FAQs on Tuticorin

1. **What are the reasons for protests?**

   The protests were around the expansion of the plant. The expansion of the plant had been underway since December 2017. The company had received grievances from the local community around requirements of road and water and had been actively addressing the same. However, subsequently the protestors made unfounded allegations around the environmental practices of the existing plant.

   It is with great sorrow and regret that we witnessed the tragic incidents around the protest at Tuticorin. We have been working with the relevant authorities to ensure the safety of our employees, facilities and the surrounding communities. Vedanta is a responsible corporate citizen and we would like to extend all possible support to those affected by the incidents.

2. **What is Vedanta's response to the allegations that the plant was causing environmental pollution, damaging health and breaching regulations?**

   We strongly reject these unfounded allegations. We have data and research to prove that these allegations are not true, and would like to reiterate that the Sterlite Copper plant has been operating within all applicable environmental regulations and standards.

   The plant is equipped with full-fledged air pollution control measures and adequate solid waste management facilities. The plant follows Zero Liquid Discharge since inception, and all the effluent is treated and recycled back into operations, so there is no effluent discharge. The regulator, TNPCB, carries out regular monthly sampling across all village bore wells and has found no abnormalities. *(For details, please refer to slides 5 to 13 of presentation)*

   There is no scientific evidence for the allegations concerning health issues and the Crude Incidence Rate (Cancer incidence rate) at Tuticorin is much lower than the state average. *(For details, please refer to slide 14 of presentation)*

   All the allegations have already been dealt with in Supreme Court 2013 judgement and the NGT 2013 judgement. The activists have unnecessarily raked up these issues again.

   We remain committed to a transparent dialogue with all the relevant authorities, regulatory bodies and our stakeholders.

3. **What specific measures have you taken to ensure that the plant does not cause environmental pollution and damage to health?**

   We have spent over $74.5 million on environmental mitigation measures, particularly flue-gas desulphurization units with bag filters, modern technology based reverse osmosis plants and evaporators etc., and have implemented several other state-of-the-art environment protection measures. The rate of cancer in Tuticorin is far below the state average and any allegations linking the incidents of cancer or marine pollution with Sterlite Copper operations are unfounded. We are a zero liquid discharge company since inception and do not harm the marine ecosystem in any way.

   The solid waste from effluent treatment plants is disposed in a Secured Land Fill designed in accordance with Central Pollution Control Board guidelines. The water samples from the piezometric bore-wells / dug wells are checked by the Tamil Nadu Pollution Control Board on a monthly basis inside the plant premises and in the nearby villages, and the samples do not reveal the presence of any marker pollutants namely arsenic and zinc, confirming that Sterlite's operation are not polluting the groundwater. *(For details, please refer to slides 11 to 13 of presentation)*

   Vedanta Resources has been committed to operating as a responsible business to the highest international standards of sustainability and corporate governance. At Tuticorin, all wastewater is treated and then reused in the operations of the plant, as is the case across all of Vedanta's operations. We are focused on minimising our environmental impact by achieving zero harm, zero waste, zero discharge and promoting social inclusion across our operations. Over the past two decades Vedanta has worked tirelessly for the development of Tuticorin and its adjoining villages. The company remains committed to the town and state of Tamil Nadu.

4. **What is the current status of the plant? Why was the plant shut down in the first place?**

   The Sterlite Copper plant has been non-operational since 25 March 2018 and will remain so until further notice. It was not operational at the time of the protests. On 28 May 2018, the Company received an order form the Pollution Control Board, under the government of Tamil Nadu, for the permanent closure of the Sterlite Copper Plant. We will decide on the future course of action in due course.

5. **What is your response to allegations that expansion of the plant was carried out without the required permissions?**

   We had all required permissions to proceed with our expansion project.

6. **What is your response to allegations that production at the plant exceeded permitted capacity? Were the pollution mitigation measures and the waste management system adequate to tackle pollution and waste?**

   The existing plant facility has consent to produce 4,38,000 MT per annum of copper and we do not exceed this capacity. The NGT Expert Committee has confirmed that the plant has adequate handling facilities and processes to handle waste and emissions.

7. **What are the next steps for Vedanta? Are you thinking of shutting down the project and exiting Tuticorin?**

   We will decide on the future course of action in due course, but we are committed to contributing to the development of Tuticorin and Tamil Nadu. We have invested heavily in a number of environmental protection measures and have complied with all regulations set by authorities.

