

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI ORIGINAL APPLICATION NO. 05 OF 2016**

IN THE MATTER OF:

Thiru M.Kandasamy

Versus

Applicant

The sate of Tamilnadu Rep by
its Secretary, E&F, Chennai & Others

Respondent(s)

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**JOINT COMMITTEE REPORT ON COIR UNITS AS PER
HON'BLE NATIONAL GREEN TRIBUNAL (NGT), SOUTHERN ZONE, CHENNAI
ORDER DATED 7TH JANUARY 2020**



**Submitted to the
HON'BLE NATIONAL GREEN TRIBUNAL (SZ)
CHENNAI**

REPORT OF THE JOINT COMMITTEE ON DETAILED GROUND WATER QUALITY STUDY NEAR THE INDUSTRIAL AREA (COIR INDUSTRIES CLUSTER), KANGEYAM, TIRUPPUR DISTRICT IN THE MATTER OF ORIGINAL APPLICATION NO. 05 OF 2016 (SZ), SHRI M. KANDASAMY vs THE STATE OF TAMILNADU, REP. BY ITS SECRETARY, E&F, CHENNAI AND OTHERS SUBMITTED BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, SOUTHERN BENCH, CHENNAI, AS PER ORDER DATED 07th JANUARY, 2020

1.0 Back Ground

While hearing the Original Application No. 05 OF 2016 (SZ), Shri.M. Kandasamy Vs The State of Tamilnadu, Rep. by its Secretary, E&F, Chennai and others, on 7th January, 2020, the Hon'ble National Green Tribunal (NGT), Southern Zone, Chennai has passed an order (Annexure-I) that;

“we feel it appropriate to conduct a detailed water quality test near the industrial area where the disputed industries are functioning and also within a radius of 20kms where the dyeing units are functioning to find out the difference in quality of water with particular reference to TDS level. TNPCB is directed to find out the source and reason for high TDS level in water in those areas.

Accordingly, we feel it appropriate to appoint a Join Committee consisting of (1) District Collector, Tiruppur District, (2) Scientist from Central Pollution Control Board, (3) Centre Water Resources Authority, (4) Tamil Nadu State Pollution Control Board, (5) I.I.T. Chennai, (6) NEERI, Chennai and (7) a Senior Scientist from National Institute of Hydrology, Roorkee, Uttarakhand, India and if there is any Zonal branch available in Chennai, they can depute the officer of that unit for helping the committee to inspect all the areas in question and also the industrial areas to find out the reason for the high TDS level in water in the area and if so, what remedial action to be taken to rectify the same. The joint Committee is directed to submit the report to this Tribunal within a period of two months. TNPCB, Chennai will be the nodal agency for co-ordination.”

In Compliance of above mentioned order, Tamilnadu Pollution Control Board has requested the Regional Director, CPCB, the Regional Director, Central Ground Water Board, the Director, IIT Madras, the Director, CSIR-NEERI, the Director, National Institute of Hydrology, vide District Environmental Engineer, TNPCB, Tiruppur North letter no. F.TPN1588/DEE/TNPCB/TPN/2019 dated 31/01/2020 to nominate the officials for joint inspection. In response to above letter officials were nominated by the respective departments and the committee was constituted comprising following officials;

- i. Dr.K. Vijayakarhikeyan, District Collector, Tiruppur.
- ii. Tmt.H.D.Varalaxmi, Sc.E/AD Central Pollution Control Board, Regional Directorate (South), Bangalore.
- iii. Thiru.Ramanand, Scientist –D, (Sr. Hydrologist), Central Ground Water Board.
- iv. Thiru.K.SenthilVinayagam, District Environmental Engineer, TNPCB, Tiruppur North
- v. Dr. S. Mathava Kumar, Associate Professor, Department of Civil Engineering IIT Madras.
- vi. Er. Jowin Joseph, Scientist, NEERI , Chennai.
- vii. Dr.Y.R.Satyaji Rao M.E. Ph.D., Scientist 'G' and Head, National Institute of Hydrology.

Apart from the above Thiru.Er.S.Bharathiraja, AE, TNPCB, Tiruppur North also participated along with committee member.

2.0 Meeting & Planning

The committee was met on 25.02.2020 and preliminary meeting was conducted at Collectorate, Tiruppur District. The committee has decided to co-opt Dr B.Jayaraman, Former under Secretary, Loss of Ecology Authority, Chennai as a co-opted member. During the meeting it was decided to carry out the preliminary inspection in and around the units located at Paranchervazhi Village, Kangeyam Taluk, Tiruppur District along with the Petitioner Thiru.M.Kandasamy.

3.0 Brief description about Coir Industries:

The Kangeyam Taluk in Tiruppur District is a coconut based industry area. There are more than 500 coconut oil industries and coconut copra fields(kalam) are located in this area. Hence a huge amount of coconut husk is generated in Kangeyam Taluk and this husk being used as a raw material for the coir based industries.

The manufacturing processes involved are beating, screening and solar drying operations. The raw material coconut husks are stocked on concrete platform and water being sprayed on the raw material to bring to wet condition. The wetted raw coconut husks are passed through beater/buster, the product obtained is passed through different sieve sizes of disintegrator to separate coir fibre and coir pith. The final fibre obtained is processed through machinery to obtain coir yarn. The excess water from raw coconut husk stocking area (wetting process) is being collected in collection pit and the same being reused for wetting process.

Coir fibres are found between the hard, internal shell and the outer coat of a coconut. The individual fibre cells are narrow and hollow, with thick walls made of cellulose. They are pale when immature, but later become hardened and yellowed as a layer of lignin is deposited on their walls. Each cell is about 1 mm (0.04 in) long and 10 to 20 μm (0.0004 to 0.0008 in) in diameter. Fibres are typically 10 to 30 centimetres (4 to 12 inch) long. Coir, or coconut fibre, is a natural fibre extracted from the outer husk of coconut and used in products such as floor mats, doormats, brushes and mattresses.

Coir Pith is a spongy material that binds the coconut fibre in the husk, coir pith is finding new applications. It is an excellent soil conditioner and is being extensively used as a soil-less medium for agri-horticultural purposes. With its moisture retention qualities, coir pith is ideal for growing anthuriums and orchids. Coir Pith and Coir Fibres are not flammable.

Uses of Coir:

1. Agricultural and Horticultural uses
2. Oil and Fluid Absorption
3. Animal Bedding
4. Construction material
5. Beds, sofas, mats, rope making and etc.

Properties of Coir: These are multi-cellular, lignocellulosic, hard, a very coarse and rigid variety of natural fruit fibre. Its advantages are agro-renewability, biodegradability and a good blend of strength, length, extensibility, moisture retain and high durability or resistance against sunlight, saline water, microbes, etc.

The coir manufacturing industries falls under white category as per the latest re-categorisation of the Central Pollution Control Board. The following five coir processing industries are located in Paranchervazhi Village, Kangeyam Taluk, Tiruppur District. All the five industries are surrounded by dry and wet agricultural lands. The unit of M/s. Amman Coirs, S.F.No.1203/B4, Pallakattupudhur Village, M/s. C.S.Coirs, S.F.No.1200, Pallakattupudhur Village, M/s. R.P.G.Coirs, S.F.No.1127, Poriyagoundanvalasu Village, M/s. Sri Amman Coirs, S.F.No.1201, Pallakattupudhur Village, M/s.Sri Ganapathy Coirs, S.F.No.1116, A & B, Pallakattupudhur Village, Kangeyam Taluk, Tiruppur District are existing units. The manufacturing process involved in the above said units are manufacturing of coconut fibre (through wet process), drying of coir pith and making coir pith block.

