

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

**Application No. 32 of 2015 (SZ)**

**IN THE MATTER OF:**

T.S. Sekar

On behalf of the general public of  
Thippampatti Kattuvalavu  
Konnur Post, Mettur Taluk,  
Salem District

... Applicant

Versus

1. Secretary to Government  
Ministry of Environment, Forests and Climate Change,  
Union of India,  
Indira Paryavaran Bhavan  
Jorbagh Road,  
New Delhi - 110 003.
  2. The Chairman  
Tamil Nadu Pollution Control Board,  
No.76, Mount Road,  
Guindy, Chennai- 600 032.
  3. The District Environmental Engineer  
Tamil Nadu Pollution Control Board,  
1/276, Meyyanur Main Road, Salem.
  4. The Vice President  
Madras Aluminium Company Limited (MALCO),  
Post Box No.4, Mettur Dam R S, Salem.
  5. Central Pollution Control Board  
Parivesh Bhawan, CBD-cum-Office Complex,  
East Arjun Nagar, New Delhi - 110 032.
- ... Respondents

**Counsel Appearing for the Applicant**

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M/s K. Prabu

**Counsel Appearing for the Respondents**

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Smt. C. Sangamithrai for  
Respondent No.1; Smt. Yasmeen Ali for Respondent No.2 and Respondent No.3;  
Shri Sathish Parasaran for Respondent No.4; Shri. D.S. Ekambaram for  
Respondent No.5.

## ORDER

PRESENT:

1. **Hon'ble Shri Justice M. Chockalingam**

Judicial Member

2. **Hon'ble Shri P.S.Rao**

Expert Member

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**Delivered by the Hon'ble Bench dated, 24<sup>th</sup> September, 2015.**

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1. Whether the judgement is allowed to be published on the internet. Yes / No
2. Whether the judgement is to be published in the All India NGT Reporter. Yes / No

Claiming that he is filing this O.A. on behalf of the general public who are residing and carrying on their agricultural activities in Thippampatti Kattuvalavu area of Konnur Post, Mettur Taluk of Salem District for the past 30 years, the applicant seeks a direction to the 4<sup>th</sup> respondent to take appropriate pollution control measures to prevent red mud dust pollution from damaging the nearby residential houses, agricultural lands and water bodies. The applicant has filed M.A.No.157 of 2015(SZ) to amend the relief clause in the application which was allowed by this Tribunal on 28.07.2015. The respondents have filed their respective replies disputing the averments made by the applicant.

2. It is the case of the applicant that the 4<sup>th</sup> respondent Madras Aluminium Company Ltd. (MALCO) has set up an aluminium unit in 1965 near Mettur Dam in Salem District with a production capacity of 35,000 tonnes per annum. It was closed for a brief period between 1992-1995 because of power shortage. In 1995 MALCO merged with *M/s. Sesa Sterlite Limited* and resumed the operations after making huge investment with a capacity of 60,000 tonnes per annum of alumina refinery-cum-smelter and 35,000 tonnes of aluminium by processing the bauxite mineral extracted from the company's captive mines in Kolli Hills Yercaud and also in Palani Hills. The extraction process involves generation of residue known

as 'red mud' which has been indiscriminately dumped in large quantities by the 4<sup>th</sup> respondent company in the village lands and the banks of the Stanley reservoir. The dumpsite is open, easily accessible from all directions since no wall has been built around it and dust emission from red mud dump is polluting the nearby agricultural lands, residential areas and water bodies as the company has not taken pollution Control measures.

