving or planting trees. Decreased productivity and loss of crops due to the climate change issues and price fluctuation are the major factors adversely affecting the farmers who are solely depending on the Small Indian Cardamom cultivation. Despite all these odds, the farmers are sticking on good agricultural practices to protect the environment and ecology as the Small Indian Cardamom being an endemic species of the terrain can be grown only in a particular tropical and ecological condition. Therefore the respondent and others who are depending on the agricultural prospects of the Small Indian Cardamom are more concerned about the ecological protection and issues related to the climate change arising out of global warming and thus do not indulge in any activities which may adversely affect the initiatives to fight global warming.

11. It is stated that modern cardamom dryers are using the biomass gasifier technology which is having the following features:

- The gas is compressed down with the help of main blower motor.
- The heat generated by burning of gas is passed through the heat exchangers.
- This heat is blown inside the fuelling chamber to dry the raw cardamom.
- The automatic shutters are interlinked with temperature controllers and the operator can set the desired temperature. Increasing the temperature at periodic interval can be made automatic with the help of additional fittings.
- In the gasification process, carbonaceous materials are converted into combustible gas under controlled amount of oxygen.
- The gas thus generated is used as a fuel in the gasifier.
- The combustible gas generated is more efficient than direct combustion of the original fuel.
- The fuel unit is compact and is kept outside the chamber room.
- There is no heat loss as the flue pipes are packed inside a chamber.

12. From the above features of the biomass gasifier technology, it can be seen that modern cardamom dryers are having advanced, more fuel efficient and eco-friendly method/feature.

13. The report further states about the salient features of the biomass gasifier technology which are as follows:

- The fuel materials can be briquettes, coconut shell, coconut husk, wood chips or any dried agricultural wastes.
- It helps to prevent deforestation and helps in disposal of agricultural waste in a meaningful way.
- The process ensures good colour to the capsules due to temperature controller attached with the device.
- The time required for drying raw cardamom capsules is less compared to the conventional method of drying.
- The drying process is less cumbersome for the operator and is less risky as the fuel feeding is required once in six hours and the temperature control is fully automated.
- The dryer is very operator friendly and requires less man power.
- The fuel efficiency is high as the fuel wastage is minimal.
- Due to the compact design, less plinth area is required for loading the dryer.

- Cost of fuel is much less compared to the conventional system of drying or electric dryers.

14. The cardamom dryers are also purchasing their equipments from the Government of India undertaking and approved agency for testing and issuing certificates to the farm machineries and equipments. They are using dryers purchased from empanelled manufactures of the Spices Board of India, the Industries Department, State of Kerala and the Department of Agricultural Development and Farmer Welfare, State of Kerala.

15. Since the cardamom dryers are scientifically designed and using the biomass gasifier technology, the emission of smoke is very minimal and exhausted through the chimney thereby abating the remote chances of health hazards due to the inhaling of smoke. It is further stated that the plastic briquettes as alleged by the applicant cannot be used as a fuel in the cardamom dryers with biomass gasifier technology as it will cause damage to the dryer. Since dried bio waste, coconut shells, coconut husk, wood chips and wood based briquettes are fuels used in the dryers, there is no scope for deforestation for collecting the fuel for the dryers for drying the fresh cardamom.

16. As curing/drying of cardamom being an inevitable part of the agricultural process, it is not required to obtain licence from the Local Self Government Institutions as per Section 233(B)(b) of the Kerala Panchayat Raj Act, 1994 for installation and establishment of cardamom dryer unit which reads as follows:

"233 B. Exemptions: - Notwithstanding anything contained in section 233, no permission of village panchayat shall be

required for the installation of establishment of the following machinery or manufacturing plants or industrial units, as the case may be, namely: -

(a)

(b) Electrical and non-electrical installation installed for agricultural purposes;"

17. Secretary to Government, Environment Department as well as the Pollution Control Board have found that the drying process of the cardamom are not polluting. The private respondents who are the cardamom dryers also have specifically mentioned that they are using the biomass gasifier technology and it being part of the agricultural process it does not require license.

18. The Learned Counsel appearing for the applicant also conceded that there is no objection for the applicant for using the biomass gasifier technology for drying the cardamom. The said method seems to be the next best method to electrical dryers. The Pollution Control Board is directed to check the requirements of 'Consent to Establish'/'Consent to Operate' as the industry being 'Green' Category and ensure all the units are statutory complaint.

19. As the applicant also is in agreement with the report filed by the private respondents and also the official respondents, the same is recorded and the application is disposed of as closed.

.....J.M.
(Smt. Justice Pushpa Sathyanarayana)

.....E.M.
(Dr. Satyagopal Korlapati)

Internet – Yes/No
All India NGT Reporter – Yes/No

O.A. No.85/2023(SZ)
6th February, 2024. (AM)

**Before the National Green
Tribunal
Southern Zone (Chennai)**

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Raveendra Babu
Vs.

Union of India & Ors.

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NGT