8. What is the financial impact of this closure on the Group ?
   a. In FY18, the business EBITDA was c. $213 mn, which was 5% of the consolidated annual EBITDA.
   b. The carrying value of property, plant and equipment as at March 31, 2018 was c. $328 mn, which is ~2% of the total asset value.
   c. The business had no term debt and had working capital finance for its operations.
   d. As of March 2018, we had spent c. $189 mn of the total project cost of $770mm on the expansion project.

9. Could you briefly outline the impact on the local economy as a result of this shutdown.
   a. Around 2% of the world's copper is produced in Thoothukudi. India's current capacity is currently around one million tonnes. With a capacity of 400,000 tonnes, Vedanta- Sterite currently holds a 33% market share in the country's refined Copper demand of around 675,000 TPA. Imports contribute around 33% which will increase significantly due to the stoppage of supplies from Sterlite.
   b. Phosphoric Acid : Sterlite is a major domestic supplier of phosphoric acid with a capacity of 220,000 mt, which is a key raw material for fertilizer manufacturing companies. These fertilizer units will be adversely impacted due to stoppage of supplies from Sterlite and will need to import phosphoric acid .

c. Sulphuric Acid : It is the largest supplier of sulphuric acid in Tamil Nadu, and has a 95% share of the market, which is used in the detergent and chemical industries.
d. The plant provided direct employment to ~3500 to 4000 people and more than 70% of these employees are from Tamil Nadu. Further, the plant operations impacts more than 20,000 people engaged in various supplier and customer units.
e. The plant engages about 1000 trucks/tankers on daily basis with consistent load, thereby providing livelihood to around 9,000 truck drivers and cleaners per month. We have over 650 supply and service partners and we help them generate a business of close to $134 million every year

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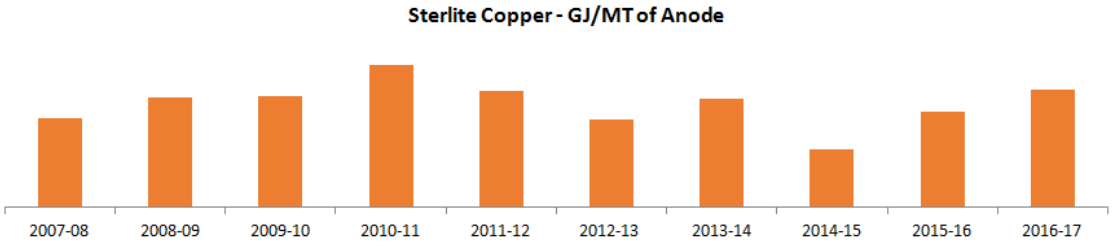
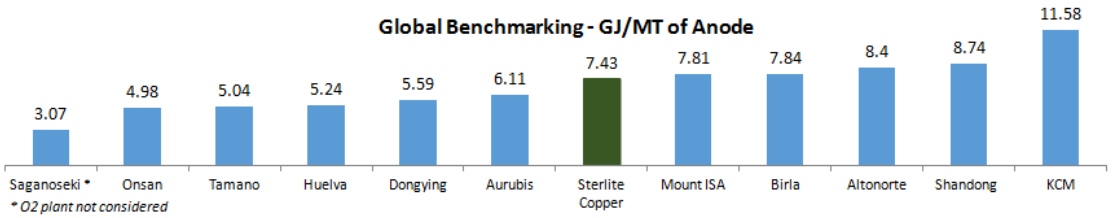
May please refer to the slides below for more data and information.

Global Benchmarking – Specific Energy Consumption



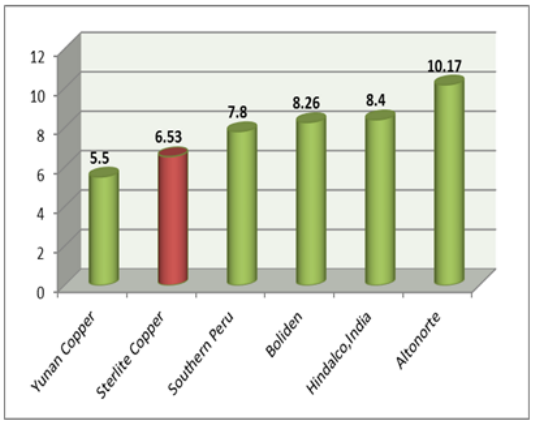


- Sterlite continuously takes efforts to conserve energy maintaining the specific energy consumption at 7th place among global smelters
- Recognised as "Most Efficient Energy Efficient Unit" by CII consecutively for several years