3. The applicant further states that the red mud contains among others such as Silica, Iron, Titanium, Calcium Oxide, caustic residues and heavy metals such as Mercury causing not only environmental pollution but also creating health hazard to the villagers. He also states that the pollution is maximum during the summer months when winds blow severely leading to heavy amount of red mud dust blowing and settling in the agricultural fields, all the structures including the houses and whole atmosphere is damaged causing health hazards to humans as well as cattle and goats. Though, a number of representations were made to the concerned authorities, no action was taken to curb the menace. The applicant further contends that in the year 2011, a red mud pond belonging to the Vedanta Group which owns the 4<sup>th</sup> respondent company, collapsed resulting in caustic toxins flowing into the Vasundhara River in the State of Orissa. Therefore, the present red mud pond in the aforesaid village in Salem District is also a disaster in waiting to happen wherein the Mettur dam is located at a stone's throw distance away and any breach will affect the water supply to millions of people. In the above circumstances, the applicant has got no alternative except to approach this Hon`ble Tribunal with a prayer to direct the 4<sup>th</sup> respondent to construct a compound wall around the red mud dump and to take appropriate Air Pollution Control (APC) measures to prevent the red mud dust polluting the environment and damaging the agricultural fields, water bodies and residential areas.

4. The 4<sup>th</sup> respondent company filed their counter affidavit on 11.03.15 and reply affidavit dated 4.9.2015 in response to the report of 3<sup>rd</sup> respondent. The 4<sup>th</sup> respondent stated that the MALCO got dissolved and consequently *M/s. Sesa Sterlite Limited* has become successor of residential business of erstwhile MALCO with effect from 17.08.2013 and hence *M/s. Sesa Sterlite Ltd.* has to be substituted in place of the 4<sup>th</sup> respondent and counter may be taken on record. It is stated in the reply that the MALCO which was an aluminium manufacturing company, has suspended its operations and stopped aluminium manufacturing process from its smelter complex, Mettur dam, Salem District since November, 2008 and therefore there is no generation of red mud for the past 6 years. Red mud is a non-hazardous solid waste generated during the process of manufacturing aluminium. The red mud which has been generated in the past and stored by erstwhile MALCO and the previous management prior to 2008 has been disposed of and order for closing the area and laying of top soil for restoring the land for useful purposes is pending before the Tamil Nadu State Pollution Control Board (TNPCB). In fact it is due to the strenuous efforts and innovative measures taken by the 4<sup>th</sup> respondent that lead to alternative effective use of red mud which hitherto was not utilized for any other purpose except treating it as a solid waste. But here the company made efforts and got the red mud utilized in cement manufacturing industries which is an environment friendly and effective method of disposal. Therefore the efforts made by the 4<sup>th</sup> respondent company are not only pioneering but deserves appreciation. The 4<sup>th</sup> respondent lamented that instead of appreciating their efforts of utilizing red mud for alternative purpose rather than throwing it as a waste and leading to disposition in the land fill site causing environmental hazards, the applicant chose to attack the respondent throwing all sorts of baseless allegations. The 4<sup>th</sup> respondent further claims that their efforts in

finding alternate usage of red mud to avoid wastage and reduce pollution have been recognised and they are awarded the prestigious 'TERI Prize'.

5. It is further averred by the 4<sup>th</sup> respondent that red mud is a non-hazardous waste and its storage as landfill will not create any adverse impact on the environment. When the unit was under operation, the red mud to the tune of 2028417 tonnes which is a solid waste produced during the process of manufacturing aluminium, was dumped in Government alienated land measuring 70 acres out of which 1756855 tonnes of red mud has been removed for using in cement industries and the remaining quantity is left out at the dump site since it cannot be used in cement industries because of its low alumina and high silica content. The aforesaid left out residue with minimum quantity of red mud is available in heaps mainly at 3 locations within the dump site and bunds have been created to prevent runoff water from the dump mixing with the water stored in the adjacent Mettur dam during the rainy season. There is no discharge or seepage from the site into the nearby water bodies and there is no dust emission as the 4<sup>th</sup> respondent has provided water sprinklers at 3 locations to prevent fugitive emissions. However, it is true that during the inspection conducted by the District Environmental Engineer (DEE), Salem on 21.08.2015 no sprinklers were found at the site and they have been take away by people since there was no fencing/compound wall around the area. The 4<sup>th</sup> respondent states that the very minute traces of red mud was found at the site and since the leftover residue consists mainly silica, it does not cause fugitive emissions since it is coarser in nature and even the DEE during inspection has agreed that there is no fugitive emission.