4.0 Field observations of Joint Committee:

Fig no. 1 : Google image showing the location of the unit involved in coir processing



Fig no. 2 : Google image showing the habitation details within 500 mts radius from the Coir units



- a. There are 5 units are located as cluster, in which 3 units involved in manufacturing of coconut fibre from coconut husk and the remaining 2 units involved in manufacturing of coir bricks/blocks from coir pith.

- b. The process for manufacturing of coconut fibre from the coconut husk carried out by the unit is wet process and manufacturing of coir bricks from coir pith is dry process.
- c. It was noticed that the units were not in operation, the unit authorities reported that due to lack of export orders, operation was stopped since February 2020.
- d. The unit's locations were surrounded by dry lands in all the directions.
- e. There are no villages except a small homestead namely Poraiyagoundanvalasu located within 500 mts. radius of the coir units.
- f. The Coir units are using bore well water for their domestic and coir manufacturing process.
- g. The units have provided paved platform in wetting section of the coconut husk wherein water is sprayed over the coconut husk shell just to keep in wet condition before being sent to the Beater/Buster.
- h. The units have provided water sprinkling arrangements in the Decorticator section and the Disintegrator section was enclosed with wooden sheets.
- i. The units have provided collection cum recycling tank for the collection and reuse of excess water from Coconut husk wetting section and water sprinkling section.
- j. The units have covered the sides of the screen with wooden sheets.
- k. The units have covered the sides of the connecting conveyors with wooden sheets.
- l. The units have provided wind net arrestors in the periphery area where the Coir pith is stored and around the unit premises.
- m. The units have provided compound wall around the fibre drying yard.
- n. The units were storing the raw material and the coir pith waste in the open land as shown in the Google image Fig No: 1.

(i) Status of Pollution Control Measures taken:

Water Pollution Control Measures:

The units M/s C S Coir, M/s Sri Amman Coirs and M/s Sri Ganapathy Coirs are involved in manufacturing of Coir Fibre from Coconut Husk. The units are generating trade effluent from its Coconut husk wetting section and water sprinkling section.

These units have provide collection cum recycling tank for reuse of excess water arise from Coconut husk wetting section and water sprinkling section.

The remaining two units M/s Amman Coirs and M/s R.P.G.Coirs are involved in coir brick/blocks manufacturing activity. The unit does not use water for its manufacturing process. Hence, trade effluent does not arise.

Air Pollution Control Measures:

Sl. No	Unit's Name	Point source of Emission	Pollution control measures	Operation Status
1.	M/s C S Coir	Decorticator	Water Sprinkling arrangements	Under operational condition
		Disintegrator	Enclosed with wooden sheets	
		Rotary Screen	Side covered with wooden sheets	
		Connecting Conveyors	Sides covered with wooden sheets	
		Coir pith storage yard	Wind net arrestor	
2.	M/s Sri Amman Coirs	Decorticator	Water Sprinkling arrangements	Under operational condition
		Disintegrator	Enclosed with wooden sheets	
		Rotary Screen	Side covered with wooden sheets	
		Connecting Conveyors	Sides covered with wooden sheets	
		Coir pith storage yard	Wind net arrestor	
3.	M/s Sri Ganapathy Coirs	Decorticator	Water Sprinkling arrangements	Under operational condition
		Disintegrator	Enclosed with wooden sheets	
		Rotary Screen	Side covered with wooden sheets	
		Connecting Conveyors	Sides covered with wooden sheets	
		Coir pith storage yard	Wind net arrestor	
4.	M/s Amman Coirs	Coir Brick manufacturing activity is carried out inside the roofedshed.		
5.	M/s RPG Coirs			

(ii) **Details of villages located and Land use pattern around the subject site :**

Paranchervali is a Village in Kangeyam Block in Tiruppur District of Tamil Nadu State, India. It is located 29 KM towards East from District headquarters Tiruppur and 428 KM from State capital Chennai, Paranjervali is surrounded by Chennimalai Block towards North, Vellakoil Block towards East, Pongalur Block towards west, Uttukkuli Block towards South. Vellakoil , Tiruppur , Palladam , Erode are the nearby Towns/Cities to Paranjervali. This Place is in the border of the Tiruppur District and Erode District. Chennimalai of Erode District is in North towards this place.

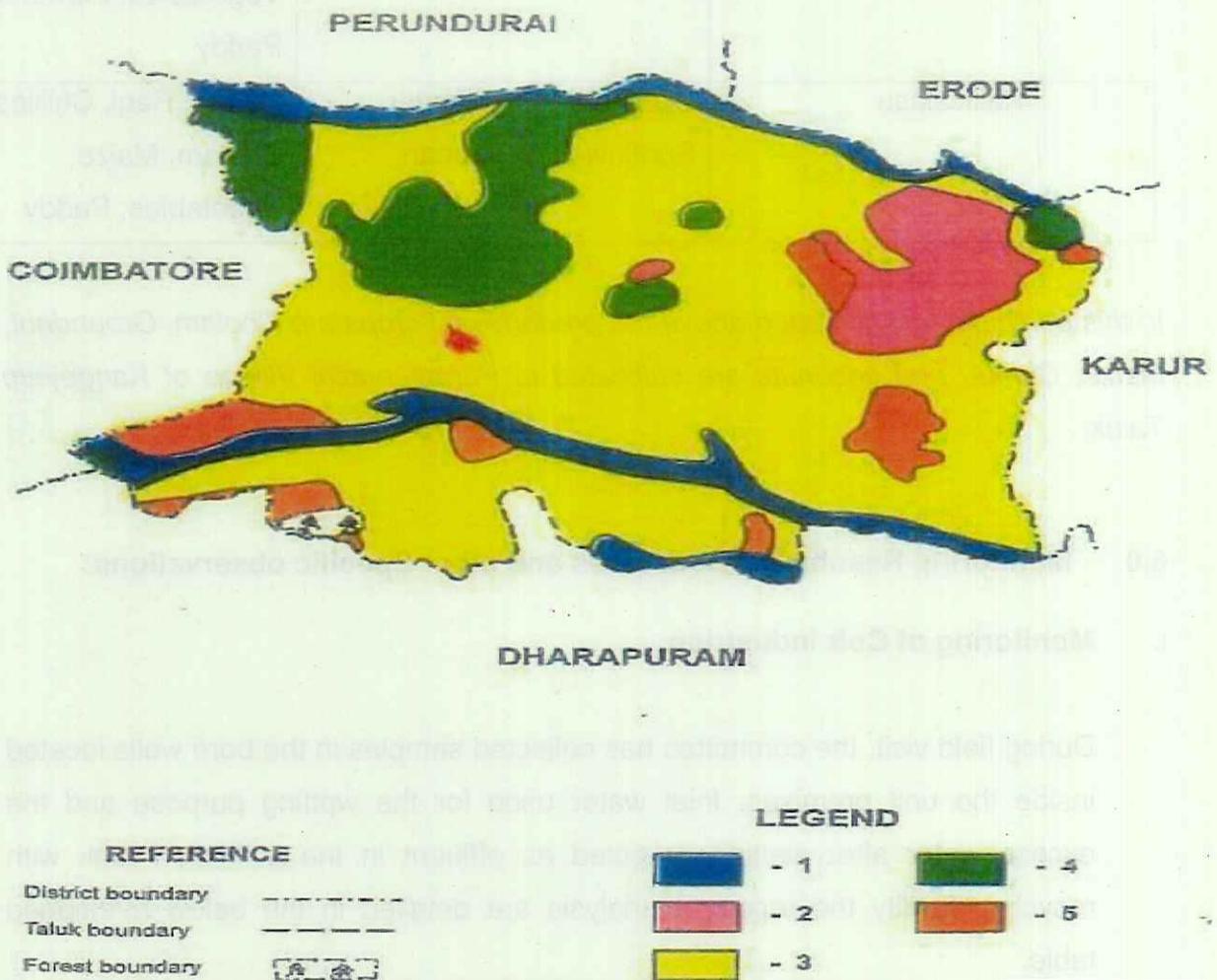
The coir units are located as cluster, in the East about 500.Mts from pallakatupudhur village, in the West about 700m from Chinnaparanchervazhi Village, in the north about 1000m from Velayuthampalayam and in the South 300m from Poriyagoundanvalasu hamlet.