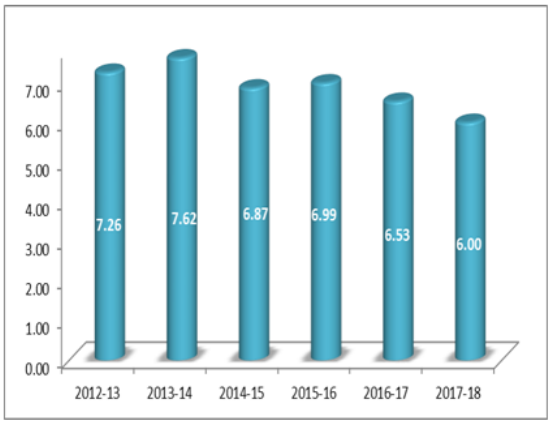
(Source : Brook Hunt 2016 Analysis)

Global Benchmarking – Specific Water Consumption

Global Smelters – m3/MT of Cathode



Sterlite Copper – m3/MT of Cathode



14% reduction from FY2013-14

- Sterlite was the fore-runner as a Zero Discharge facility among global smelters and has implemented several projects to conserve water
- Recognised as "Most Efficient Water Efficient Unit" by FICCI, UNESCO, CII etc., for several years

(Source : Brook Hunt 2015 Analysis)

Summary

Air Quality

Concentrations of pollutant in the ambient air are well within the NAAQ standards

- Copper Smelter contributes to only 1% of the total SO2 emissions in Tuticorin, as compared to power plants
- While the international norm for SO2 emissions is 2 Kg of SO2/ MT of acid produced and norm fixed for Sterlite is 1 kg of SO2/ MT of acid produced, we operate at a much lower level than 1 Kg. of SO2 / Ton of Acid generation

Water Quality

Ground water quality is generally in conformity with base line water standards

- The village bore-well analysis performed by the TNPCB clearly indicates that the marker pollutants related to Sterlite's operations namely Arsenic, Zinc and Fluoride contents are well within the norms/ baseline value

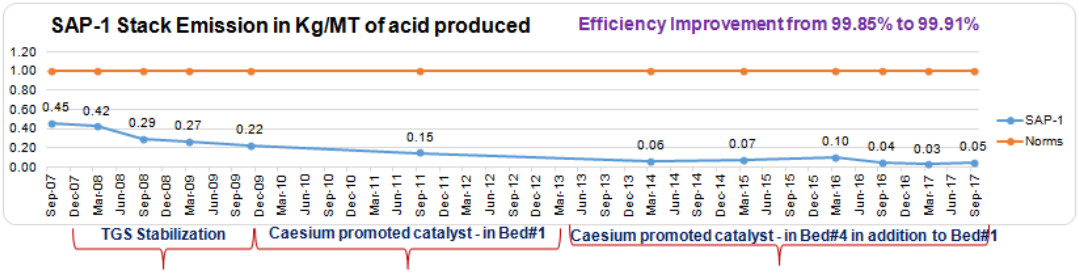
Overall SO2 Emission Load at Tuticorin vs Copper Smelter

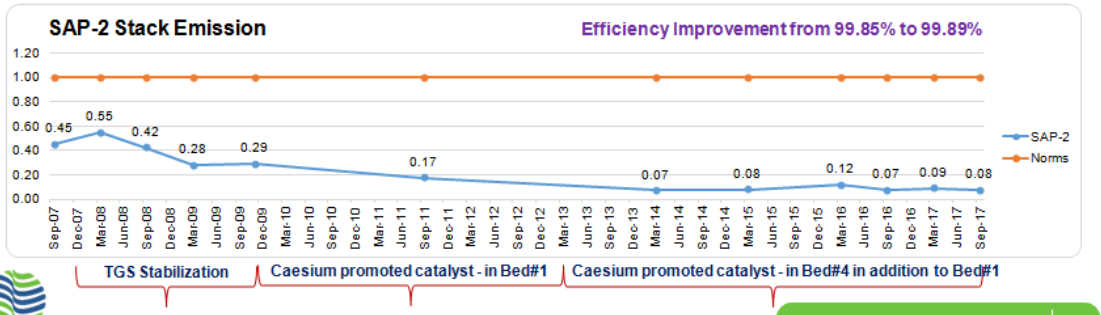
- Thermal power plants are major sources of SO2 emissions at Tuticorin as there are no mechanism for scrubbing or converting as useful product
- Coal used in power plants normally consists of 0.5 to 2.5% which then burnt produces Sulphur-di-oxide
- At Sterlite Copper, we have installed 2 Nos. of Sulphuric Acid Plants to convert Sulphur Di-oxide into Sulphuric acid
- Copper Smelter contributes to less than 1 % of the total SO2 emissions in Tuticorin