6. The respondent company further stated that it is true that green belt is yet to be developed over the dumping site for which no technical know-how is available. The respondent company is seeking technical guidance of reputed

institutions like Tamil Nadu Agricultural University (TNAU), The Energy and Resources Institute (TERI) and Salim Ali Centre for Ornithology and Natural History (SACON), Coimbatore and once their advice and suggestions are received, the site will be levelled and necessary management and remediation of top soil to grow compatible plant species in sustainable manner based on the recommendation of the aforesaid reputed institutes, will be taken up. In this connection, TNAU has collected samples from the site on 16.7.2015 for pilot study and likely to submit project proposal by the end of October, 2015. TERI has already submitted proposals and SACON has also undertaken pilot study on the feasibility of green belt development. The company also entered into an agreement dated 26.06.2015 and placed work order for levelling of the site and will be undertaking the planting programme based on the aforesaid feasibility studies as the site requires suitable adoptive technology for successfully raising the green belt.

7. In their subsequent affidavit filed on 07.09.2015, the respondent company stated that once the ground study and further feasibility studies are completed development of green belt would be undertaken first by raising nursery and preparation of field and top soil management during 2016 followed by raising of plantation over an area of 10 acres on pilot basis which is expected to be completed by February, 2017. Based on the outcome of the feasibility studies the green belt development will be planned accordingly irrespective of success and time taken which is a new and difficult task ever implemented in this country and the entire area will be covered. In the meanwhile, the 4<sup>th</sup> respondent in its letter dated 02.03.2015 addressed to the DEE undertakes to revive sprinkling of water wherever necessary particularly during summer when winds blow at high speed and also during levelling and developing the red mud storage area when there is a

heavy movement of vehicles in order to arrest any fugitive emissions that may arise.

8. The 2<sup>nd</sup> and 3<sup>rd</sup> respondents, TNPCB, filed their combined reply affidavit on 11.03.2015 and their next report on 25.08.2015. They stated that it is a fact that the company stopped production from January, 2009 due to non availability of raw material and since then no solid waste or red mud is generated or dumped in the site. As stated by the Company 271562 tonne of residue with traces of red mud is available in the dumping site with high silica and low alumina content. The applicant's residence is located at a distance of about 1 km from the dump site in North West direction and during the course of inspection no dust emission or deposition was found either in the agricultural fields or on the terraces of the buildings. However, the applicant has informed that during the months of January and February, there will be heavy wind flow in the area leading to fugitive emission of dust causing pollution and health hazards. At the time of inspection, no pollution was noticed.

9. The respondent TNPCB further stated in their report that it was noticed that the company has raised bunds to prevent runoff in to the Mettur dam and there is no seepage or discharge from the dump site and no pollution is found. As there is no movement of vehicles at the site, it appears that the company is not spraying water over the internal roads and with regard to the green belt development, the company has informed that once they receive the technical feasibility reports from the aforesaid reputed institutes, it promised to take up green belt development.

10. The 5<sup>th</sup> respondent, Central Pollution Control Board (CPCB) filed affidavit on 28.04.2015 stating that the CPCB has not received any public

complaint or official intimation on the issue and they have got nothing to offer in this case as CPCB has not conducted any field study or assessment at the site in dispute and they do not have any comments to add.

### **DISCUSSION AND CONCLUSION:**

11. We have gone through the records placed before us and heard the parties. The main grounds on which the applicant approached this Tribunal are that he is aggrieved with the red mud dust pollution caused by the 4<sup>th</sup> respondent and inaction of the 2<sup>nd</sup> and 3<sup>rd</sup> respondents as the red mud dust pollution is causing irreparable damage to the agricultural lands, contaminating the ground water in the area and also polluting the residences and consequently the whole atmosphere is spoiled creating health hazard to the inhabitants of the area where the applicant resides. He also expressed his apprehension that dumping of such huge quantity of red mud adjacent to the Mettur dam on the banks of the Stanley reservoir may lead to a catastrophe if any untoward incident happens. He quoted the incidence of breaching of red mud pond belonging to Vedanta Group which owns the *M/s. Sesa Sterlite Limited* in the year 2011 causing flow of caustic toxins into the Vasundhara River in the State of Orissa and if such disaster happens here at the dumping site of the 4<sup>th</sup> respondent industry which is located at a stone's throw distance from the Mettur dam it will be affecting the drinking water supply to millions of people.