Fig no. 3 : Google image showing the habitation details from the Coir units



5.0 Crops Grown in Kangeyam Taluk:

Fig no. 4: Map showing Soil series in the subject area



Crops Grown – Kangeyam Taluk

Map Symbol	Soil Series	Crops grown	
		Rainfed	Irrigated
3	Tulukkanur	Cholam, Groundnut, Pulses, Tapioca	Cholam, Cumbu, Maize, Groundnut, Vegetables
4	Vannapatti	Sunflower, Groundnut Pulses	Groundnut, Cumbu Flowers
5	Syamalagoundenpudur	Sunflower, Groundnut Pulses	Groundnut, Cumbu Flowers

2	Suriyanallur	Cholam, Pulses, Groundnut	Cotton, Chillies, Vegetables, Flowers, Paddy
1	Kallivalasu	Black gram, Coriandar, Sunflower, Soyabean	Cotton, Ragi, Chillies Cholam, Maize, Vegetables, Paddy

In this particular soil as stated above the predominant crops are Cholam, Groundnut, Maize, Cumbu and coconuts are cultivated in Paranjervazhi Village of Kangeyam Taluk.

6.0 Monitoring Results & Discussions and other Specific observations:

i. Monitoring of Coir industries

During field visit, the committee has collected samples in the bore wells located inside the unit premises, Inlet water used for the wetting purpose and the excess water after wetting collected as effluent in the collection tank with recycling facility the report of analysis are detailed in the below mentioned table.

Table 1: The intake water quality and effluent characteristics report of Coir industries

Sl No.	Parameters	Locations of samples taken							
		M/s Amman Coirs Plant-II		M/s C.S. Coirs Plant-III		M/s Sri Ganapathy Coirs Plant-IV		M/s Sri Amman Coirs	M/s RPG Coirs
		Intake Water	Effluent	Intake Water	Effluent	Intake Water	Effluent	Open Well	Bore Well
1.	Conductivity at 25°C	2120	2680	1588	1877	1375	1685	2310	1467
2.	pH at 25°C	7.79	8.22	8.17	7.19	7.69	7.27	7.49	7.36
3.	TDS at 180°C	1284	1677	1040	1172	828	1047	1425	943
4.	Chloride as Cl	388	455	197	357	248	331	590	145
5.	Sulphates as SO ₄	494	494	803	547	313	126	534	259

SI No.	Parameters	Locations of samples taken							
		M/s Amman Coirs Plant-II		M/s C.S. Coirs Plant-III		M/s Sri Ganapathy Coirs Plant-IV		M/s Sri Amman Coirs	M/s RPG Coirs
		Intake Water	Effluent	Intake Water	Effluent	Intake Water	Effluent	Open Well	Bore Well
6.	COD	13	17	34	34	13	13	BDL (DL:4.0)	BDL (DL:4.0)
7.	Nitrate Nitrogen as NO ₃	1.2	7.3	BDL (DL:1.0)	2.2	6.4	4.3	10.7	3.2
8.	Potassium as K	51	34.5	11.6	146	12.6	160	9.9	12.8
9.	%Sodium	369	105.5	26.7	104	102	123	102	100
10.	Lignin	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)

- ✓ From the table no. 1, the TDS concentration (943 – 1425 mg/L) of intake water/open well in the premises of industries was found within permissible limit of drinking water quality (2000 mg/L).
- ✓ The waste water generated from the soaking process of Coconut husk contributes the inorganic substances such as Chloride and Potassium, no significant organic substances were observed in the waste water.
- ✓ The TDS concentration was found increased around 13 – 30 % in the waste water generated from coir process industries and also it is observed that Sulphate concentration was found decrease in concentration in compare to intake water quality.
- ✓ The lignin concentration was found below detectable limit in all three samples taken from coir processing industries.

ii. **Monitoring of ground water in villages located around the Coir industries:**

The committee has collected ground water samples in various locations around the cluster of coir units as identified by the petitioner and the villagers. The sampling locations are in Murugampalayam Village, Shanthi Colony, Chikkampalayam, Kanakkatukadu, Aranmanikadu, Manthope and Noyyal River Sample near Uppliyapalayam localities.

The sample locations of table 1 and table 2a are located within 750m from the cluster of the coir units are depicted in the fig no. 5 and the reports of analysis are detailed in the table 2a;

Fig no. 5: Google image showing the location of sampling site and TDS Measured (Table 2c)



Table no. 2a: Analysis report of ground water samples taken within 750 m from the clusters of Coir industries

S I N o.	Parame ters	Units	Locations of samples taken							
			002	005	008	009	010	011	012	013
			S.F.NO O.111 3, Open Well – Mr.Du raisa my S/o.M .Muth usam y	S.F.NO.1204 , CheniappaG ounderThott am – Open well	S.F.NO .1201 – Selvara jThotta m, Opposit e to Amman Coir Bore well	S.F.NO .1242 Near LBP Canal S.F.NO .623 Quarry Water Moorth yThotta m	S.F.NO .1183 Pallaka ttupudh ur Bore well Govern ment Water Supply	S.F.NO.12 44 A, Jeyapraka samThotta m Well Sample – (Not in use for 10 years)	S.F.NO.1 197, Ponnusa myThotta m, Balasubr amaniam	Poriyago undavala su Water supply sample
	Latitude &Longitu de	-	-	-	11.0663 56° 77.6195 82°	11.0674 75° 77.6200 94°	11.0655 98° 77.6234 12°	11.068956° 77.623931°	11.064935 ° 77.620495 °	11.064876 ° 77.614791 °
1.	Conduct ivity at	µs/c m	7010	2310	1657	2010	1951	1833	1511	1793

	25°C									
2.	pH at 25°C	-	6.68	7.17	7.42	7.44	7.15	7.5	7.17	7.67
3.	TDS at 180°C	mg/L	4091	1407	988	1275	1207	1102	910	1079
4.	Chloride as Cl	mg/L	2329	580	305	528	305	373	300	279
5.	Sulphates as SO ₄	mg/L	1965	246	187	551	455	263	185	162
6.	COD	mg/L	13	23	BDL (DL:4.0)	BDL (DL:4.0)	BDL (DL:4.0)	22	9	BDL (DL:4.0)
7.	Nitrate Nitrogen as NO ₃	mg/L	30.5	BDL (DL:1.0)	BDL (DL:1.0)	16.5	60	2.7	8.7	42.5
8.	Potassium as K	mg/L	59	13.7	12.6	10	12.1	16.4	13.9	22.8
9.	% Sodium	mg/L	534	104	72.2	92	89.4	47.1	45.5	104
10.	Lignin	mg/L	BDL (DL:0.5)							

- ❖ From the table no. 2a, except well no 002, the TDS (910 - 1407 mg/L) and Chloride (279 – 580 mg/L) concentration in other 7 wells (located within 750 m from the clusters of coir industries) were found within the permissible limit of drinking water standards (TDS of 2000 mg/L and Chloride of 1000 mg/L).
- ❖ No organic pollutants were observed in any wells. The concentration of nitrate as NO₃ was found within acceptable limit (45 mg/L) of drinking water in all wells except Bore well (60 mg/L) of Government water supply. This may be due to prevailing human activities (bathing, washing cloth etc) near to the said bore well.
- ❖ The high TDS concentration (4091 mg/L) in well no 002 may be due to surface runoff from the coir pith drying land since the well is very close to the coir pith drying area and drawal of water is not regular from the well. The concentration of Potassium (59 mg/L) in this well also indicates the inception of runoff from coir pith drying land.
- ❖ The lignin concentration was found below detectable limit in all wells.