SO2 emission - Source Chart

Power plants	Capacity MW	Coal Requirement MT / Day	Sulphur Di Oxide emitted MT / Day	Sulphur Di Oxide Share %
TTPS	1050	11844	118.44	25.84%
NTPL	1000	11280	112.80	24.60%
Total (Govt. owned Power Plants)	**2050**	**23124**	**231.24**	**50.44%**
Costal Energy	1200	13536	135.36	29.53%
IndBharath- SAMINATHAM	300	3384	33.84	7.38%
IndBharath - E.V	189	2132	21.32	4.65%
DCW (Cogen+Coal)	108	1218	12.18	2.66%
IBETL (BiO mass)	20	226	2.26	0.49%
Vedanta Thermal Power Plant	160	1805	18.05	3.94%
Total (Pvt. owned Power Plants)	**1977**	**22301**	**223.01**	**48.65%**
Sulphuric Acid Plant Based Emission	**4200 TPD of Sul Acid**		**4.20**	**0.92%**
Total			**458.45**	**100.00%**

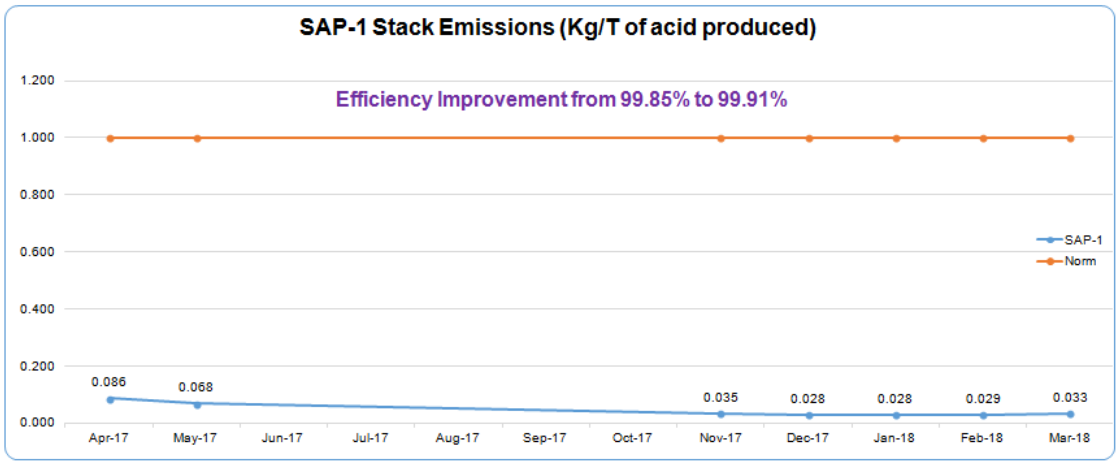
Stack Analysis by TNPCB (values in kg / MT of acid produced)





*Norm : For each stack - 1 kg of SO2 / MT of acid produced

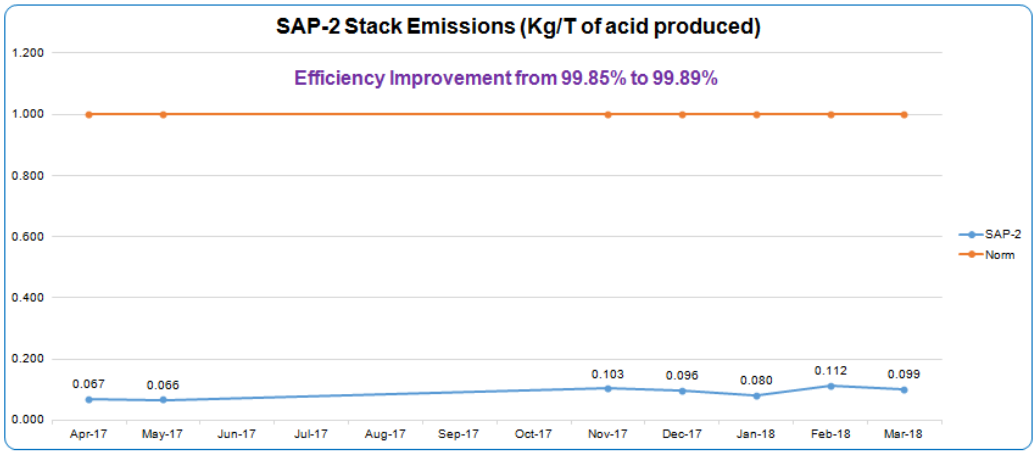
Continuous Online Stack Emission – to Air Care Centre