12. Brushing aside the allegations made by the applicant, the counsel for the 4<sup>th</sup> respondent has filed detailed replies bringing out all the relevant facts and agreed that about 20 lakh tonnes of red mud solid waste and residues were dumped in Government alienated land from the year 1995 till the 4<sup>th</sup> respondent company stopped its activities in the year 2008. Out of this, 1756855 tonnes of red mud has



been removed for utilising in the cement industries which is a unique and environment friendly method of disposal of such a solid waste which is not only economically highly useful but it also reduces the requirement of large extent of land for establishing land fill site to dispose the waste and thereby considerably reduces the chance of pollution. After disposing the useful material for utilising in the cement industries what remains at the site is only about 271562 tonnes of residue that contains traces of red mud with high silica content which is not useful for cement industries. This left over residue is available in heaps at three locations within the dumping site and the 4<sup>th</sup> respondent company has laid bunds to prevent runoff water reaching storage water of Mettur dam during rainy season and has taken all the necessary precautions to prevent not only runoff but also discharge/seepage from the dumping site into the nearby water bodies. The 4<sup>th</sup> respondent company has not only taken the above precautions but also installed water sprinkling system to prevent fugitive emission. However since there is no movement of vehicles in the dumping site as no transportation of material is presently being done, there is hardly any dust emission contrary to the claim made by the applicant who resides in the nearby hamlet. However, it is a fact that during the inspection of the site conducted by the TNPCB officials the water sprinklers were found stolen/removed.

13. The respondent TNPCB has also fully endorsed the averments made by the 4<sup>th</sup> respondent company and conducted inspection of the dumping site on 25.02. 2015 and again on 21.8.2015 in the presence of the applicant and found disposal of the red mud to cement industries. After conducting the inspection, the respondent Board issued certain instructions particularly with reference to the installation, operation and maintenance of water sprinkling system in the periphery of the red mud storage area so as to prevent dust emission during the summer

season. The company was also directed to sprinkle water over the internal roads to arrest the fugitive emission, if any, due to the movement of heavy vehicles and submit proposals for levelling, reclamation and development of green belt at the dumping site. Subsequently based on the directions of this Tribunal to submit the latest inspection report, the respondent Board concurred that 1756855 tonnes of red mud has been removed from the site for utilising in the cement industries and 271562 tonnes of residue having high Silica content and therefore unfit to be utilised in the cement industries, has been left out at the site and the applicant's residence is located at a distance of about 1 km from the dump site in north west direction and there is no indication of any pollution in the area including the applicant's residence as well as the hamlet where he resides. Since the 4<sup>th</sup> respondent company has provided bunds, no discharge has been noticed during inspection and no dust emission was also found. However since there is a possibility of dust emission because of heavy winds blowing in the area the respondent company was advised to establish water sprinkling system.

14. The main question that remains to be answered is that whether the respondent company has not yet taken up afforestation work at the site which is a permanent solution to stabilise the dump and prevent any sort of pollution being caused from the left out red mud residue which is nothing but solid waste lying in heaps at the dumping site. The 4<sup>th</sup> respondent expressed certain technical difficulties to successfully establish green belt over the site considering the fact that the left over residue (solid waste) is highly unsuitable for plant growth since it is a left over material after the mineral bauxite is processed to produce alumina which in turn is used for production of Aluminium. About 6 tonnes of bauxite mineral is required to produce 1 tonne of Aluminium with alumina being the intermediary product and in the process 2 to 5 tonnes of red mud is generated.