The samples locations taken behind the 750 m from clusters of Coir industries are depicted in Fig no. 5 and analysis reports of respective water samples are tabulated in Table 2b and 2c;

Fig no. 6: Location of sampling site and TDS Measured in table 2b&2c



Fig no. 7: Location of sampling site and TDS Measured in table 2b

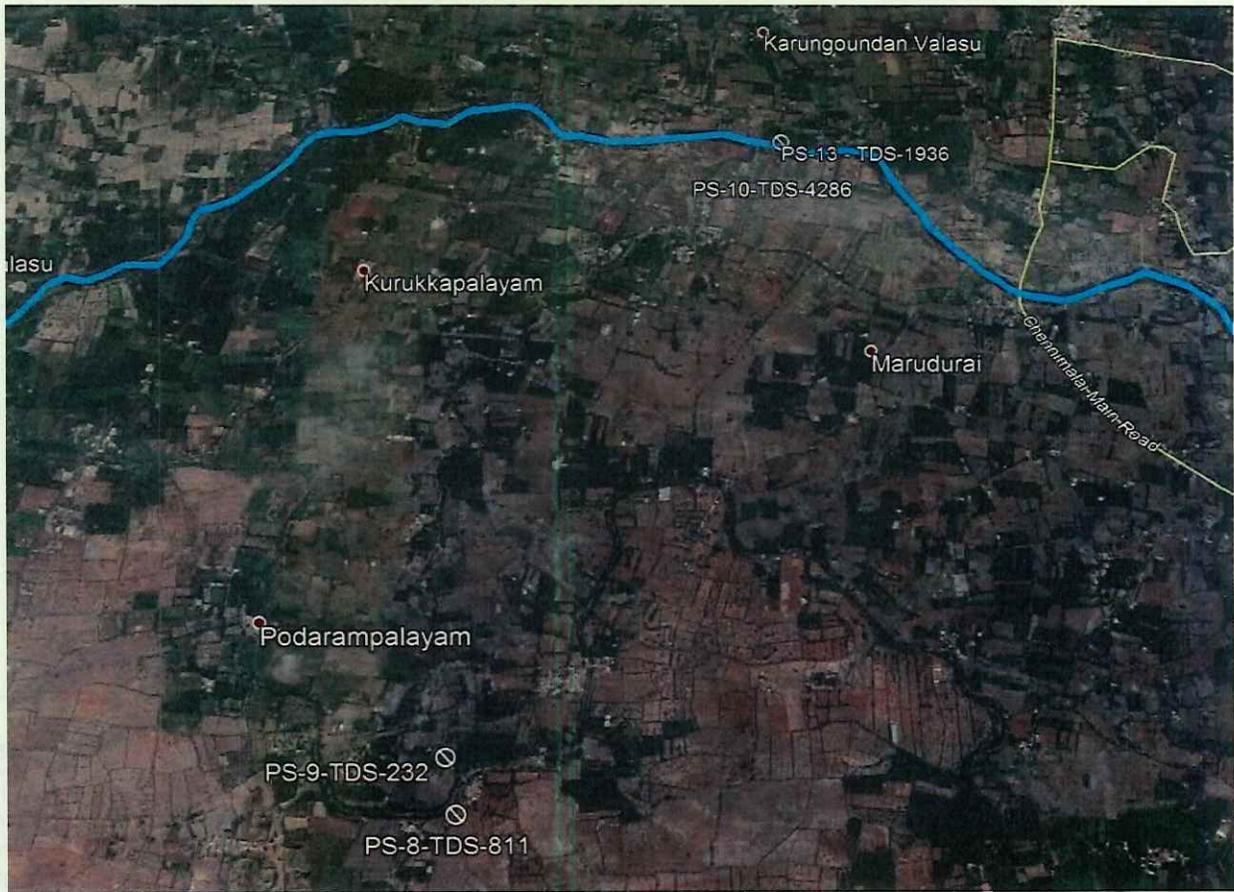


Table 2b: Analysis report of ground water samples taken behind 750m from the cluster coir industries

Sl No.	Parameters	Units	Locations of samples taken						
			PS-1	PS-2	PS-3	PS-4	PS-5	PS-6	PS-7
			SF.NO12 09 E Murugap agounder Murugam palayam Village	SF.NO12 09 Sakthivel Murugam palayam Village	SF.NO.1 235 B-1 Murugap agounder Murugam palayam Village	SF.NO12 09 B2 Subrama niMuruga mpalaya m Village	Murugam palayam Near Kovil Drinking water supply well	SF.NO.1 209/11, 10- Jayaprakash, Murugam palayam Village	SF.NO. Shanthi Colony (Disused Well)
	Latitude & Longitude	-	11°07'1147 77°62'0403	11°07'1831 77°62'1674	11°07'2014 77°62'1881	-	11°07'0869 77°62'2517	11°07'0144 77°62'2064	11°08'5293 77°62'6925
1.	Conductivity at 25°C	µs/cm	1510	2300	1591	2240	851	4010	5300
2.	pH at 25°C	-	7.72	6.72	7.53	6.82	7.63	6.88	6.69
3.	TDS at 180°C	mg/L	891	1336	964	1356	540	2379	3368
4.	Chloride as Cl	mg/L	279	419	274	399	399	1170	1739
5.	Sulphates	mg/L	28.5	145	43.2	60	60.2	380	353

	as SO ₄								
6.	COD	mg/L	BDL (DL:4.0)						
7.	Nitrate Nitrogen as NO ₃	mg/L	38.5	69.9	53.2	70	13.1	50.9	5.78
8.	Potassium as K	mg/L	5	12	8.8	12.4	12.4	5.6	18.9
9.	% Sodium	mg/L	91	101	100	104	104	60.8	62.8
10.	Lignin	mg/L	BDL (DL:0.5)						

Table 2c: Analysis report of ground water samples taken behind 750m from the cluster coir industries

Sl No.	Parameters	Units	Locations of samples taken					
			PS-8	PS-9	PS-10	PS-11	PS-12	PS-13
			SF.NO12 71/6B Chikkam palayam Subrama ni	Kanakkat ukaduBor ewell Sample	Aranmani kadu on banks of river noyyal	Manthope Bus stop Kandasa my's House	SF.NO.1 213 Kandasa my'sThot tam	Noyyal River Sample Near Uppliyapal ayam Village
	Latitude & Longitude	-	11°00'9780 77°62'2559	11°09'1761 77°62'1845	11°12'1247 77°63'5402	11°07'6892 77°62'3403	11°07'4755 77°06'1755	-
1.	Conductivity at 25°C	µs/cm	1337	386	6800	1124	707	3320
2.	pH at 25°C	-	7.37	7.45	7.84	7.37	7.90	7.60
3.	TDS at 180°C	mg/L	811	232	4286	715	429	1936
4.	Chloride as Cl	mg/L	150	78	1698	129	48	595
5.	Sulphates as SO ₄	mg/L	167	97	3086	401	12.9	47.8
6.	COD	mg/L	BDL (DL:4.0)	BDL (DL:4.0)	BDL (DL:4.0)	BDL (DL:4.0)	BDL (DL:4.0)	BDL (DL:4.0)
7.	Nitrate Nitrogen as NO ₃	mg/L	8.9	8.5	14.1	54	5.61	1.6
8.	Potassium as K	mg/L	8.7	6.2	75	9.9	13.3	58
9.	% Sodium	mg/L	89.5	14.4	933	55	50.9	571
10.	Lignin	mg/L	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)