- Online stack emissions are real-time captured and sent to Care Air Centre, TNPCB, Chennai
- Last 1 year data reveals that the actual emissions are well within the prescribed standard of 1 Kg/Ton of acid produced in SAP-1

*Norm : For each stack - 1 kg of SO2 / MT of acid produced

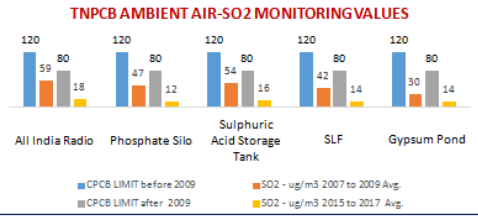
Continuous Online Stack Emission – to Air Care Centre

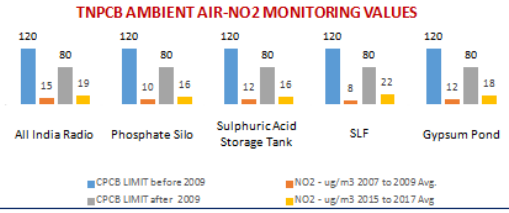


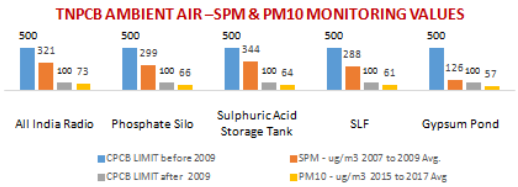
- Online stack emissions are real-time captured and sent to Care Air Centre, TNPCB, Chennai
- Last one year data reveals that the actual emissions are well within the prescribed standard of 1 Kg/Ton of acid produced in SAP 2

*Norm : For each stack - 1 kg of SO2 / MT of acid produced

TNPCB Data on Ambient Air Quality – Comparison (2007-09 Vs 2015-17)

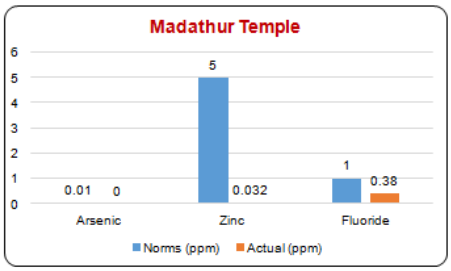


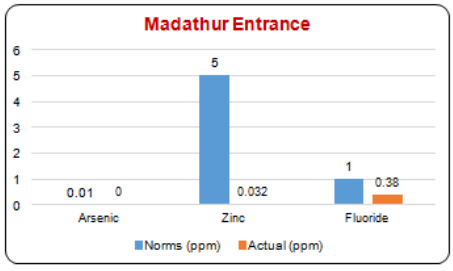


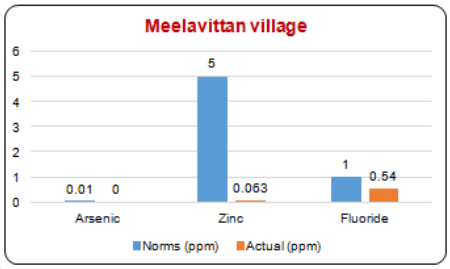


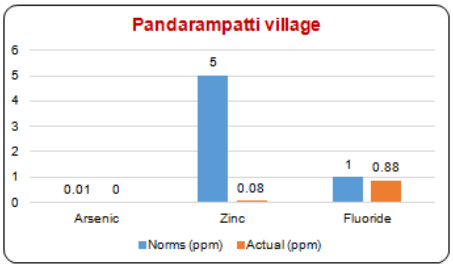
- CPCB Ambient Air Quality Limits before 2009 & after 2009 were SO2- 120 Vs 80, Nox – 120 Vs 80, & SPM, PM10 – 500 Vs 100 microgram/ Nm3
- TNPCB Data of 3 years of average (2007 -2009) Vs (2015-2017) is compared in the above analysis @ 4LTPA scenario
- Data above covers for the 5 locations as fixed by TNPCB during their analysis
- As standards became stringent, the plant undertook several improvement measures to bring down emission levels
- Some improvement measures include Tail gas scrubber, 3+2 stage converters & Caesium promoted catalyst in SAP, FGDS with bag filters, etc.,