Mineralogically the red mud is a very fine grained material with particle size below 75 microns contributing 95 per cent of the total weight. The red mud is disposed as dry or semi dry material in red mud pond or in abandoned bauxite mines as a slurry having high solid concentration of 30 to 60 percent and with a high ionic strength. It is very high in pH (10.5-12.5). Alkali seepage into the underground water, instability of storage, fine dust particles of the red mud getting air borne impacting plant life and causing pollution are the main problems encountered in the handling the red mud. In fact it requires vast area for disposal. Due to various problems associated with disposal of red mud causing environmental and ecological problems it is a challenge to the aluminium industry for sufficient treatment and storage of high volume industrial waste such as red mud. However, as reported by the 4<sup>th</sup> respondent company efforts are made to neutralise the red mud to reduce its environmental impact apart from finding solution by factually utilising the red mud as much as possible in the cement industries and there is no fool proof technical development so far to successfully afforest the site with left over residue (red mud) which is unfit for cement industries. No fool proof remediation method has also been developed so far according to the 4<sup>th</sup> respondent company. But in spite of all these facts, the 4<sup>th</sup> respondent company has taken priority steps to utilise as much red mud waste as possible in the cement industries and is taking efforts to rehabilitate the site through effective vegetation which will not only prevent deterioration and soil erosion but also act as a method of suppressing dust generation due to the dry red mud. In this connection certain research findings on handling the red mud published in one of the international research journals has been produced by the 4<sup>th</sup> respondent company during the course of hearing.

15. As brought out above, the 4<sup>th</sup> respondent company has sought certain technical knowhow from TNAU, TERI and SACON and once the reports are received they will take up the work of development of the green belt. First the 4<sup>th</sup> respondent company proposes to level the ground and undertake top soil management. Based on the feasibility study, a pilot project for raising plantation with suitable species over a small extent of area will be taken up and this work is expected to be completed by the end of August, 2016 followed by green belt development and maintenance involving an area of 10 acres by the end of 2017. However, the 4<sup>th</sup> respondent company is directed that instead of waiting for such a long period they can commence the green belt project during 2015-2016 north-east monsoon season itself and take up planting with suitable species as recommended by the aforesaid reputed institutes at least over an area of 2-5 acres duly procuring required seedlings/saplings from the government nurseries or private nurseries instead of waiting till 2016-2017 monsoon season and based on the outcome of the Pilot study the 4<sup>th</sup> respondent company can plan the establishment of a full fledged nursery for planting in the rest of the area during 2016 – 2017 monsoon period and completed by next year i.e. 2017-2018. Once the entire 70 acres of the dumping site is fully afforested and the dump is stabilised there will be no chance of causing pollution or damaging the environment. If this programme is successful, it can be followed elsewhere in the country where red mud disposal is a problem faced by the bauxite processing and aluminium manufacturing units.

16. Till the entire site is stabilized and raised with successful green belt, the 4<sup>th</sup> respondent company shall not give any chance of runoff to occur into the adjacent water bodies and also prevent dust pollution for which sprinklers have to be re-established and made to operate ensuring that they are duly protected from

vandals. If required the company shall erect a foolproof fence, if not the construction of a compound wall to prevent damage/removal of sprinkler system and also strengthen the existing bunds to prevent any chance of runoff into the adjacent water bodies as rightly pointed out by the applicant that if any such disaster takes place in the Mettur dam millions of people depending on the dam for the drinking water will be affected.

17. The respondent TNPCB officials shall periodically inspect the site, review the progress made on the green belt development and stabilization of the site and ensure that the whole process is completed in the next 2 to 3 years. It is also ordered that though the Unit is no longer under operation, whatever conditions that are imposed by the TNPCB while granting the Consent to Establish and Consent to Operate to the respondent industry are strictly complied with, with regard to the handling and disposal of the red mud so that there is no scope for causing pollution.

18. In the result, with the above directions, we dispose of O.A. 32 of 2015.  
No costs.

**(Justice M. Chockalingam)**  
Judicial Member

**(Shri P.S.Rao)**  
Expert Member

**Chennai.**  
Dated, 24<sup>th</sup> September, 2015.