- From the table no. 2b & 2c, except well nos PS -6, PS- 7 & PS-10, the TDS (232 - 1936 mg/L) and Chloride (48 – 595 mg/L) concentration in other 9 wells (located behind 750 m from the clusters of coir industries) were found within the permissible limit of drinking water standards (TDS of 2000 mg/L and Chloride of 1000 mg/L).
- Except well no PS 10, the sulphate concentration in all wells found within the permissible limit (400 mg/L) of drinking water.
- No organic pollutants were observed in any wells. The concentration of nitrate as NO₃ was found within acceptable limit (45 mg/L) of drinking water in 7 wells, in other 5 wells (PS-2, PS-3, PS-4, PS-6 & PS- 10) the nitrate concentration was reported more than 45 mg/L.
- The high TDS concentration (4286mg/L) in well no PS-10 (located on the bank of Noyyal) may be due to impact of Noyyal river carrying sewage, past illegal discharges of dying effluent and may be because of the land and soil strata.
- The High TDS concentration (2379 & 3368 mg/L) was observed in two wells namely PS-6 & PS-7, this may because the wells are been not used for several years and may be because of the land and soil strata.
- The lignin concentration was found below detectable limit in all wells.

iii. Lab scale study of Coir Pith Soaked in distilled water and raw water used by Coir processing industries and its analysis reports:

The committee has decided to conduct a pilot study to know about the properties of water when reacted with coir pith for a period of 20 days. The experiment was conducted with raw water used by the unit and also with distilled water. The methodology adopted is briefed below.

Methodology adopted for pilot study

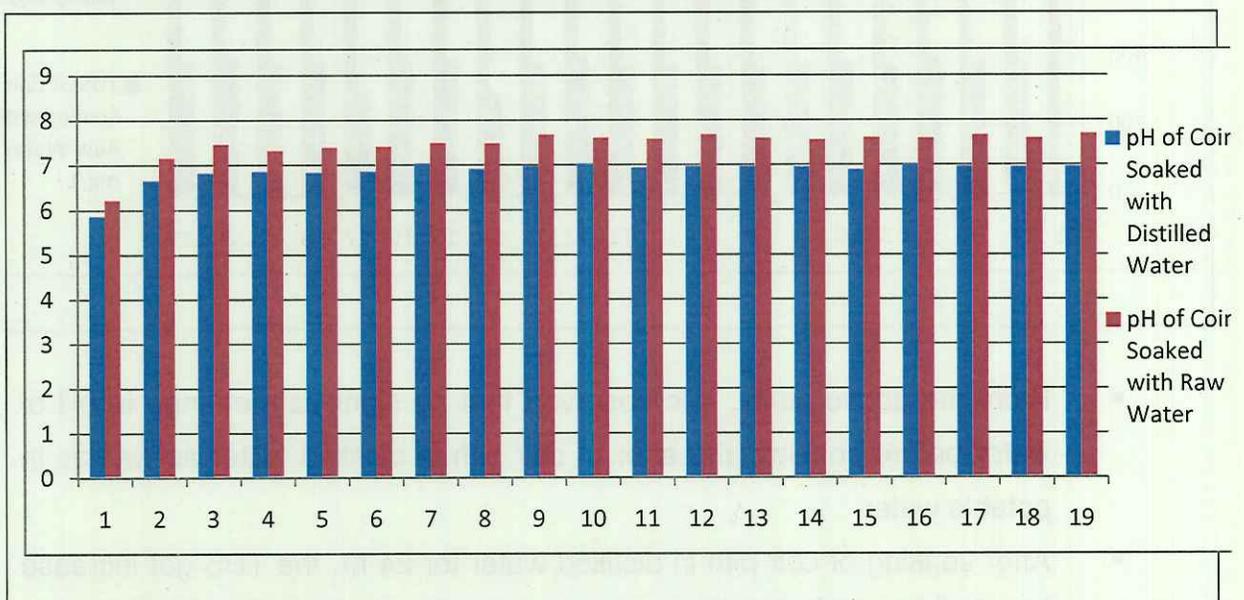
- Step-1** Preliminary analysis of raw water used by the units for - pH, Electrical Conductivity & TDS.
- Step-2** Preliminary analysis of Distilled water for - pH, Electrical conductivity & TDS
- Step-3** Adding 12.5gm of Coir Pith in 40 numbers of containers.
- Step-4** Divided the containers as two batches. 20 numbers of containers as First batch and 20 number of containers as second batch.
- Step-5** Labeled the containers as Day1, Day2, Day3,.....Day20 for First batch and in same way for second batch.
- Step-6** Added 250ml of RAW WATER in each of the first batch 20 containers.
- Step-7** Added 250ml of DISTILLED WATER in each of the Second batch 20 containers.
- Step-8** After 24 hrs the container labelled as DAY1 (Coir pith soaked in RAW WATER one container and likewise Coir pith soaked in DISTILLED WATER in another container) and the analysis for pH, Electrical conductivity, TDS on both the above said containers were carried out.
- Step-9** 2nd day the container labelled as DAY 2 is taken for analysis of pH, Electrical Conductivity & TDS.
- Step-10** The processes of analysis for all the containers were considered so that end of the 20th day to know the quality of RAW WATER & DISTILLED WATER soaked with coir pith.

Table 3: Results on quality of distilled water and rawwater after soaking of coir from Day 1 to 20

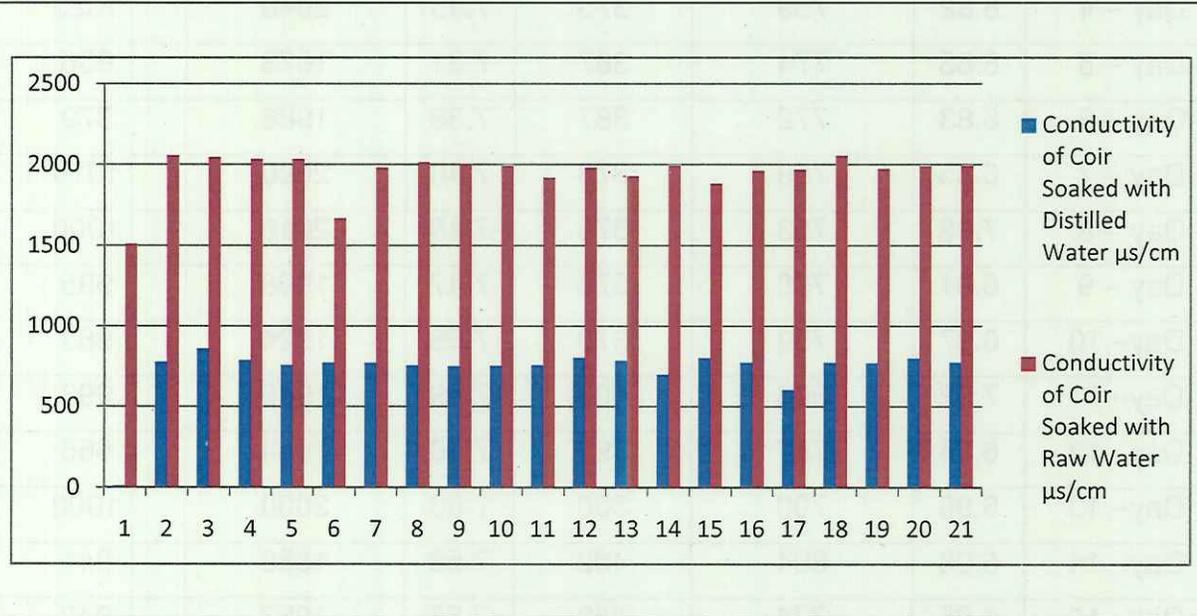
No.of Days	Coir Soaked with Distilled Water			Coir Soaked with Raw Water		
	pH	Conductivity µs/cm	TDS mg/L	pH	Conductivity µs/cm	TDS mg/L
Before Soaking of coir pith	5.25	13	6.56	7.61	1515	759
Day – 1	6.80	779	394	7.23	2060	1030
Day – 2	5.86	862	431	6.20	2050	1020
Day – 3	6.65	791	395	7.14	2040	1020