Village Bore Well Analysis by TNPCB



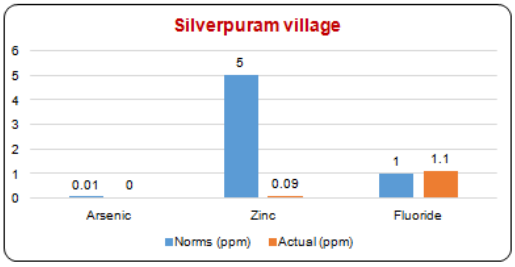


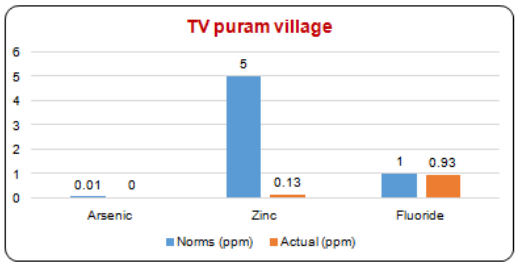


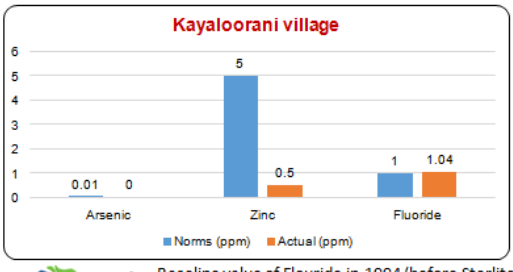


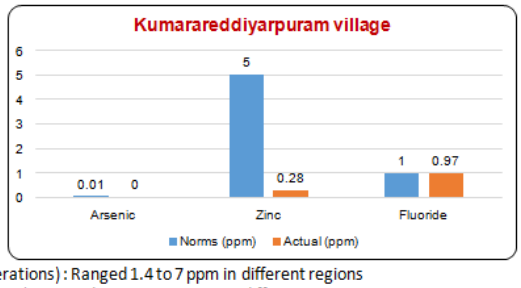
- Baseline value of Flouride in 1994 (before Sterlite's operations) : Ranged 1.4 to 7 ppm in different regions
- Baseline value of Zinc in 1994 (before Sterlite's operations) : Ranged 0.02 to 1.79 ppm in different regions

Village Bore Well Analysis by TNPCB









- Baseline value of Flouride in 1994 (before Sterlite's operations) : Ranged 1.4 to 7 ppm in different regions
- Baseline value of Zinc in 1994 (before Sterlite's operations) : Ranged 0.02 to 1.79 ppm in different regions

Data on Health Indices

TN Cancer Registry Data

As per Tamil Nadu Cancer Registry (2014) the district wise statistics: Chennai, Kanchipuram and Coimbatore tops the state with most number of cancer cases – this is Crude Incidence Rate (CIR) on 100,000 of population

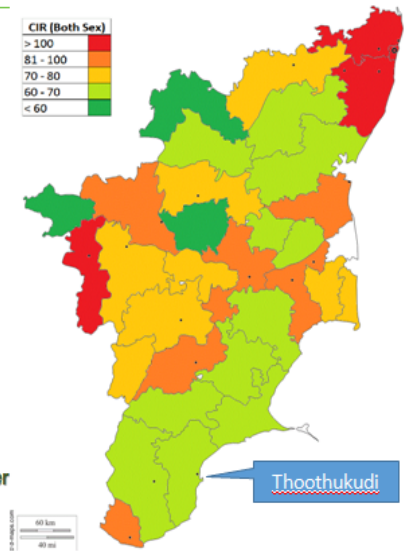
More Industrialized and less urbanized districts like Tuticorin, Salem and Vellore are relatively better than More urbanized districts like Chennai, Coimbatore, Kanchipuram and Erode

Women Disorders and Fertility Rate Data

Total Fertility Rate (TFR) and Crude Birth Rate (CBR) will indicate the fertility. In Thoothukudi, the TFR and CBR were higher at 16 as compared to Tamilnadu average of 15.7.

Similarly, Infant Mortality Rate(IMR) has improved tremendously and also is one of the most progressive districts n Tamil nadu.

Conclusion: The TN Government data reveals that the allegations linking the incidents of cancer or lower fertility rate with Sterlite Copper operations are completely unfounded.



Source: Tamil Nadu Cancer Registry - 2014

Source: District Human Development Report – 2017, State Planning Commission - Tamilnadu