No. of Days	Coir Soaked with Distilled Water			Coir Soaked with Raw Water		
	pH	Conductivity $\mu\text{s}/\text{cm}$	TDS mg/L	pH	Conductivity $\mu\text{s}/\text{cm}$	TDS mg/L
Day - 4	6.82	759	375	7.45	2040	1020
Day - 5	6.85	774	387	7.31	1673	836
Day - 6	6.83	772	387	7.38	1986	979
Day - 7	6.85	758	378	7.40	2020	1010
Day - 8	7.03	753	375	7.48	2010	1000
Day - 9	6.91	756	378	7.47	1998	995
Day - 10	6.97	759	379	7.66	1924	963
Day - 11	7.02	806	403	7.59	1986	993
Day - 12	6.94	787	392	7.56	1934	966
Day - 13	6.96	700	300	7.66	2000	1000
Day - 14	6.96	804	402	7.58	1889	941
Day - 15	6.95	774	389	7.55	1967	942
Day - 16	6.89	606	303	7.60	1976	987
Day - 17	7.01	774	387	7.58	2060	1030
Day - 18	6.96	771	385	7.65	1980	990
Day - 19	6.95	802	401	7.58	1997	998
Day - 20	6.96	776	388	7.68	2000	1000

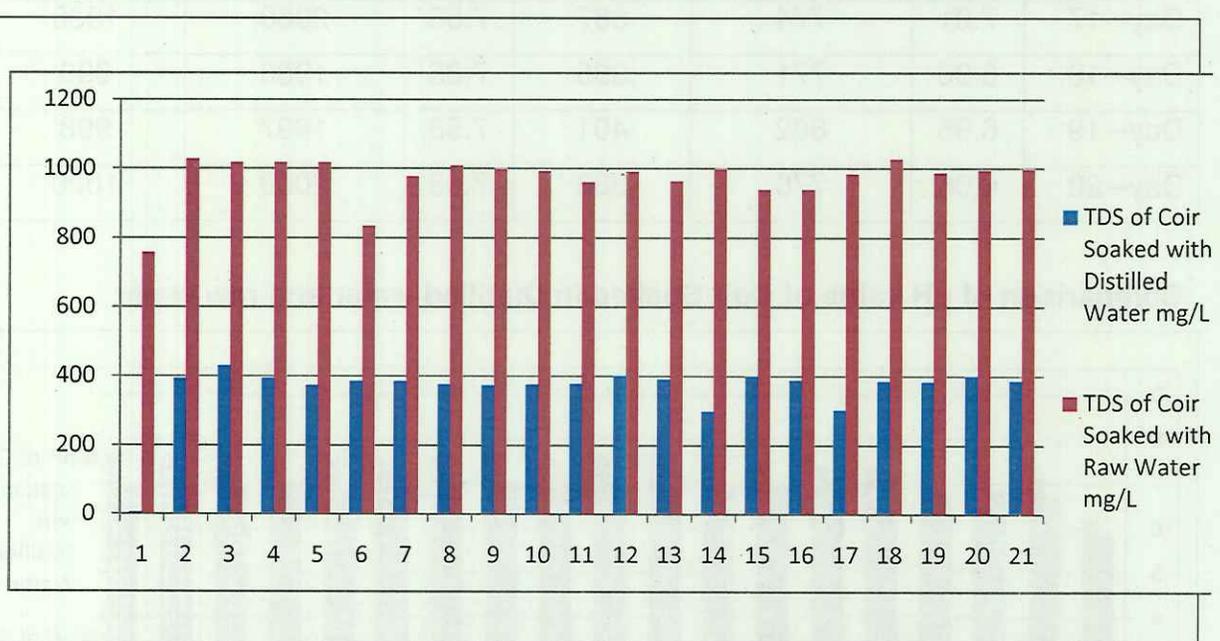
Comparison of pH value of Coir Soaked in Distilled water and raw water



Comparison of Conductive value of Coir Soaked in Distilled water and raw water



Comparison of TDS value of Coir Soaked in Distilled water and raw water



- From the above study, it is observed that no significant change in pH of water before soaking and after of coir pith in distilled water as well as in potable water.
- After soaking of coir pith in distilled water for 24 hr, the TDS got increase from 6.56 mg/L to 394mg/L and the conductivity increased from 13 µs/cm to 779 µs/cm.

- After one day, contribution of EC and TDS was found more or less same and there is no major change in concentration till 20th day.
- **The results from day one to day twenty is shown in the graph and table which reveals that there is no major contribution of TDS by the Pith with duration of number of days. The comparison reveals that there may be no TDS contribution of the coir piths into the ground water.**

7.0 Conclusion of the Joint Committee based on the field observations and Monitoring:

(i) Waste Water generated from Coir Industries :

- A.** As per CPCB Re-categorisation the unit comes under White Category 4023 – manufacturing of coir items from coconut husks. The units involved in export activity they are in need of Pollution Control Board Consent Order. Hence in order to consider the application for the issue of consent, the category has been taken as Green 3999 –Miscellaneous.
- B.** The analysis reports of samples taken from the three industries indicates that no significant contribution of organic pollutants and lignin in the waste water.
- C.** The TDS concentration (1047 – 1677 mg/L) in the waste water (from soaking process of coconut husk) found moderate, since the same being recycled in the soaking process no impact in the surrounding was observed.
- D.** The results of the lab scale study carried out with the coir pith reveals that there is no major contribution of TDS by the pith to the water. The TDS of the raw water was measured as 759 mg/L on the first day after soaking the TDS was increased to 1030 mg/L later on till 20th day there is no increase in TDS. The study also reveals that the coir pith is having tendency to increase the TDS in the form of inorganic compounds viz. chloride and potassium which is naturally available in the coconut.
- E.** As per the information of Coir Board, the **Coir pith** has very high moisture retention capacity of 600- 800 per cent and can be as high as 1100 per cent of dry weight. The Coir Board of India has certified that the product manufactured from these units is Bio-degradable and eco-friendly.

ii. Ground water Quality in the surrounding area:

- ❖ As per the result of analysis of the samples collected from the surrounding villages within 750 m from the cluster of coir industries reveals that no impact on ground water due to process of coconut husk into coir and pith.
- ❖ High TDS was observed in only one open well which is located near to coir pith drying area, the reported well was not in use for long time. The high TDS may be caused due to cumulative effect of surface runoff from coir pith drying area or due to non withdrawal of water or may be due to the land and soil strata.
- ❖ As per the result of analysis of the samples collected from the surrounding villages behind the 750 m from the cluster of coir industries also reveals that no impact on ground water.
- ❖ The Bore well/open well located near to Noyyal River has high TDS due to past impact of Noyyal river carrying treated/untreated effluents of dyeing units of Tiruppur.
- ❖ It is worth to express that no significant TDS concentration was observed in the petitioner's open wells tagged as PS-11 and PS-12 tabulated under table-2c, indicates the TDS levels as 429 mg/L and 715 mg/L which are located one km away from the clusters of coir industries which also confirms the no impact due to coir industrial activities.

8.0 Suggestion of Joint Committee :

It is to be noted that the coir processing has been certified and promoted as a "Non polluting Industry" producing "eco-friendly products" by the Coir Board, Ministry of MSME, Government of India letters dated 14.08.2014 and 15.09.2014 attached as annexure-I & II. Subsequently after field investigation followed by evaluation and understanding the process involved in the cluster of coir processing industries in the region, it can be asserted that there is no process water that escapes into the environment which could possibly contribute to the ground water TDS level. However on rare occasions, it could be anticipated for any incidental storm water run-off passing through the coir material drying regions, if persistently occurs, might marginally contribute to the rise in TDS to the water bodies receiving the run offs. Such conditions are very rare, since the coir drying process is carried out only during non- monsoon seasons. However to nullify even such unaccustomed eventuality, an effective management plan is provided under the suggestions to have a check on such sporadic incidents.

Suggestions to implement the following measures;

- i. The coir drying area shall be properly earmarked and protected with the suitable cloth/ LDPE sheet around the drying area for the height of 12 feet.
- ii. Construction of guard channel and pond to collect surface runoff from the coir pith drying area to avoid runoff into any water bodies.
- iii. Close monitoring of ground water quality around the coir industries to watch the change in water quality if any.
- iv. The coir pith drying / storage process shall be carried out in an impervious platform by laying LDPE/HDPE sheets or the storage/drying yard shall be lined with Clay textured soils having lesser permeability.

The Committee visited the subject area during February 25 & 26, 2020 and collected the ground water samples in presence of the applicant and as per the information's provided by the applicant and villagers for better understanding of the subject site. The present report limits its study with focus only on the cluster of white category coir processing industries.

Due to pandemic COVID-19 outbreak in all over the country, the committee could not visit for further monitoring of ground water extending to the 20km radius as directed by the Hon' ble NGT.

Also since no specific historic data is made available on the quality and status of ground water in the region, it cannot be concluded that there is any rise in TDS levels in recent years as alleged. If there was an increase in the TDS levels in ground water of the regions in recent years as alleged, it is suggested to take up detail ground water study to ascertain the TDS profile in two season viz. monsoon and post monsoon.

Signature of committee members

(Dr.K.Vijayakarthykeyan)
District Collector,
Tiruppur

(H.D.Varalaxmi)
Sc.E/AD, CPCB, Regional
Directorate (South),
Bangalore.

(Thiru.Ramanand),
Scientist -D, (Sr.
Hydrologist), Central
Ground Water Board.

(Er. Jowin Joseph),
Scientist, NEERI Zonal
Centre.

(Dr.Y.R.Satyaji Rao),
Scientist 'a' and Head,
National Institute of
Hydrology.

(Dr. S. MathavaKumar),
Associate Professor,
Department of Civil
Engineering IIT Madras.

(Er.K.Senthil Vinayagam)
THEN District Environmental Engineer,
TNPCB, Tiruppur North.

Annexure-I

NGT Order dated 07.01.2020

Item No. 15

**BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI**

Original Application No. 05 of 2016 (SZ)

IN THE MATTER OF:

M. Kandasamy

.. Applicant(s)

WITH

**The State of Tamil Nadu,
Rep. by its Secretary, E&FF,
Chennai and others.**

.. Respondents

Date of hearing: 07.01.2020.

**CORAM: HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER
HON'BLE MR. SAIBAL DASGUPTA, EXPERT MEMBER**

For Applicant(s)

M/s. Prabakar

For Respondent(s):

**M/s. S.N. Parthasarathi for R1, R4,
R5 and R6**

**M/s.S. Bageerathan for
C. Kasirajani for R2, R3**

**M/s. Saii Sathya Jith for R8, R9,
R10, R11, R12**

ORDER

The issue is regarding pollution caused on account of the operation of industries conducted by respondents 8 to 12. The allegation is that on account of the establishment of these units, the quality of water in that area has been affected as they are discharging untreated trade effluent into the ground. Further, the air pollution is also being caused and they do not have necessary pollution control mechanism. It is seen from the reply filed that all the industries are white category industries which do not require consent to operate. However, they have applied and obtained consent to operate. In the counter statement of the Tamil Nadu Pollution Control Board (TNPCB) they have stated that they are not discharging untreated effluent in to the soil. However, the water quality that has been tested in that locality shows that the TDS level is high and these industries are not responsible for the same.

According to the applicant, the TDS level was normal before establishment of the industries and only after establishment of these industries the TDS level has increased.

On the other hand, learned counsel appearing for the TNPCB as well as the industries submitted that the operation of the industries are not

responsible for increase in TDS level and that was due to the soil condition in that area and also due to discharge of effluent by the other industries which are situated within a distance of 20 kms near by Noyyal River area.

However, learned counsel appearing for the TNPCB also today submitted that the units in question are under operation and they are complying with the pollution norms. The recent inspection on 06.01.2020 shows that they are complying with all the conditions and there is no effluent discharge made by these industries as alleged by the applicant in their application.

After going through the replies filed and deliberations, we feel it appropriate to conduct a detailed water quality test near the industrial area where the disputed industries are functioning and also within a radius of 20 KMs where the dyeing units are functioning to find out the difference in quality of water with particular reference to TDS level. TNPCB is directed to find out the source and reason for high TDS level in water in those areas .

Accordingly, we feel it appropriate to appoint a Joint Committee consisting of (1) District Collector, Tiruppur District, (2) Scientist from

Central Pollution Control Board, (3) Centre Water Resources Authority, (4) Tamil Nadu State Pollution Control Board, (5) I.I.T. Chennai, (6) NEERI, Chennai and (7) a Senior Scientist from National Institute of Hydrology, Roorkee, Uttarakhand, India and if there is any Zonal branch available in Chennai, they can depute the officer of that unit for helping the Committee to inspect all the areas in question and also the industrial areas to find out the reason for the high TDS level in water in the area and if so, what remedial action to be taken to rectify the same . The Joint Committee is directed to submit the report to this Tribunal within a period of two months. TNPCB, Chennai will be the nodal agency for co-ordination.

The Registry is directed to send a copy of the order to the above said officials for compliance of the directions.

For compliance of the report post on 23.03.2020.

.....J.M.
(Justice K. Ramakrishnan)

.....E.M.
(Saibal Dasgupta)

07th January, 2020
Kr.

Annexure-II

Certificate issued by the Coir Board



**कयर बोर्ड
COIR BOARD**

Ministry of Micro, Small and Medium Enterprises, (Government of India)

**केन्द्रीय कयर अनुसंधान संस्थान
CENTRAL COIR RESEARCH INSTITUTE**

कलकत्ता पी.ओ.
पिन-688522
आन्ध्रप्रदेश जिल्ला
दुर्गमचेली - 258094
258480
Kolkata P.O.
Pin - 688 522
Atchepy Dist.
Tel: 258094
258480



CCRI/Extn/2013-14/53/1005

15.09.2014

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Coir Industry is one of the Cottage Industries where coconut husk is the raw material used by this industry. There is no chemicals are used by this industry. Since, this is a natural coconut husk used by the industry for producing value added product, there is no hazardous products are produced by this industry. As such it is a environment friendly product.

[Handwritten Signature] 20/09/14

DIRECTOR, RBTE



Annexure-III



कोयर् बोर्ड
Coir Board
(सूक्ष्म, सघु कोयर् कर्षण संशोधन, भारत सरकार)
Ministry of MSME, Govt. of India)
प्रदेशीय कार्यालय
REGIONAL OFFICE

C.O./Distt No. 110
Koyamthoor/Valluvar Street
Kalamassery/Vedanthapur Colony
Kochi/Kerala - 682 001
Phone : 44259-227666
Fax : 44259-237480
E-mail : coirpolltech@gmail.com
Web : www.coirboard.in

Recd:
Date:
14.08.2014

CB/ROP/14-15/2/10/388

The District Environmental Engineer,
Tamilnadu Pollution Control Board,
Tiruppur North.

Sir,

**Sub: Requesting the clarification for the show cause notice issued by
Tamilnadu Pollution Control Board.**

With reference to the above we would like to inform that we have received a representation letter from dated 6.8.2014 along with two show cause notices dated 10.7.2014, one under the Air (Prevention and control of pollution) Act, 1981 and another under the Water (Prevention and control of pollution) Act, 1974 issued by the Tamilnadu pollution control board from Shri.R.Ramesh, M/s. R.P.G. Coirs, Poriyyagoundan Village, Kangeyam, Tiruppur Dt. In this regard we would like to convey that we have gone through the two notices and also we have to forward the same to The Secretary, Coir Board, Kochi with copy to The Director RDTE, Central Coir Research Institute, Coir Board, Kalavoor, Alleppey to clarify the issue regarding the pollution as set above on scientifically for which we need nearly 45 days to get feedback from the above Institute.

In this regard we further to clarify that the Coir Board (Ministry of MSME) was set up under the Coir Industry Act 1953 by the Govt. Of India overall sustainable development of coir industry in India. The functioning of the Board as laid down under the Act undertaking , assisting and encouraging scientific, technological and economic research, modernization , quality improvement, human resource development, market promotion and welfare of all those who are engaged in this industry. Accordingly under the Coir Industrial Registration Act of Coir Board near about 4300 units are registered for the manufacturing of Coir fibre, Coir spinning, Curling, Coir pith, Mats, Rubberized coir, Garden articles, and Tufted mats units in Tamilnadu. Total production of coir fibre approximately 2.83 Lakhs tones and coir pith near about 5.60L tones besides 5,500 tones of curled coir and coir yarn 2500tones. For Manufacturing of the above coir products during the process no chemicals are added. The Coir industry in Tamilnadu given the employment generation for 1.6L persons. Total export of coir and coir products during the last year (2013-14) is Rs.1476 Crores. Out of total export of Rs.1476 Crores fibre is 329 Crores and coir pith is 342 Crores which mostly exported from Tamilnadu. The coir Industry is an exported oriented one and coir and coir & products are exported to more than 112 countries all over the world. The coir industries are Agri based and NON POLLUTING INDUSTRY and the industries products are also 100% Eco friendly products.

By considering the above it is requested that kindly not to take any action against the above unit holder.

Yours faithfully,
Regional Officer

Copt to: Shri.R.Ramesh,

M/s. R.P.G. Coirs, Kangeyam, Tiruppur

Annexure-IV

Photographs taken during Committee visit

District collector & committee members visiting the coir unit



District collector & committee members checking the water holding capacity of the coir Pith



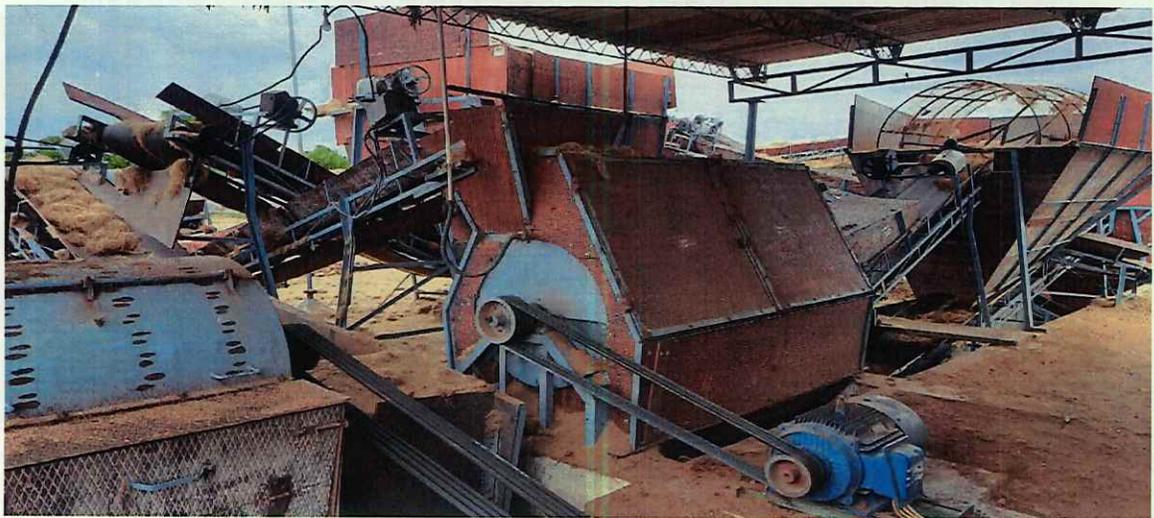
Committee members checking the water quality and collecting samples



Over view of components of Coir industry



Process machineries covered with wooded sheets



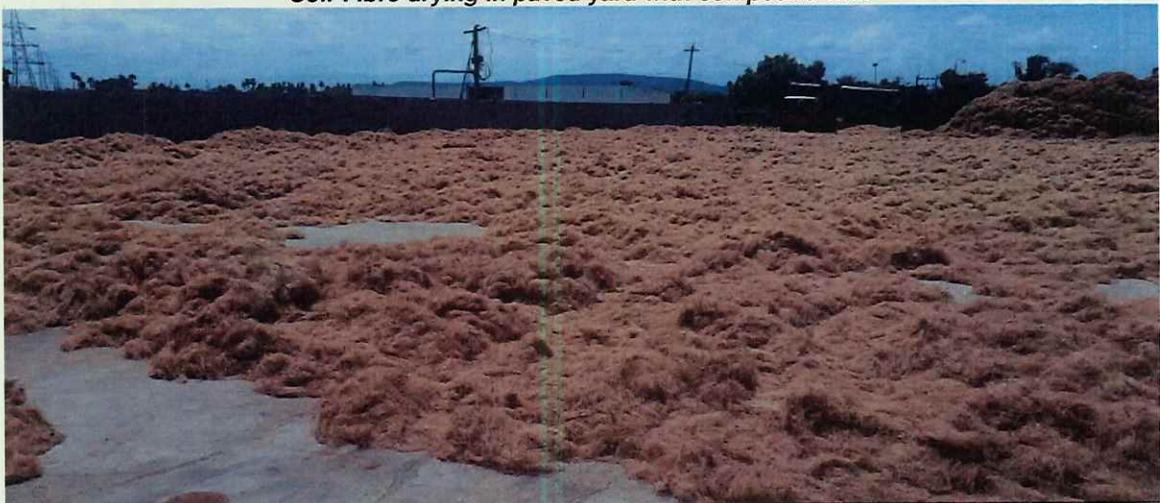
Raw material stored in open land and processing husk in paved platform



Collection tank with recycling facility



Coir Fibre drying in paved yard with compound wall



Wind net arrestor along the periphery of the unit



Coir pith briquetting machine within closed shed



Waste coir pith stored/dried in open land

